



# Report

OF THE DIRECTOR

# 1969



**PAN AMERICAN HEALTH ORGANIZATION**  
**Pan American Sanitary Bureau, Regional Office of the**  
**WORLD HEALTH ORGANIZATION**

**The Pan American Sanitary Bureau  
is the Secretariat of the  
Pan American Health Organization;  
the Bureau is also the  
Regional Office of the  
World Health Organization  
for the Americas.**

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*Pan American Health Organization  
of the World Health Organization*

**INDEXED**

# **ANNUAL REPORT OF THE DIRECTOR**

of the

**PAN AMERICAN SANITARY BUREAU**

**REGIONAL OFFICE**

of the

**WORLD HEALTH ORGANIZATION**

## **1969**

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**PAN AMERICAN HEALTH ORGANIZATION**  
Pan American Sanitary Bureau, Regional Office of the  
**WORLD HEALTH ORGANIZATION**  
525 Twenty-third Street, N.W.  
Washington, D.C. 20037

**To the  
Members  
of the  
Pan American Health Organization**

I have the honor to transmit herewith the Report on the work of the Pan American Sanitary Bureau, Regional Office of the World Health Organization for the Americas, in the year 1969. This Report provides a description of activities at Headquarters and in the countries, together with a summary of the projects carried out by the Governments of the Americas in collaboration with the Bureau and with other international organizations. The Financial Report for the year is submitted separately.

Respectfully,

A handwritten signature in cursive script, appearing to read "Abraham Horwitz", written in black ink. The signature is fluid and includes a long horizontal stroke at the end.

Abraham Horwitz  
Director

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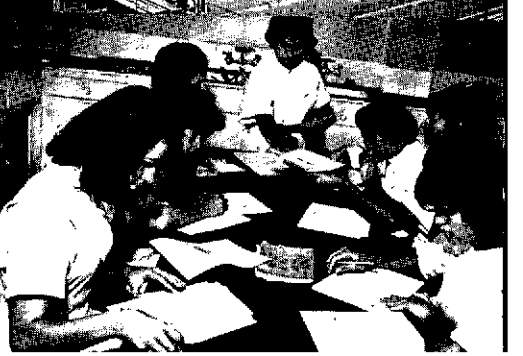
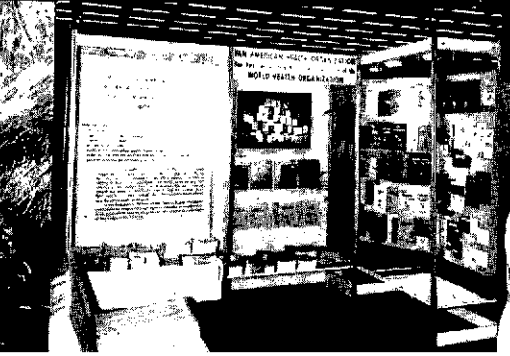
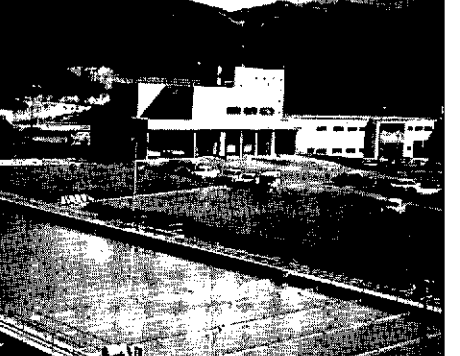
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## ACRONYMS AND CORRESPONDING AGENCIES

AID	Agency for International Development (USA)
AIDIS	Inter-American Association of Sanitary Engineering
CIAP	Inter-American Committee on the Alliance for Progress
CINVA	Inter-American Housing and Planning Center
CREFAL	Regional Center for Functional Literacy in Rural Areas for Latin America
ECLA	Economic Commission for Latin America (UN)
EXIMBANK	Export-Import Bank (USA)
FAO	Food and Agriculture Organization (UN)
HSEIC	Health Sciences Education Information Center
IA-ECOSOC	Inter-American Economic and Social Council (OAS)
IBRD	International Bank for Reconstruction and Development (World Bank)
IDB	Inter-American Development Bank
ILO	International Labour Organisation
INCAP	Institute of Nutrition of Central America and Panama
KF	W. K. Kellogg Foundation
NCDC	National Communicable Disease Center (USA)
NIH	National Institutes of Health (USA)
OAS	Organization of American States
ODECA	Organization of Central American States
OIRSA	International Regional Organization for Health in Agriculture and Livestock
PAHO	Pan American Health Organization
PASB	Pan American Sanitary Bureau
UN	United Nations
UNDP-SF	United Nations Development Program, Special Fund
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children's Fund
USPHS	United States Public Health Service
WHO	World Health Organization





## INTRODUCTION

In 1969, man reached the Moon and thereby gave human power and human skill a new dimension in the greatest breakthrough ever achieved in history. For many people, this twentieth-century feat has not only made age-old dreams come true and given a further lift to the creative imagination; it has also brought with it new knowledge and new approaches of real value for the human beings down here on Earth. We can already discern a whole technology which will make it possible to identify—though in the dim distance—factors, components, and elements forming part of the dynamic reality of a variety of phenomena or characteristic of inhabited or uninhabited regions.

There are those who feel that this giant stride taken by man's "seven league boots" has served to throw into even more glaring contrast—if that were possible—the lack of minimum standards of well-being to meet vital needs that is the lot of vast numbers of human beings throughout the world. For the admiration evoked by an outstanding exploit does not drown out the aspirations of each and every one of us. On the contrary, as time goes on these get the upper hand, and when they coincide with genuine rights they find an echo in the consciences of many people, even though they may not always inspire the concerted action essential to make them materialize.

As science and technology boom, enterprises assume vast proportions and production loses the human touch. Everything appears more and more remote from the ordinary man, who yearns to be a real person and not a mere consumption factor; whose ambition is to achieve what he is capable of, and not remain bogged down in daily routine; who seeks for himself and his children the opportunities he sees emerging all around him. If there is one characteristic feature of our time, it is the desire we all feel to establish our identity, to achieve recognition, to lend and contribute our skills, inborn or acquired, to the search for the common good. We do not evade our responsibilities once we are convinced, and hence motivated, by what is urged on us and what is expected of us. This philosophy survives in all its

untarnished glory in the rural environment. City life tends to distort it under the influence of vested interests reflected in competition which is present in all our activities, from the most trivial to those that count most.

Those who have no understanding of deep human emotions, no sense of fellow-feeling, and those who cast doubt on these things, can never become involved or committed in any initiatives designed to promote well-being. This is particularly true of the more basic components of well-being, its very infrastructure, including the important component of health.

"The role of medicine is to help man function well, as long as feasible, and if possible, happily in all his endeavors—whether he is toiling for his daily bread, creating urban civilization, writing a poem, or attempting to reach the Moon. These examples are not taken at random; they symbolize that medicine relates to all human activities, to the responses of man in the worlds of nature, thought, feeling, and technology.

"Medicine was, at the beginning of civilization, the mother of sciences, and played a large role in the integration of early cultures. Later, it constituted the bridge over which science and humanism maintained some contact. Today, it has once more the opportunity of becoming a catalytic force in civilization by pointing to the need, and providing the leadership, for the development of a science of man."<sup>1</sup>

In 1969, man reached the Moon. On Earth, this tremendous exploit brought out even more clearly the incredible skill of man and the grave consequences of discord among men and their failure to unite in solving the urgent problems affecting them and jeopardizing the lives of the coming generations. Call it what you will—social or human science, or the new humanism—what many of us are seeking is to restore the primacy that always belonged to the inalienable right of all of us, as members of a society, to contribute our skills for its development and to expect from it what is indispensable

<sup>1</sup> René Dubos. *Man, Medicine, and Environment*. New York: Mentor Book, The New American Library, p. 150, 1968.

for our well-being, our cultural development, and the possibility of realizing our full capacity.

\* \* \*

In October 1968, the second Special Meeting of Ministers of Health of the Americas took place in Buenos Aires. Its purpose was to translate into general and specific measures the pronouncements of the Chiefs of State embodied in the Declaration of the Presidents of the Americas. The Final Report of the Meeting and the documents<sup>2</sup> on which it was based constitute guidelines and norms for those whose lives are dedicated to the cause of health as a social function, who are interested in investigating the origin and evolution of disease, and who have made teaching their vocation. The recommendations of the Ministers have been incorporated into the policy of the Pan American Health Organization and the Regional Office of the World Health Organization for the Americas. Depending on which problems they regard as first priority, on their programs and their investment policies, the Governments will find in that Final Report sound guidance and valuable suggestions for adaptation to any particular situation.

In the course of the year 1969, the activities of the Pan American Sanitary Bureau were guided by the scientific and technical terms of reference emerging from what was agreed by the Ministers of Health during this Special Meeting. That will be evident from a perusal of the present document. But if the various topics bear the same nomenclature, since they reflect the process of development, the content of each changes from year to year—and I venture to say, changes for the better. The communicable diseases are still, perhaps, the dominant factor, but their impact on the death rate is far lower than in the recent past. The diseases proper to childhood and responsive to active immunization have manifestly decreased, as can be seen in the death rates for children under 5 years of age. Nevertheless, their mere existence in urban centers can no longer be justified.

We continue to maintain that water is a vital necessity; but although over the last ten years 21 countries have attained the target set in the Charter of Punta del Este and have installed water supply services for 70 per cent of the urban population, only 20 million inhabitants of rural areas have access to services, whereas according to the target set these should have been provided for another 30 million. Thus water supply continues to be a problem for our times, and an ineluctable one.

<sup>2</sup> *Official Documents PAHO 89 and 90*, 1969.

There is much concern over malnutrition, but we have endeavored to approach the problem in its true essence, in its primary causes. Thus the Governments have agreed on a food and nutrition policy, and have undertaken to carry it out, whatever the difficulties involved. A PAHO/FAO joint group has analyzed the bases and suggested guidelines for implementing it.<sup>3</sup>

During 1969 special efforts were made to bring the resources of the World Food Program within the framework of the action taken for the prevention and cure of disease. In principle, these food-assistance resources provide an incentive, whether by facilitating the construction of community development schemes, by enabling food budgets to be diverted to other projects such as the construction or equipping of services, or by encouraging the application of techniques for health protection and recovery. A number of projects were consolidated and others set up for this purpose. A total of 25 were in operation. From the administrative point of view such operations are not simple, although this should not discourage effort. The experience acquired, and the lessons learned from past mistakes, will make other action with similar objectives more feasible. It is to be hoped that in all instances, and from the very outset, evaluation procedures will be included, covering the food distributed, the number of persons fed, and the health effects observed.

One of the perennial items in our agenda is the education of the whole range of professionals and auxiliaries on whom the success or failure of any health program depends. There are few branches of science where the diversification of knowledge and the need for specialization are greater. Social demand, due partly to population growth and partly to the desire to enjoy the benefits of progress as seen in the prevention and cure of disease, has helped to justify this division of labor and to make its coordination more difficult. The year 1969 saw the preliminary outlines of reform of education in the health sciences, and approval of them by the Governing Bodies of the Organization.<sup>4</sup> In view of their purpose and content, implementation will be spread over a long period, with such periodic variations as may be dictated by progress or obstacles. In the Americas today there are possibilities of training more physicians in proportion to the growth of the population, in accordance with the usual indicators.

<sup>3</sup> *Elements of a Food and Nutrition Policy in Latin America. Scientific Publication PAHO 194* (English edition in preparation).

<sup>4</sup> XIX Meeting of the PAHO Directing Council, XXI Meeting of the Regional Committee of WHO. *Official Document PAHO 100*, Annex 7, pp. 312-318; and *Official Document PAHO 99*, Resolution XXXV, pp. 82-83, 1970.

The same is not true of nurses. The situation is more serious, because professional life expectancy in some countries is rather short, and the migration rate is high. On the other hand, not infrequently the time of professionals is taken up with activities which could be carried out by auxiliaries. Consequently the investment is top-heavy, and a more rational distribution of the human resources in the health professions would make it possible to care for more people more efficiently.

I could go on listing problems which, though they appear under the same headings as in the past—because, as I said before, they reflect the degree of development of our societies—involve a change in content, and as a rule a change for the better. However paradoxical it may appear, as we penetrate more deeply into what is really happening, morbidity and mortality seem to increase. This could be misinterpreted. For us it is a positive sign, though naturally it calls for a review of every plan and its subsidiary programs and projects and affects the human, material and financial resources needed to carry them out. Nevertheless, it is better to be aware of the true magnitude of what has to be done and to record the results of what is done. For this reason it has been emphasized that statistics are one of the most useful of tools for systematizing, carrying out, and evaluating the prevention and cure of disease.

\* \* \*

“We need to integrate the old and new tenets of health science into the larger concepts of human ecology.”<sup>5</sup>

In 1969 the debate on the mutual influence and interdependence of **man and his environment** in the technologically advanced countries was particularly animated. Time and time again reference was made to the deleterious effects of urbanization and uncontrolled industrialization on health, recreation, and the beauties of nature. All this complex process was correlated with population growth, and for some people this is one of the most convincing arguments for conscious interference with the size and structure of the population. There was also much talk of the responsibility of the State for protecting the inhabitants, for ensuring that progress is not made at the expense of their health, and that their opinions and freedom are respected. Air pollution was one of the arguments cited in favor of the right of every human being to participate and be involved in the decisions on all issues affecting the social environment, its equilibrium, and its evolution. Seldom in the history of science has

there been a debate in which greater stress has been placed, whatever the political structure of the society concerned, on health as a right and not a privilege.

For the developing countries, in all of which development has many gradients, there are already similar problems, though of lesser intensity. Here the urgent problem is rather to prevent the occurrence of similar consequences of urban concentration and industrial development. Both these factors affect the pollution of the air, soil and water, the intensification of noise with its effect on mental health, the excessive accumulation of solid and other wastes, the breakdown in the balance of species in nature, and so on. Although an age-old phenomenon, ecology as a science has acquired a new dimension embracing all the complexities of modern life. In the countries of Latin America and the Caribbean area there is a lack of basic data on the variations in the different components of the environment that cause disease. In 1969 the stations of the Pan American Air Pollution Surveillance Network rose to 22 in number. This is only the beginning of a growing network throughout the Americas and a basis for control programs. We do not know the epidemiology of the processes to which this phenomenon gives rise. There are some apparent causes which we have neither the human nor the financial resources to reduce in scope; and in most instances no spectacular results can be expected. In this health field, continuity and perseverance are the order of the day. It is therefore necessary to restrict the field to proportions compatible with the possibilities, actual and planned, as regards both quality and quantity. On this basis a policy will emerge from the Governments and the international organizations which advise them. The same procedure is called for in regard to pollution of the soil and water.

The Pan American Sanitary Engineering and Environmental Sciences Center (CEPIS) was set up to identify the new problems, to help to solve them, to distribute information on specific methods and techniques, and to promote research. In 1969 it expanded its operations, as is described in the present *Report*.

Closely related with the human environment is the exploration of the virgin lands of the Continent, with their great unexploited wealth, and the construction of roads to improve communication between regions or zones, or between countries. The topic also includes the development of river basins, regarded mainly as a process directed toward community well-being. The focus of our interest is river anthropology. What is needed here is a methodology for identifying health problems as an aspect of economic and social problems, and techniques for gradually solving these problems. When a waterway

<sup>5</sup> *Off. Rec. Wld Hlth Org.* 179, p. xiv, 1969.

crosses uninhabited zones, it is essential to determine what living species there could be the agents or vectors of disease. If there are populations with their own traditional way of life, it will also be essential to ascertain what diseases they have been or may be exposed to, by means of an ecological study of the situation. In some instances, such as in the River Plate area, there are frontier problems which by international treaty involve joint prevention and cure activities. The same is true within one and the same country where several states depend on a single source for their water, and participate in common programs.

In a word, the development of river basins is forcing health technicians to devise specific methods of contributing to the economy and prosperity of the different regions affected. In 1969 activities in this direction began to take shape in a number of countries of the Americas, and I am confident that they will continue to expand in the future.

\* \* \*

The compilation of data for the **Inter-American Investigation of Mortality in Childhood** continued throughout 1969. The Investigation comprises 13 projects in eight Latin American countries, and its target is the analysis of approximately 35,000 deaths. An additional project began in June 1969 in the San Francisco Bay area in California, and another in January 1970 in the Province of Quebec, Canada. The study as a whole is a natural sequel to the one carried out in adult population groups and published under the title *Patterns of Urban Mortality*.<sup>6</sup> Essentially, the purpose of both projects is to delve deep into the situation as it really is in our societies, including their cultural characteristics and way of life insofar as these influence the dynamics of health, sickness, and death. They go far beyond what we can learn from demographic and vital statistics, whatever their degree of accuracy and coverage; and the painstaking way in which the data are collected, checked, and interpreted places the conclusions on a sound footing. The nature of the factors conditioning infant and child mortality points to the importance of identifying multiple causes—underlying and associated—and their interrelations, whether for the prevention or the cure of prevalent diseases. This is one of the more important objectives of the Inter-American Investigation of Mortality in Childhood. It reflects a modern tendency in science and technology to

<sup>6</sup> Ruth Rice Puffer and G. Wynne Griffith. Report of the Inter-American Investigation of Mortality. *Scientific Publication PAHO 151*, 1967.

define systems rather than entities, on the basis of the differentiation of variables, their interdependent action, their divisive or complementary effects, and their consequences in the process of which they are a part. This occurs in normal as well as pathological human functions. By extension, societies reveal entirely comparable phenomena. The vast number of factors and the great variety within each one has in the past stood in the way of an over-all approach. The new science we call "systems analysis," and its practical instrumentation by means of computers, is now enabling us to penetrate more deeply into things. Our mental horizons and our vision of man and his circumstances today have been expanded. We shall acquire a better understanding of the phenomena conditioning health and sickness, and we shall have to have more adequate resources to solve specific problems; but our individual and social responsibility too will be greater.

The investigations sponsored by PAHO on mortality in adults and children are governed by these ideas and represent an important contribution to the knowledge of what is really happening in the Americas. As I have pointed out on previous occasions, they constitute a model of international epidemiological studies. I trust that the findings of both will be cited in the course of professional training in the health sciences and taken into account by Governments in the formulation of plans and programs to reduce the impact of sickness in their countries.

\* \* \*

As far as the activities of the Organization in the matter of **health and population dynamics** are concerned, the year 1969 could be described as one in which there was less discussion and more consolidation of action. The Technical Discussions<sup>7</sup> at the XVIII Meeting of the Directing Council of PAHO, XX Meeting of the WHO Regional Committee for the Americas, held in October 1968 in Buenos Aires, Argentina, served as a forum for this purpose. The Governments defined the bases of their policy and laid down guidelines for the cooperation they expect from the international organizations. It was made clear that health has a specific role to play. Although it has repeatedly been said that it is the exclusive responsibility of the individual family to decide how many children it wants and how they should be spaced, there are health problems which make family planning recom-

<sup>7</sup> The Final Report and working paper were published in the English Edition of the *Boletín de la Oficina Sanitaria Panamericana*—*Selections from 1969*, pp. 1-18.

mendable, for example, in individual cases where the solution is not a matter of demographic objectives but essentially the prevention or cure of disease and considerations of well-being. The field is vast, and it must be approached in accordance with the resolutions of the Governing Bodies, through the existing services, especially maternal and child protection services. Naturally, everything depends on the decision of individual Governments.

Notwithstanding what has been said above, there is a great shortage of professional and technical personnel to carry out programs in this field. Education in human reproduction and development is not always in line with modern ideas, and there are large gaps in the knowledge of both physiology and pathology, from conception to childbirth. Hence it is urgent to intensify educational and research activities, both of which are priority areas for the World Health Organization and the Pan American Health Organization.

Attention must also be paid to sterility, the extent and consequences of which are still not really understood. Families affected should be given the same right to determine the number of children they would like to have.

The present *Report* gives an account of the work done in regard to advisory services, teaching, and research.

\* \* \*

“There is no antinomy between improving the quality and quantity of the services rendered in existing institutions and increasing the coverage, especially in rural areas. These are ways of achieving a goal that should be universal: health as the inalienable right of every individual.”<sup>8</sup>

The above quotation reflects a problem of concern to many countries throughout the world, both technologically advanced and developing, which have one thing in common: the **steady rise in the cost of action to prevent and cure disease**. There is now a clearer picture of the whole system, a more precise understanding of its weaknesses, and there is evidence of sustained progress, though it is still below the level of the demand and the needs. New methods must be thought out, making use of the various resources the community has to offer. University-trained professionals, even with the assistance of well-trained auxiliaries, cannot cover all the needs. A properly motivated community is a vital force in bringing about the changes which must be made if its aspirations are to be fulfilled. Where the attempt has been made—and

<sup>8</sup> Special Meeting of Ministers of Health of the Americas, Final Report. *Official Document PAHO 89*, p. 12, 1969.

quite a few instances can be cited—the result has been successful.

The deliberations of the Study Group on the Coordination of Medical Care Services of Ministries of Health, Social Security Institutes, and Universities,<sup>9</sup> which met at PAHO Headquarters in August 1969, reveal one of the most urgent changes needed if the output and productivity of the system are to be increased. It is recognized that with the resources available, more sick persons can be cared for, and better cared for. A sense of national purpose must ensure that the interest is centered on the solution of problems rather than the expansion of institutions. It is merely proposed that there should be convergent efforts to reach goals established by common agreement rather than fragmentation, where the achievements of individual services are not always geared to the priorities or attain the level aimed at.

A review of the work of the Organization in 1969 reveals that it concentrated mainly on areas where its activities had a multiplier effect. To the institutional coordination already mentioned must be added the training of professionals and technicians in the organization and administration of hospitals and other services; the promotion of methods of “progressive patient care”; maintenance of equipment, installations, and buildings with a view to improving the quality of services; and advisory services to particular establishments to help them to modernize their methods and make them more efficient.

Operations research which, as its name indicates, tries to find different ways of improving the return on inputs without increase in cost, has an enormous field for its activities in Latin America in regard to medical care. It is not yet in general use; in fact the studies made are very few.

\* \* \*

“**Financing of the Health Sector**” was the topic for the Technical Discussions<sup>10</sup> at the XIX Meeting of the Directing Council of PAHO, XXI Meeting of the Regional Committee of WHO, held at PAHO Headquarters in October 1969. The basic document differentiated the possibilities of national economies and contributions of external capital. Clearly we are a long way from comprehensive planning which would include all health problems, participating institutions, and available re-

<sup>9</sup> *Scientific Publication PAHO 201*, 1970.

<sup>10</sup> The Final Report and basic document were published in English in *Scientific Publication PAHO 208*, 1970.

sources. There is not even adequate coordination as yet. It is therefore a very sound recommendation that an analysis should be made of the installed capacity in each country, whatever the government departments responsible for its administration. The more concentrated the focus on common objectives, the greater the social effects. In short, the problem is to set up a genuine national health system without interfering with the existing legal structure, the essential factor being to establish machinery to ensure its continuity. At the same time the health planning process must be developed on the basis of evaluation of each project and program. Finally, co-ordination at the national level must be carried out by means of regionalization of services and activities, the permanent aim of the whole operation being to provide care for the largest possible proportion of the population that can be reached, at least in respect of the most frequently occurring problems.

External capital is always complementary in economic development. Its purpose is to speed up activities indispensable to the common good. The basic element in any country is the human being and what he does for the well-being of the entire population. Looked at in this manner, credits from international banks and capital-exporting countries for the health sector have been extremely valuable over the last decade in socially critical areas. Special mention might be made of the credits granted for water supply and sewerage services; malaria eradication; university education; control of foot-and-mouth disease to reduce the loss of essential proteins; and construction and equipment of a number of hospitals for teaching purposes. Noteworthy here is the role of the Inter-American Development Bank and of the Agency for International Development of the United States Government.

It would seem urgent to adapt to the situation in individual countries the recommendations of the Final Report of the Technical Discussions on Financing of the Health Sector. I am convinced that the Ministers will gain more than an over-all picture of the present trend in the flow of funds; they will be able to identify activities where mere agreement within a Government will improve the return on inputs. In some countries it will be possible to advance toward a real national health system as we have defined it. It will likewise be possible to identify projects which coincide with the credit policy of the banks and other financing bodies. If all this is supplemented by the objective announced in the Declaration of the Presidents of the Americas,<sup>12</sup> namely, incorporation of

<sup>12</sup> Meeting of American Chiefs of State, Punta del Este, Uruguay. *OAS Official Records* OEA/Ser. C/TX.1 (Eng.), p. 78, 1967.

health programs into general development as early as the preinvestment phase, the commitment of ministries of health within the present financial availabilities will be all the greater.

\* \* \*

The role of **molecular biology in health and medicine** was discussed by the PAHO Advisory Committee on Medical Research<sup>13</sup> at its Eighth Meeting in June 1969. The analysis of this modern concept, its nature, and its consequences, brought out the fact that it should provide a more precise understanding of the physiology of the cell and the organism as well as of disease, whether caused by a genetic defect, a bacterial or viral infection, toxic agents, nutritional deficiency, or a neoplasm. It can be forecast that the unifying element in the new pathology will be expressed in terms of a flaw in the cell regulation at the molecular level, whatever the etiology. The inference then is that diagnosis, prognosis, and therapeutics should be based on these concepts. Thus a more rational clinical medicine practice will emerge to replace large areas of the same subject which are empirical today. There is no need to puzzle over its influence on education, on the understanding of the dynamics of health and disease, or on the creation and application of control techniques. Once again we see here the difficulties of developing societies in distinguishing among so many contributions of science and technology, bearing in mind what is essential for the common good. At the same time we must not forget that for sustained progress the main thing is the attitude of human beings, who have to take what research offers them and adapt it to their way of life. This prompts me to repeat that the scope of health ranges from molecular biology to social biology.

**Perinatal factors affecting human development** was the subject discussed at a special session of the Eighth Meeting of the PAHO Advisory Committee on Medical Research.<sup>13</sup> Consideration was given to the factors affecting the fetus during pregnancy and the consequences for the newborn child and the adult—among them, maternal nutrition, placental circulation, diabetes, hypertension, rapid succession of pregnancies, family background, and weight of the mother before and during pregnancy.

Another aspect of the subject which was given par-

<sup>12</sup> "The Role of Molecular Biology in Health and Medicine," by Dr. Philip P. Cohen. Documento RD 8/1, April 1969 (mimeographed).

<sup>13</sup> The proceedings were published in *Scientific Publication PAHO 185*, 1969.

ticular attention was compression of the head of the fetus and the possible damage to the brain. Fetal asphyxia during labor and acidosis deriving from an acute defect in the placental blood flow during uterine contractions, and the defense reactions of the fetus and treatment of such processes, were also discussed.

This is an area of maternal and child pathology of immense practical importance. The series of research studies presented point to simple methods of avoiding lesions which could be irreparable in the brain of the newborn child. PAHO has sponsored and will continue to sponsor studies on this subject with these points in mind.

In the course of a special symposium on **iron metabolism and anemia**,<sup>14</sup> a review was made ranging from the basic concepts of chemistry and biochemistry to the epidemiological and therapeutic aspects of the problem. It was recognized that in spite of the identification of the deficiency of this metabolite as a prevalent nutritional problem and the accumulation of a great deal of information concerning the etiology of anemias, little progress has been made in public health to reduce the incidence of this condition. A series of practical measures were outlined which health services should take into account in their programs.

**Hypovitaminosis A** is one of the nutritional deficiency diseases most frequently associated with protein-calorie malnutrition. Surveys carried out in the Caribbean area and in El Salvador have revealed the presence of xerophthalmia in 9.7 and 13.2 per cent respectively, of undernourished children. In the Region as a whole we find that between 5 and 45 per cent of the population have serum vitamin A levels below the normal values, while 60 per cent of the inhabitants of the places studied had a daily per-capita vitamin A intake of under 3,000 I.U. and in 25 per cent it was under 1,000 I.U.

This high prevalence and the frequent appearance of blindness resulting from keratomalacia in young children indicates the need for intensifying action to prevent hypovitaminosis A. It should be mentioned that during 1969, INCAP made headway with tests for incorporating vitamin A in sugar for daily consumption.

The **research and training program in virology** is another example of the efforts of the Organization to carry out studies in fields directly related to regional health problems. Its purpose is to explore the ecology of arboviruses and in particular the role of migratory birds in the spread of these viruses in temperate and tropical zones of the northern part of the Western

Hemisphere. In 1969 attention was focused on the etiology of encephalitis transmitted by arthropods in Mexico and Central America. Venezuelan encephalitis virus and other related agents were isolated for the first time in a number of places in this geographic area. This has given rise to speculations as to the reason for its presence, whether it is recent and comes from the neighboring countries, or is an old and even century-old phenomenon. Mention must be made of the epidemics of Venezuelan equine encephalitis which occurred in 1969 in Guatemala, Honduras, El Salvador, Nicaragua, Peru, Ecuador, and Venezuela. Details are given in the present *Report*.

Communications in the biomedical sciences are far from adequate to meet the needs of the growing number of students of these problems. As a contribution in this field, the **Regional Library of Medicine** was established in São Paulo, Brazil, under the auspices of the Government of Brazil, the National Library of Medicine of the U.S. Public Health Service, and the Commonwealth Fund. It is administered by our Organization. In 1969 it began to provide services to 188 libraries in Brazil and to 363 similar institutions in other parts of South America. On the basis of this experience, we are proposing to establish a network throughout the Continent for a wide interchange and supplementing of resources in the interests of modern knowledge and the technology of the life sciences.

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The development of health planning has brought the need for defining the **nursing system** of the individual countries, through which the various levels of professional and auxiliary personnel carry out the specific functions which make for the achievement of the objectives and targets established. A PAHO Technical Advisory Committee on Nursing, which met at Headquarters in November 1968,<sup>15</sup> defined the bases for this system and suggested ways and means of carrying it out. In this connection it should be mentioned that in 1969 Brazil and Mexico established three levels of nursing personnel: professional, technical, and auxiliary. Argentina and Colombia have organized two types of courses for training nurses. These measures have been taken to expand the human resources in this field, which is of such fundamental importance for the prevention and cure of disease.

The process of reducing the number of empirical

<sup>14</sup> *Scientific Publication PAHO 184, 1969.*

<sup>15</sup> *Scientific Publication PAHO 180, 1969.*

nurses by means of rationally organized training has continued. In Central America and Panama, approximately 77 per cent of the nursing auxiliaries in active service have been trained, and in Cuba and Honduras the proportions are between 90 and 100 per cent. All the countries of the Region, and six of the English-speaking territories, now have training courses for auxiliaries.

\* \* \*

Among the chronic diseases whose importance is recognized more and more every day in the Continent, mention must be made of those connected with **mental health** and **cancer**. With regard to the first, a Working Party on the Administration of Psychiatric and Mental Health Services met in April 1969 at Viña del Mar, Chile. The discussions culminated in specific recommendations on the organization of services, the functions of personnel, community participation, and the use of general hospitals and other health institutions in the prevention and treatment of mental disorders.

As I have pointed out on other occasions, science and technology are changing our attitude toward mental patients, though not as fast as they should considering the concern due to them and the rapidly growing possibilities of reintegrating them in social life. The so-called "psycho-active drugs" have opened up unsuspected fields for the understanding of both the normal psychic activities and pathological conditions. This has led to new interpretations of mental disorders and forms of treatment which although palliative in nature have greatly facilitated the care of such patients—hence the idea of caring for mental patients in general hospitals, reorganizing psychiatric hospitals, and adapting establishments built for other purposes.

In Resolution XXXIV,<sup>16</sup> the XIX Meeting of the Directing Council of PAHO requested a report on measures taken or planned by Governments to control cigarette smoking and thus reduce premature deaths from bronchopulmonary cancer, coronary disease, bronchitis, and chronic respiratory insufficiency. It also recommended that persons attending meetings of the Governing Bodies of the Organization refrain from smoking in the conference room.

The Seminar on Cancer Registries in Latin America took place in Cali, Colombia, from 15 to 20 September 1969. It discussed the use of statistics as a basic instrument for cancer control, as well as for epidemiological

research. Although the data are incomplete, in many countries of the Hemisphere cancer is among the five main causes of death. Of the 43,298 deaths studied in the Inter-American Investigation of Mortality,<sup>17</sup> 8,806 or 20.3 per cent were due to cancer, which apparently was found everywhere. In every one of the cities included in the investigation, all the anatomical cancer sites of major importance were found, although its relative incidence varied greatly among the various cities.

\* \* \*

Let us take a look at certain events which took place in 1969 in regard to communicable diseases. The over-all situation of the **malaria eradication** program in the Hemisphere remained practically the same as in 1968. In some of the countries there was progress; others remained at a standstill or even lost some ground. Of the total of 176,325,000 inhabitants living in originally malarious areas, 41.3 per cent are in zones in the maintenance phase of the program, 26.6 per cent in consolidation-phase zones, and 32 per cent in attack-phase zones.

The new strategy for combating malaria adopted in July 1969 by the Twenty-Second World Health Assembly<sup>18</sup> is centered on a rational analysis of the possibility of each project reaching its final goal, namely, the elimination of the disease. This means taking into account the biological, economic, social, political, and technical components of this complex process. It is assumed that there may be zones in a country with a large area where eradication is feasible and others where only temporary control measures are likely to succeed.

We hope in 1970 to collaborate with the Governments in this re-evaluation and to advise them in regard to the adoption of appropriate action. Nevertheless, we feel strongly that the progress achieved in the Americas and the funds invested make any holding back unthinkable. How could we justify our inaction to the 32 per cent of the inhabitants of malarious areas still exposed to danger, and to the other 68 per cent the abandonment of surveillance systems for preventing disease and death?

Research to discover the most practical and economic applications of the insecticide OMS-33, a carbamate found extremely effective against anopheles mosquitoes resistant to DDT in Central America, has continued. In view of its high cost combined with its air-borne insecticidal effect, a new test was undertaken in El Salvador in which the

<sup>17</sup> *Patterns of Urban Mortality*. Op. cit., p. 88.

<sup>18</sup> Resolution WHA22.39. *Off. Rec. Wld Hlth Org.* 176, pp. 18-19, 1969.

<sup>16</sup> *Official Document PAHO 99*, p. 82, 1970.



surfaces of the houses were sprayed partially. If the results are positive, large-scale application might be justified, at any rate in zones where chlorinated insecticides are ineffective.

A subject given great attention at the XIX Meeting of the Directing Council of PAHO was the prevention and control of **urban yellow fever, dengue, and other diseases transmitted by *Aedes aegypti***. A review was made of the successes achieved and the instances of retrogression for lack of surveillance and the absence of systematic programs in some countries of the Americas. It was recommended that the Organization should convene a multidisciplinary group to review the present strategy in this matter. The object is to identify and examine all possible systems of preventing or controlling these diseases, including the public health and economic consequences of those systems. Cost-benefit studies would be part of this examination. It is an interesting task for 1970, but as the Directing Council<sup>19</sup> pointed out, it must not be allowed to interfere in any way with ongoing programs to eradicate the vector.

In 1969, Brazil vaccinated approximately 22 million people against **smallpox**, and substantially increased the registration of cases, identification of outbreaks, measures for containing outbreaks, and epidemiological surveillance. Advisory services were provided here by the Organization, as also to ten other Governments of the Americas which are anxious to raise the level of immunity and to avoid the introduction of this quarantinable disease.

**Poliomyelitis** still persists in the Hemisphere in a fairly static form, according to the information obtained in 1969. Its reduction has been much greater in Northern America than in South and Middle America; in the last-named area, the number of cases was greater than that in 1964. Taken as a whole, the countries reveal a lack of systematic vaccination, and in some of them action would appear to be concentrated on epidemic outbreaks rather than on the regular immunization of children.

In 1969 there was a sustained effort to reduce morbidity and mortality from **tuberculosis**; but modern epidemiology teaches us that as the rates are brought closer to those of the technologically advanced countries, it is the problems of development that interfere rather than the lack of knowledge or methods. Clearly, what is needed is a major effort and the use of all the health resources available. To this end, with the generous support of the Government of Venezuela, we are collaborating in the first international course on epidemiology of tuberculosis

and administration of control programs, and in the third course on tuberculosis bacteriology. We trust that the participants will be able to improve the diagnosis situation in the various countries and to consolidate and expand the activities in this field.

**Foot-and-mouth disease** control has acquired a new stature with the agreement by the Inter-American Development Bank to grant credits for this purpose. This has made the Pan American Foot-and-Mouth Disease Center a real focal point for the continental coordination of activities to eliminate the disease. In 1969, advisory services to Governments, education and training programs, and research were intensified. The research activities were aimed at practical objectives: improvement of the antigenic potency of vaccines, quality control techniques, investigation of the nature of immunity in various species; and other similar studies.

With the cooperation of 24 countries of the Hemisphere, a **Rabies Surveillance System** for the Americas was established. The data collected were analyzed by the Pan American Zoonoses Center and distributed to all the Governments. Also during the year the Center carried out basic and applied research on brucellosis, tuberculosis, hydatidosis, leptospirosis, food microbiology, and other subjects. Generally speaking, this research is dictated by epidemiological considerations and the search for ways and means of reducing animal mortality and morbidity.

The present *Report* gives details of other communicable diseases for which the national authorities have requested the collaboration of PAHO and WHO.

\* \* \*

The Center for Dental Materials at the Central University of Venezuela will act as an international institute for the training of teachers and professional staff of health ministries responsible for the quality control of dental products. The Organization has furnished advisory services ever since the idea was first put forth, and it has helped with the training of the scientific staff of the Center. There is no need to stress the importance of ensuring the quality of the materials used to preserve **dental health**.

In 1969, a number of countries introduced programs for the fluoridation of water supplies, thus increasing the number of those enjoying the benefits of this method of preventing dental caries. The problem was discussed at great length at the Twenty-Second World Health Assem-

<sup>19</sup> Resolution XXIII. *Official Document PAHO 99*, pp. 72-73, 1970.

bly<sup>20</sup> and at the XIX Meeting of the Directing Council of PAHO,<sup>21</sup> which again recommended the addition of fluorides to water systems not having the optimum level of this halogen.

\* \* \*

The XIX Meeting of the Directing Council discussed at great length the question of **medical education** and the way it is imparted at the present time. It considered the report<sup>22</sup> submitted by the Secretariat, based on a survey made over the last three years of 130 medical schools. Note was taken of the interest expressed by a number of universities in the Americas to redefine structures in the area of the health sciences.

Viewing the information and background material as a whole, the Organization proposed a scheme of which the main features are as follows:

1. Reorientation of the teaching and learning process to allow it to develop on the basis of observation, analysis, and solution of concrete problems, with active and responsible participation by the students.

2. Integration of the curricula of the various health professions in areas and at levels that imply the acquisition of new concepts, skills, and attitudes essential to the exercise of their functions.

3. Sufficient flexibility to enable the system to produce personnel according to a scale based on grade of skill and level of responsibility, with due reference to the needs of the community. The numbers trained may vary according to these needs, but as far as possible care should be taken to avoid frustrating or interfering with vocations and personal interests.

4. Rupture of the dependence between administrative structures and curricula, so as to give the latter the dynamic character demanded by the economic and social development of the countries and the speed of scientific progress.

5. Integration of faculties and schools at present separate, into a common organization of "health sciences divisions or centers."

It is realized that the practical implementation of this scheme will presuppose the solution of a large number of difficulties. Nevertheless, it is stimulating to note how well these ideas have been received. Obviously each university, examining its own basic position and the

<sup>20</sup> Resolution WHA22.30. *Off. Rec. Wld Hlth Org.* 176, pp. 12-13, 1969.

<sup>21</sup> Resolution XXIV. *Official Document PAHO* 99, pp. 73-74, 1970.

<sup>22</sup> *Official Document PAHO* 100 (Annex 7), pp. 312-318, 1970.

resources at its disposal, will have to find its own way toward a renewal which in most instances will be an evolution. However, in all circumstances it will be highly desirable to give teachers and students the motivation to steer the reform in the best possible direction.

This general purpose underlies the so-called "laboratories of human relations and medical teaching" and the seminars on teaching and research in the behavioral sciences applied to health, sponsored by the Organization in 1969.

In accepting these principles and the method of putting them into practice, the Directing Council adopted Resolution XXXV,<sup>23</sup> which will help to guide us in this essential aspect of our work, namely, the development of human resources for health in accordance with the needs of the individual countries.

In 1969 the Organization awarded 1,051 fellowships for academic training and specialization studies, a detailed account of which is given in this *Report*. The XIX Meeting of the Directing Council approved the criteria for the award of within-country fellowships, for studies that professional personnel undertake in their own countries. It entrusted to us the preparation of procedures and the trial of them, with due prudence, in search of a proper balance between the essential needs for training in certain fields which can only be provided abroad and the possibilities in other fields that each country offers. With the same criterion, we must proceed in the so-called "institutional fellowships," which, as their name indicates, are intended to promote the development of high-quality human resources, carefully selected, and of the institution to which they belong.

The Organization has considerable experience in awarding fellowships, which have been shown to be one of the most productive instruments for disseminating modern concepts and methods in health, either directly through the university or through inservice training. To the foregoing must be added—and they are not lesser effects—the cultural improvement of fellowship holders, the consolidation of a doctrine of health, the interchange of ideas and the community of purposes, which are reflected in the cooperation among the countries of the Americas.

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The advances which have undoubtedly been made in 1969 in both the prevention and the cure of prevalent diseases are the work of the Governments. International collaboration, whether bilateral or multilateral, public or

<sup>23</sup> *Official Document PAHO* 99, pp. 82-83, 1970.

private, has been better coordinated where plans or programs have been formulated by mutual agreement but coordinated by the national authorities. WHO and PAHO worked in close association with the specialized agencies of the United Nations and the Inter-American System, according to the nature and objectives of each project. We are very pleased to point out the cordial atmosphere in which this work was carried out.

I have commented on some of the outstanding achievements of 1969. The details are set forth in this *Report*. Taken as a whole, they represent the framework which served us as a guide during the decade which began in 1960 and represent a valuable experience for the decade which has just begun.

In the introduction to the *Quadrennial Report, 1966-1969*,<sup>24</sup> I commented on some of the topics for the agenda of the health sector in the next ten years.

"Man, we said the other day, is and always will be a misfit. That is why he is in conflict with the world and that is why he has experience. For the world only exists because it is an obstacle. The consequence is that man's behavior is the inverse of that of other animals, who adapt themselves to the environment, whereas he attempts to adapt the environment to himself. As a result, the destiny of man is to have to adapt this world—by a continuing, energetic endeavor—to the essential needs of his constitution, which are

precisely those which make him a misfit. Thus he has to strive to transform this world which does not fit in with him, which is alien to him, and which therefore is not his own; to transform it into another world in which his desires may be realized. For man is a system of desires impossible of realization in this world. What is called happiness is therefore to create another world which he can call his own, a world which is the realization of his desires. Man feels unhappy, and precisely because of that his goal is happiness. Now he has no other way of transforming this world into one which can become his and which can be the realization of his desires except technology, and physics makes possible technology unlimited. Hence, I hold that physics is the instrument of human happiness and that the instauration of this science has been, for man, the most important event in world history."<sup>25</sup>

Ortega y Gasset expresses in this way his idea of happiness and the process of the adaptation of man to the environment of which he is a part and which he changes with his very existence. We are by no means certain that life in recent years has demonstrated that technology induces or inevitably conduces to happiness. What is beyond dispute, although tacit, is that man cannot exist or live or attempt to change his environment unless he is healthy.

<sup>24</sup> Translated from José Ortega y Gasset, *Obras Completas*, Tomo IX (1960-1962), Segunda edición (*Meditación de la técnica*). Madrid: Revista de Occidente, 1965.

<sup>24</sup> *Official Document PAHO 101*, 1970.

# I. PROTECTION OF HEALTH

## A. ERADICATION OR CONTROL OF DISEASES

### MALARIA

The over-all epidemiological situation of the malaria eradication programs in the Hemisphere remained practically the same as in 1968. There was no major change in the size of the population living in areas in the various phases of the program. Of the 176,325,000 inhabitants originally in danger of contracting malaria, 72,757,000 (41.3 per cent) were living in areas in the maintenance phase; 46,987,000 (26.6 per cent) were in areas in the consolidation phase; and 56,375,000 (32.0 per cent) were in areas in the attack phase.

Argentina made remarkable progress in its attack operations, having practically interrupted malaria transmission. In the past, importation of malaria cases from Paraguay was considered to be one of the major problems, but it was diminishing as the program progressed in the latter country. It was expected that the major part of the area in the attack phase would enter the consolidation phase in 1970.

Bolivia's serious financial difficulties in 1969 obliged the Malaria Eradication Service to omit the first spraying cycle and to delay the start of the second. The epidemiological situation showed further deterioration as evidenced by the doubling of the number of malaria cases and of the slide positivity rates. Concerned over the situation, the Government, in November, issued a decree declaring the malaria program to be a project of national emergency and providing for the adequate and timely allocation of funds to it for 1970 and subsequent years.

In Brazil there was a reduction in the number of malaria cases in both the attack-phase and the consolidation-phase areas. Financial difficulties, however, forced a cut of 11.6 per cent in the 1969 malaria budget and as a consequence the program suffered a setback; only 80 per cent of the planned spraying coverage was completed. A few limited foci of infection occurred in the consolidation

and maintenance-phase areas in the northeast, but they responded well to remedial measures. For the first time, a primary division of the country—the entire State of Rio de Janeiro—entered the consolidation phase. The plan to integrate the Malaria Eradication Service into the general health services is being implemented.

In British Honduras it was considered necessary to continue the application of attack measures until such time as the situation in the neighboring countries im-

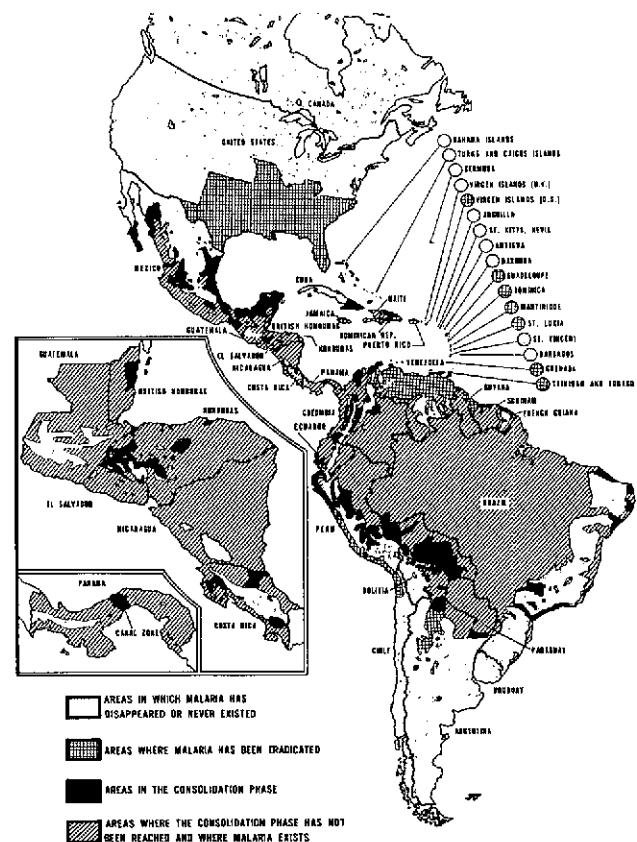


FIG. 1. STATUS OF THE MALARIA ERADICATION PROGRAM IN THE AMERICAS, DECEMBER 1969.

I. PROTECTION OF HEALTH: DISEASES

TABLE 1. STATUS OF MALARIA ERADICATION IN THE AMERICAS BY POPULATION AND PHASE OF PROGRAMS, 1969.

(Population in thousands)\*

Country or other political unit	Total population	Population of originally malarious areas									
		Total		Malaria eradication claimed (maintenance phase)		Consolidation phase		Attack phase		Preparatory phase or program not yet started	
		Total	%	Total	%	Total	%	Total	%	Total	%
Argentina.....	23,440	2,987	12.7	1,648	55.2	432	14.5	907	30.4	—	—
Barbados*.....	253 <sup>o</sup>	—	—	—	—	—	—	—	—	—	—
Bolivia.....	4,822	1,529	31.7	—	—	1,174	76.8	355	23.2	—	—
Brazil.....	89,684	35,621 <sup>b</sup>	39.7	804	2.2	12,138	34.1	22,679	63.7	—	—
Canada.....	21,007	—	—	—	—	—	—	—	—	—	—
Chile.....	9,351 <sup>e</sup>	159 <sup>e</sup>	1.7	159 <sup>e</sup>	100.0	—	—	—	—	—	—
Colombia.....	21,049	12,463	59.2	—	—	8,580	68.8	3,677	29.5	206	1.7
Costa Rica.....	1,705	520	30.5	—	—	87	16.7	433	83.3	—	—
Cuba.....	8,210	2,805	34.2	—	—	2,805	100.0	—	—	—	—
Dominican Republic.....	4,175	4,142	99.2	212	5.1	3,443	83.1	487	11.8	—	—
Ecuador.....	5,580	3,030	54.3	—	—	1,294	42.7	1,736	57.3	—	—
El Salvador.....	3,322	2,913	87.7	—	—	—	—	2,913	100.0	—	—
Guatemala.....	5,008	2,292	45.8	—	—	—	—	2,292	100.0	—	—
Guyana.....	723	723	100.0	678	93.8	—	—	45	6.2	—	—
Haiti.....	4,790	3,580	74.7	—	—	—	—	3,580	100.0	—	—
Honduras.....	2,421	2,113	87.3	—	—	648	30.7	1,465	69.3	—	—
Jamaica.....	1,913	1,530	80.0	1,530 <sup>d</sup>	100.0	—	—	—	—	—	—
Mexico.....	45,860	22,756	49.6	—	—	13,817	60.7	8,939	39.3	—	—
Nicaragua.....	1,872	1,872	100.0	—	—	—	—	1,872	100.0	—	—
Panama.....	1,417	1,360	96.0	—	—	—	—	1,360	100.0	—	—
Paraguay.....	2,331	1,922	82.5	—	—	—	—	1,922	100.0	—	—
Peru.....	13,172	4,590	34.8	1,133	24.7	2,256	49.1	1,201	26.2	—	—
Trinidad and Tobago.....	1,125	970	86.2	970 <sup>d</sup>	100.0	—	—	—	—	—	—
United States of America.....	200,831	55,692	27.7	55,692	100.0	—	—	—	—	—	—
Uruguay.....	2,818 <sup>e</sup>	—	—	—	—	—	—	—	—	—	—
Venezuela.....	9,550	7,110	74.5	6,711 <sup>f</sup>	94.4	—	—	390	5.6	—	—
Antigua.....	62 <sup>o</sup>	—	—	—	—	—	—	—	—	—	—
Bahamas.....	144 <sup>o</sup>	—	—	—	—	—	—	—	—	—	—
Bermuda.....	52	—	—	—	—	—	—	—	—	—	—
British Honduras.....	122	122	100.0	—	—	49	40.2	73	59.8	—	—
Canal Zone.....	50	50	100.0	—	—	50	100.0	—	—	—	—
Dominica.....	70	18	25.7	18 <sup>d</sup>	100.0	—	—	—	—	—	—
Falkland Islands.....	2	—	—	—	—	—	—	—	—	—	—
French Guiana.....	44	44	100.0	25	56.8	15	34.1	4	9.1	—	—
Grenada and Carriacou.....	106	36	34.0	36	100.0	—	—	—	—	—	—
Guadeloupe.....	335	293	87.5	293	100.0	—	—	—	—	—	—
Martinique.....	333	207	62.2	207	100.0	—	—	—	—	—	—
Montserrat.....	15	—	—	—	—	—	—	—	—	—	—
Netherlands Antilles.....	215 <sup>o</sup>	—	—	—	—	—	—	—	—	—	—
Puerto Rico.....	2,799	2,487	88.9	2,487	100.0	—	—	—	—	—	—
St. Kitts, Nevis, Anguilla.....	61	—	—	—	—	—	—	—	—	—	—
St. Lucia.....	112	96	85.7	96 <sup>d</sup>	100.0	—	—	—	—	—	—
St. Pierre and Miquelon.....	5	—	—	—	—	—	—	—	—	—	—
St. Vincent.....	95	—	—	—	—	—	—	—	—	—	—
Surinam.....	365	235	64.4	—	—	199	84.7	36	15.3	—	—
Virgin Islands (U.K.).....	9 <sup>o</sup>	—	—	—	—	—	—	—	—	—	—
Virgin Islands (U.S.A.).....	58 <sup>a</sup>	58	100.0	58	100.0	—	—	—	—	—	—
Total.....	491,483	176,325	35.9	72,757	41.3	46,987	26.6	56,375	32.0	206	0.1

— None.

\* Barbados excluded in 1969 from originally malarious areas.

<sup>o</sup> Population estimates are those provided in the country reports on malaria.

When country data were not available, figures are United Nations estimates.

<sup>b</sup> The decrease is due to a reappraisal of the extent of the malarious area.

<sup>c</sup> 1967 figures.

<sup>d</sup> Population in areas where eradication of malaria has been certified by PAHO.

<sup>e</sup> 1968 figures.

<sup>f</sup> Includes an area with 5,014,502 inhabitants where eradication of malaria has been certified by PAHO.



Difficult terrain in a remote area is no obstacle to this member of a malaria eradication spraying team in Bahia, Brazil.

proved and/or an efficient surveillance network was organized. Although malaria transmission has been practically interrupted, the maintenance of a malaria-free status will require great efforts in vigilance as long as transmission occurs in other parts of Central America.

In the Caribbean area, Haiti was the only country in which malaria transmission continued. The failure to interrupt transmission was attributed to financial and operational difficulties and to inconsistency in the application of attack measures. Resistance of the vector to DDT was observed early in 1969 in some localities near Port-au-Prince, but the area in question was small and an extensive drainage project that was undertaken is expected to bring the breeding of the resistant vector under control. The Dominican Republic continued to maintain its malaria-free status except in the area bordering on Haiti, where small foci of transmission were still being found. For the third consecutive year, Cuba's malaria surveillance encountered no autochthonous case. The surveillance activities there were completely integrated into the general health programs. The other countries and territories in the Caribbean area maintained their malaria-free status.

In Central America, all five countries continued the second year of the coordinated three-year plan. There was a further reduction in malaria incidence in Costa Rica and El Salvador, but an increase was observed in both Honduras and Nicaragua. In Guatemala the situation was unchanged. Except in Costa Rica, the problem of vector resistance to DDT and that of the low acceptance of mass drug treatment by the population continued to be very serious, and prevented the programs from making adequate progress. Alternative attack measures were being sought for the areas faced with the problem of vector resistance.

In Colombia very little progress was observed during the year, although the program was adequately financed. The malaria problem in this country has been closely related to economic development in the rural areas and the land-settlement schemes. As the program proceeds, the fertile lowlands of the Andean valleys become habitable, and there is a consequent increase in colonization. Six such land-settlement areas have been responsible for 80 per cent of all malaria cases detected in the country. Of the 700,000 inhabitants in the six areas, 225,000 were living in the zone where all the malaria eradication field ac-

tivities had to be suspended in the past two years because of social unrest. Under those circumstances, the efforts in the land-settlement areas were concentrated on maintaining a low level of malaria transmission in order to enable the development plans to proceed. In the remainder of the attack-phase areas, with 3.3 million inhabitants, malaria transmission can be interrupted, but continuous application of attack measures will be necessary as long as the problems in the colonization areas subsist. The consolidation-phase areas, with 8.6 million inhabitants, are subject to constant importation of malaria cases, but the re-establishment of endemicity there is unlikely.

Ecuador encountered a series of administrative and financial difficulties, and no progress was observed in 1969.

In French Guiana, Guyana, and Surinam the distribution of medicated salt continued to be the principal attack measure for interrupting malaria transmission in the interior regions. Transmission was practically interrupted in French Guiana and Guyana; however, in the light of Guyana's experience in 1965, when reinfection occurred following suspension of the salt distribution, it was considered necessary to continue the application of this attack measure for another two years. In Surinam the results of the medicated-salt distribution program were less



Insecticides must be weighed with great care, as their effects may be harmful to man.

satisfactory, because the use of privately owned stocks of plain salt prevented the medicated salt from reaching the necessary number of inhabitants. Nevertheless, the slide positivity rate was reduced from 12 per cent in 1968 to 3 per cent in 1969.

In Mexico the so-called "transitional period" of activities of previous years was continued. Despite the efforts made, however, malaria incidence increased considerably during 1969.

A three-year plan similar to that of the Central American countries was initiated in Panama in April, and the prospects for the success of the program are considered good. The first spraying cycle was begun in July.

The malaria program in Paraguay made good progress, following the initiation of the Government's new plan of operations in September 1968. The slide positivity rate dropped from 13.2 per cent in 1968 to 8.0 per cent in 1969. The Government has given a high priority to the program and has assured sufficient financing for the future. Program organization, personnel discipline, and community support were all excellent.

The situation in Peru improved considerably. Of the population of the originally malarious areas, only 26.2 per cent remained in the attack-phase areas, the rest being in either consolidation or maintenance-phase areas. Malaria transmission was interrupted in the valleys of the coastal plains and in those of the southern Andean region; it continued, though at a low level, in the northern valleys of the Andes and in the Amazon region.

The certification of the United States of America as a country that had achieved eradication before 1957 was being processed.

Field activities in Venezuela were continued without significant change. Although the number of malaria cases and the slide positivity rate increased in the attack-phase area, there was no deterioration in the area in the maintenance phase.

During February and March, the programs in Central America (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua) were visited by independent assessment teams organized jointly by the Organization and the U.S. National Communicable Disease Center. The Brazilian program was visited by a similar team in September.

The Second Meeting of the PAHO Advisory Committee on Malaria Eradication took place in Washington in March. It was attended by both specialists in malaria eradication and experts in public health administration, health planning, and economic development.

Border meetings of malaria eradication authorities were held between Colombia and Venezuela (22 May-2 June), Brazil and Paraguay (29 May), and Argentina,

Bolivia, and Brazil (27-29 October). The Working Group on Coordination of Malaria Eradication Programs in Central America and Panama met in Tegucigalpa, Honduras, 28-30 April, and again in San José, Costa Rica, 11-13 November, mainly to discuss attack measures in the areas where the vector is highly resistant to DDT.

The education and training activities in the malaria programs and those related to research are described in Chapters III and V of this Report.

## YELLOW FEVER CONTROL AND Aedes Aegypti ERADICATION

### Yellow Fever

As in previous years, human cases of yellow fever (all of the jungle form) continued to occur in the countries of the enzootic region of South America. In 1969, 48 cases (Table 2 and Figure 2) were reported to the Organization, almost the same number as in the preceding year.

In Bolivia two cases occurred in La Paz Department and six in Santa Cruz Department.

In Brazil the four cases reported were in the north: two in Roraima Territory (Boa Vista Municipality), one in

TABLE 2. REPORTED CASES OF JUNGLE YELLOW FEVER IN THE AMERICAS, 1965-1969.<sup>a</sup>

Country or other political unit	1965	1966	1967	1968	1969
Argentina.....	2	51	1	—	—
Bolivia.....	19	69	—	27	8
Brazil.....	14	167	2	2	4
Colombia.....	2	3	5	11	7
Ecuador.....	—	—	1	—	—
Guyana.....	—	—	—	1	—
Peru.....	45	9	3	5	28
Surinam.....	—	—	—	1	1
Venezuela.....	5	5	—	—	—
Total.....	87	304	12	47	48

— None.

<sup>a</sup> Based on official reports received at PASB through 1 May 1970.

Amazonas State (Itacoatiara Municipality), and one in Pará State (Itaituba Municipality).

Seven cases were reported in Colombia: three in Santander Department (Municipalities of Lebrija, San Vicente de Chucurí, and Landázuri), two in Antioquia Department (Puerto Berrío and Remedios Municipalities), one in Bolívar Department (Simití Municipality), and one in Meta Department (Villavicencio Municipality).

Peru reported 28 cases: 18 in Junin Department (Provinces of Concepción, Jauja, and Tarma), eight in Pasco Department (Oxapampa District), one in Ayacucho Department (Huanta Province), and one in Huánuco Department (Leoncio Prado Province).

In Surinam, as in 1968, only one case was reported, in a locality some 50 kilometers south of Paramaribo.

At the close of 1969, a late report of a jungle yellow fever case (laboratory confirmed) which occurred in Guyana (Kokerite, Northwest District) at the end of 1968, was received.

Cooperation continued with the Oswaldo Cruz Institute of the Ministry of Health of Brazil and with the National Institute of Health of the Ministry of Public Health of Colombia. By virtue of agreements with the Organization, these two institutions produce 17D yellow fever vaccine and provide free diagnostic services to the countries of the Americas and to other parts of the world. Vaccine production in 1969 amounted in Brazil to 1,200,000 doses and in Colombia to 1,269,300 doses, of which 481,750 doses were distributed to other countries.

### Aedes aegypti Eradication

The following countries and areas continue to be free of *Aedes aegypti*: Argentina, Bermuda, Bolivia, British

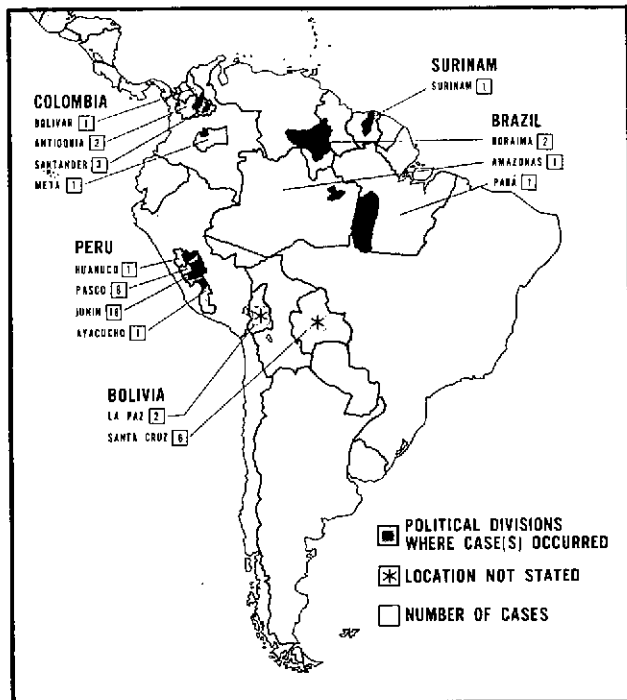


FIG. 2. REPORTED CASES OF JUNGLE YELLOW FEVER IN THE AMERICAS, 1969.



Honduras, Canal Zone, Chile, Costa Rica, Ecuador, Guatemala, Nicaragua, Paraguay, Peru, and Uruguay. Mexico, which suffered three reinfestations during the year, carried out an effective vigilance campaign and instituted attack measures in the affected localities. Panama (which had eradicated the vector in 1955) was reinfested in March. Brazil, El Salvador, and Honduras continued to be reinfested.

In the rest of the Hemisphere financial and administrative problems continued to slow down the progress of the eradication campaign.

The problem still persists in the northern part of South America, in the United States of America, and in the Caribbean.

In the Caribbean area, which suffered dengue epidemics between 1963 and 1968, a number of countries and territories still infested with *A. aegypti*, some of which had no eradication campaign, continued to be plagued by epidemic outbreaks of that disease.

Campaigns were resumed in Guadeloupe and Martinique. Antigua, the Cayman Islands, Grenada, Jamaica, Montserrat, the Netherlands Antilles, and St. Vincent decided to prepare, with assistance from the Organization, programs that would commence in 1970.

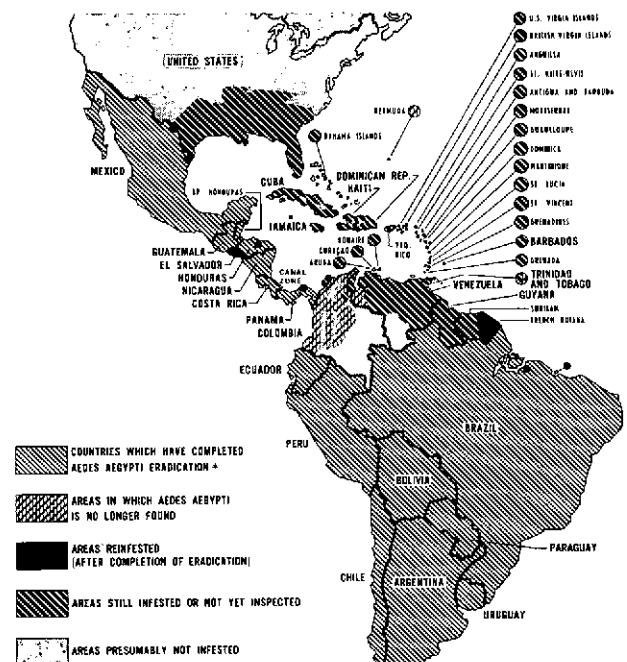
In Jamaica the insecticide testing unit, which operates with the collaboration of the Government and the University of the West Indies, continued its field evaluations of new insecticides and the monitoring of the vector's susceptibility to the insecticides in a number of countries and territories.

**Status of the continental campaign.** The status of the campaign is outlined below and in Table 3 and Figure 3.

In *Barbados*, during the first half of the year, the finishing touches were put to the reorganization of the campaign and activities were begun in accordance with the operational plan.

In *Brazil* the program was entirely reorganized as a result of administrative problems. In August the towns of São Luis, Anil, Ribamar, and Tirirical, in Maranhão State, were found to be reinfested. The campaign, reinstated immediately in this area, was progressing satisfactorily. The vigilance service, which stepped up its activities following the reinfestation of Pará (1967), found no evidence of *A. aegypti* in any other part of the country.

In *Colombia*, Cúcuta, on the Venezuelan frontier, and five other localities (Cuestecitas, Fonseca, Nazareth, Maiacao, and Uribia) continued to be infested. Reinfestations at Riohacha, Carraipía, Papayal, El Molino, and Distracción were eliminated. In the second half of the year, the



A ERADICATION CARRIED OUT ACCORDING TO THE STANDARDS ESTABLISHED BY THE PAN AMERICAN HEALTH ORGANIZATION

FIG. 3. STATUS OF THE *Aedes Aegypti* ERADICATION CAMPAIGN IN THE AMERICAS, DECEMBER 1969.

ports of Barranquilla and Cartagena were found to be reinfested.

In *Cuba* the Government decided to continue the experimental program (initiated in 1968)—in which activities were integrated in the general health services and volunteer workers were used for insecticide spraying—before extending the campaign to the rest of the country. The results obtained in Havana Province were not entirely satisfactory and detailed studies showed that the local strain of *A. aegypti* had again become resistant to DDT. This discovery made it necessary to intensify studies of the susceptibility of the mosquito in this country and to replace DDT by phosphorus insecticides in Havana Province. This technical problem slowed up the progress of activities. At the year's end the Government updated the campaign's operational plan, which provides for the complete coverage of the country over a period of two years.

The *Dominican Republic* had not resumed its campaign.

In *El Salvador*, as a result of budgetary limitations, activities were confined to the city of San Salvador and the Ilopango airport, and the results obtained were on a limited scale.

In *Guyana* the Government reorganized the campaign, began to use organophosphorus insecticides, increased the budget, and retrained all field personnel. At the end of 1969 operations were proceeding satisfactorily.

TABLE 3. STATUS OF THE AEDES AEGYPTI ERADICATION CAMPAIGN IN THE AMERICAS, 1969.<sup>a</sup>

Country or other political unit	Date		Area assumed initially infested		Localities or other units inspected since beginning of campaign					Present stage of campaign
	Campaign begun	Latest reported inspection	Total (km <sup>2</sup> )	Inspected (%)	Number	Found initially positive				
						Total	Treated			
							Total	Verified	Still positive	
Argentina.....	June 1953	Dec. 1969	1,000,000	100.0	3,750	166	166	166	—	h, c
Barbados.....	Mar. 1954	Dec. 1969	171	100.0	61	61	61	61	33	d, e
Bolivia.....	June 1932	Dec. 1969	100,000	100.0	282	65	65	65	—	b, c
Brazil.....	Jan. 1931	Dec. 1969	5,358,822	100.0	268,576	36,119	36,119	36,119	10	g, c, e
Chile.....	June 1945	Dec. 1969	104,373	100.0	301	48	48	48	—	b, c
Colombia.....	Nov. 1950	Dec. 1969	280,000	100.0	3,805	367	363	358	8	d, c
Costa Rica.....	April 1949	Nov. 1960	20,000	100.0	1,342	104	104	104	—	b
Cuba.....	Mar. 1954	Dec. 1969	100,000	37.4	1,305	1,055	980	957	259	d, c
Dominican Republic.....	Oct. 1952	Aug. 1962	42,020	80.4	1,420	351	351	319	15	d
Ecuador.....	June 1946	Dec. 1967	69,454	100.0	2,824	337	337	337	—	b
El Salvador.....	April 1949	Dec. 1969	18,675	100.0	975	216	190	190	22	g, e
Guatemala.....	Jan. 1949	Dec. 1969	36,423	100.0	2,485	138	138	138	—	b, c
Guyana <sup>j</sup> .....	Mar. 1946	Dec. 1969	4,662	100.0	93	57	33	28	28	d, c
Haiti.....	Oct. 1953	Sept. 1958	27,750	49.4	2,379	605	602	435	27	d
Honduras.....	Sept. 1949	Dec. 1969	69,929	100.0	600	53	53	53	23	g, c, e
Jamaica.....	Feb. 1950	Dec. 1966	11,424	100.0	14	12	2	2	2	d, h
Mexico.....	Jan. 1951	Dec. 1969	1,000,000	100.0	4,272	600	600	600	2	g, b, c
Nicaragua.....	Jan. 1950	Dec. 1969	65,263	100.0	3,126	18	18	18	—	b, c
Panama.....	Feb. 1949	Dec. 1969	56,246	100.0	2,853	44	44	44	4	g, c, e
Paraguay.....	Jan. 1948	Dec. 1969	200,000	100.0	1,561	98	98	98	—	b, c
Peru.....	Jan. 1940	Dec. 1964	638,000	100.0	4,320	191	191	191	—	b
Trinidad and Tobago.....	Jan. 1951	Dec. 1969	3,108	100.0	128	122	122	122	3	d, c
United States of America.....	May 1964	Mar. 1966	1,536,819	71.1	649	248	30	30	30	d
Uruguay.....	Oct. 1948	Dec. 1969	187,000	100.0	1,020	133	133	133	—	b, c
Venezuela <sup>k</sup> .....	June 1948	Dec. 1969	710,000	71.8	6,411	907	279*	265*	70*	d, c
Anguilla.....	April 1953	Sept. 1966	88	100.0	19	19	19	19	18	d
Antigua.....	Aug. 1954	Dec. 1965	440	100.0	50	47	47	47	25	d, i
Aruba.....	Mar. 1952	Dec. 1968	174	100.0	9	9	9	9	3	d, h
Bahamas.....	June 1954	Dec. 1969	11,405	1.3	13	10	10	10	10	d, e
Bermuda.....	Jan. 1951	1963	53	100.0	9	9	9	9	—	f
Bonaire.....	Sept. 1952	Dec. 1969	246	100.0	6	6	6	6	4	d, h
British Honduras.....	Oct. 1950	Dec. 1968	22,965	100.0	84	2	2	2	—	b, c
Canal Zone.....	1948	Dec. 1969	1,432	100.0	21	2	2	2	—	b, c
Cayman Islands.....	1969	1969	259	...	...	...	...	...	...	d, i
Curaçao.....	Oct. 1951	Dec. 1969	448	100.0	5	5	5	5	5	d, h
Dominica.....	Feb. 1951	June 1965	751	50.0	136	66	66	66	16	d
French Guiana <sup>j</sup> .....	May 1949	Jul. 1967	91,000	100.0	222	55	55	55	3	g, e
Grenada.....	Nov. 1952	June 1962	311	100.0	8	8	8	8	...	d, i
Grenadines <sup>l</sup> .....	Nov. 1952	June 1962	65	100.0	7	5	5	5	4	d, i
Guadeloupe <sup>j</sup> .....	Jan. 1957	Oct. 1961	1,619	4.9	53	38	38	27	20	d, e
Martinique <sup>j</sup> .....	Nov. 1953	Sept. 1967	1,000	100.0	34	21	21	21	19	d, e
Montserrat.....	May 1956	Dec. 1969	83	100.0	33	16	16	16	5	d, i
Puerto Rico.....	Sept. 1964	Mar. 1966	8,896	73.6	56	56	36	36	36	d
Saba, St. Eustatius.....	July 1958	Aug. 1959	31	100.0	16	15	15	15	...	d, h
St. Kitts, Nevis.....	April 1953	Sept. 1966	308	100.0	43	43	43	43	7	d
St. Lucia.....	May 1953	Dec. 1969	259	100.0	53	53	53	53	37	d, e
St. Martin.....	Dec. 1958	Mar. 1964	34	100.0	18	15	15	15	15	d, h
St. Vincent.....	Mar. 1953	Feb. 1965	332	100.0	13	13	13	13	...	d, h
Surinam <sup>*j</sup> .....	Dec. 1962	Dec. 1969	48,000	37.1	52	52	52	52	52	d, e
Turks and Caicos Islands.....	—	—	430	—	—	—	—	—	—	d
Virgin Islands (U.K.).....	Mar. 1960	Feb. 1963	153	74.6	23	23	23	23	8	d
Virgin Islands (U.S.A.).....	Aug. 1964	Mar. 1966	344	100.0	3	3	3	3	3	d

— None.

... Data not available.

\* Revised figures referring to campaign recently reorganized for a limited area.

<sup>a</sup> Based on official reports received at PASB through 31 March 1970.<sup>b</sup> Eradication completed.<sup>c</sup> With vigilance.<sup>d</sup> Positive for *A. aegypti*.<sup>e</sup> Program in operation.<sup>f</sup> Negative for *A. aegypti*.<sup>g</sup> Reinfestation with *A. aegypti* after eradication.<sup>h</sup> Planning or reorganization stage.<sup>i</sup> Preliminary phase of operation or intensification.<sup>j</sup> Campaign reorganized in 1969.<sup>k</sup> Campaign reorganized in January 1968.<sup>l</sup> Grenada: islands of Carriacou, Little Martinique, St. Vincent; islands of Bequia, Canouan, Mustique, Mayreau, and Union.



*Aedes aegypti* eradication operations in Central America. Left: Flags of different colors serve to identify each phase of the work done and thus facilitate supervision. Right: Deposits are treated with DDT, using the perifocal method.

In *Haiti* the campaign was not resumed.

In *Honduras* budgetary limitations prevented full coverage of the reinfested area on the country's northern seaboard and the reinfestation spread to other localities adjoining the principal focus. It was discovered that Nueva Ocotepeque, in the western region, had been reinfested. The campaign was limited to the city of San Pedro Sula.

In *Jamaica* the activities against the mosquito continued to be limited to control measures in ports and international airports, but during the second half of the year the Government made preparations for a nation-wide campaign. The program will begin in a limited area in early 1970 but will be expanded later in two successive stages.

*Mexico*, which suffered three reinfestations during 1968 in the vicinity of its frontier with the United States of America, was again reinfested three times in 1969 in the same region (the cities of Agujita and Nueva Rosita, in Coahuila State, and of Matamoros, in Tamaulipas State). Prompt action was taken by the Mexican authorities to eliminate the foci. Representatives of both Governments, at a meeting held in September in El Paso, Texas, reviewed and discussed various aspects of the reinfestation problem. It was decided that a joint technical commission would undertake a detailed study of the mechanisms giving rise to reinfestations and would seek more effective solutions.

In *Panama*, which had no regular *A. aegypti* vigilance service, an inspection made with the Organization's assistance revealed that the city of Colón on the Atlantic coast had been reinfested. The reinfestation was on a limited scale. The Government immediately reinstated

the campaign, adopting an operational plan providing for the elimination of the mosquito at Colón, the investigation of all other exposed localities, and an intensification of vigilance against new imports of the vector.

*Trinidad and Tobago*. Both islands continued to be considered free of *A. aegypti* with the exception of Port-of-Spain in Trinidad, where the mosquito was still to be found in a few areas and on small craft coming from other Caribbean ports still infested by the vector.

The *United States of America* decided to entirely suspend the program in the continental United States as well as in Puerto Rico and the Virgin Islands.

In *Venezuela* the campaign continued to center its activities on Táchira State on the Colombian border.

*France*. At the end of 1969 campaigns were resumed in Guadeloupe, French Guiana, and Martinique with limited success. The French part of the island of St. Martin continued to be considered free of the mosquito, although no recent information was available.

*Kingdom of the Netherlands*. The entire Netherlands Antilles (Aruba, Bonaire, Curaçao, Saba, St. Eustatius, and part of the island of St. Martin) continued to be infested. Activities consisted only of control measures, although the Government prepared a detailed plan for the initiation of an eradication campaign in 1970. In Surinam, up to mid-1969, the results obtained were limited. During the second half of the year the Government undertook a thorough reorganization of all activities, increased the budget, and adopted a series of measures affecting program personnel.

*United Kingdom*. The Bahamas and St. Lucia continued to conduct their campaigns on a very limited scale.

In the Cayman Islands, Grand Cayman continued to be regarded as negative. On the island of Cayman Brac (where the mosquito was found in 1968), the Government, with assistance from the Organization, prepared a plan for initiating the campaign in 1970.

The Organization also helped with preparations for conducting campaigns in Antigua, Grenada, and Montserrat, and at the year's end the Government requested its assistance in starting a campaign in 1970 in St. Vincent.

Dominica, the Turks and Caicos Islands, the Virgin Islands, St. Kitts, Nevis, and Anguilla continued to be infested and without campaigns.

## SMALLPOX

In 1969 there were 7,379 reported cases of smallpox in the Americas (Table 4), 7,377 of which occurred in Brazil and two (imported cases) in Uruguay. There have been no reported cases in Colombia, Paraguay, and Peru since 1966 and in Argentina since 1967. Brazil is the only country in the Americas in which smallpox continues to be endemic.

The interest of the Governing Bodies of PAHO in smallpox in the Americas dates back to 1949 and their concern with its eradication has been expressed in a number of resolutions. Similarly, WHO, at its Twentieth Assembly (1967), requested Member States to give the highest possible priority to the provision of funds for the eradication campaigns.

To assist countries with the conduct of effective campaigns, the Organization has in past years signed agreements with the Governments of Argentina, Bolivia, Brazil,

Chile, Colombia, Ecuador, Paraguay, Peru, and Uruguay, and in 1969 it signed agreements with Cuba and Venezuela. All these countries but one have completed or started their smallpox campaign.

Between 1967 and 1969 the assistance rendered by PAHO/WHO to the countries of the Americas amounted to US\$2,248,692 and included the provision of technical advisory services, equipment and supplies, and the training of personnel.

Experts from the Connaught Laboratories (Toronto, Canada) continued to make visits to various countries to provide advice on production techniques and safety and potency tests of the vaccines produced. These laboratories also provided training for Latin American technicians. An expert from the National Bacteriology Laboratory of Sweden again furnished assistance to Brazil in connection with the production of vaccine in eggs in that country.

Equipment and materials were provided for smallpox diagnostic laboratories (Brazil and Paraguay) as were vehicles, launches, jet injectors, and refrigerators in which to keep vaccine and other supplies needed for field activities in the attack phase.

Epidemiological and statistical advisory services were also provided, with special emphasis on surveillance and evaluation. The award of fellowships made it possible for experts in a number of countries to have specialized training.

The principal obstacles to carrying out vaccination programs in countries continued to be budgetary problems, lack of adequate plans, or lack of continuity in those carried out or of proper supervision of activities.

In addition, ineffective, contaminated, or unstable vaccines led to wasted efforts in a number of cases, making it necessary to repeat the campaign in entire areas. Technical, financial, and other problems continued to prevent some countries from meeting the minimum WHO requirements for approval of their freeze-dried vaccines. A bank of freeze-dried vaccine, set up by the Organization in Rio de Janeiro, Brazil, was meeting the demand for vaccine in other countries. WHO accepts only freeze-dried vaccine for distribution to the countries, whether for maintenance programs or those in the attack phase. Special importance is attached to the distribution of vaccine to countries free of smallpox.

The Organization has cooperated with all countries interested in the production of smallpox vaccine through the signature of agreements for the supply of freeze-drying equipment. So far such equipment has been made available to Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Peru, Uruguay, and Venezuela. Table 5 contains data on the production of freeze-dried vaccine

TABLE 4. REPORTED CASES OF SMALLPOX IN THE AMERICAS, 1965-1969.<sup>a</sup>

Country or other political unit	1965	1966	1967	1968	1969	Total
Argentina.....	15 <sup>b</sup>	21	23 <sup>b</sup>	—	—	59
Brazil.....	3,269	3,518	4,514	4,372	7,377	23,050
Colombia.....	149 <sup>c</sup>	8 <sup>d</sup>	—	—	—	157
French Guiana.....	—	—	—	1 <sup>e</sup>	—	1
Paraguay.....	32	5	—	—	—	37
Peru.....	18	13	—	—	—	31
Uruguay.....	1 <sup>e</sup>	—	—	2 <sup>b</sup>	2 <sup>e</sup>	5
Total.....	3,484	3,565	4,537	4,375	7,379	23,340

— None.

<sup>a</sup> Based on official reports received at PASB through 5 May 1970.

<sup>b</sup> Includes imported cases.

<sup>c</sup> Includes 68 confirmed cases.

<sup>d</sup> Confirmed cases only.

<sup>e</sup> Imported cases.

I. PROTECTION OF HEALTH: DISEASES

TABLE 5. SMALLPOX VACCINATIONS AND PRODUCTION OF FREEZE-DRIED SMALLPOX VACCINE IN 12 COUNTRIES OF THE AMERICAS, 1969.<sup>a</sup>

Country	Number of vaccinations	Freeze-dried <sup>b</sup> vaccine produced (Doses)
Argentina.....	453,468	21,427,850
Bolivia.....	295,355	230,000
Brazil.....	21,864,352	61,000,000
Chile.....	821,837	3,950,000
Colombia.....	3,280,096	7,586,500
Cuba.....	114,995	—
Ecuador.....	929,413	—
Guatemala.....	...	—
Paraguay.....	214,870	...
Peru.....	1,028,184	6,527,200
Uruguay.....	442,531	—
Venezuela.....	1,243,164	—
Total.....	30,688,265	100,721,550

— None.

... Data not available.

<sup>a</sup> Based on reports received at PASB through 25 April 1970.

<sup>b</sup> WHO accepts only freeze-dried vaccine for the smallpox eradication program.

and shows the number of smallpox vaccinations by country in 1969.

**Status of the program.** In *Argentina* 453,468 vaccinations were administered during the year (14.2 per cent of the target). The production of freeze-dried vaccine, all of excellent quality, was 21,427,850 doses (560,000 doses in 1967 and 14,944,800 in 1968).

*Bolivia* launched a vertical maintenance program of simultaneous smallpox and tuberculosis vaccinations for persons in the 0 to 20 age group, administering 295,355 smallpox vaccinations during the year. A total of 230,000 doses of freeze-dried vaccine were produced. An operational plan was prepared for the mass vaccination of 400,000 persons of all age groups in the city of La Paz, but its implementation was held up by political and social difficulties.

*Brazil* continued its intensive eradication program. During the year 21,864,352 persons were vaccinated (exceeding the annual target of 20 million), the vaccine having taken in 90 to 100 per cent of the cases. In those states in which the attack phase has been completed, the incidence of smallpox fell by some 78.7 per cent. Epidemiological surveillance was organized and all reported or suspected cases in zones already covered were investigated, and although the investigation was supported by laboratory tests, no autochthonous cases were found.

Nevertheless, in the area in the attack phase—covering the States of Bahia, Espírito Santo, Minas Gerais, Paraná, Rio Grande do Sul, and São Paulo—reporting was

incomplete and defective, although it was improving in step with the progress being made by teams in the field. As a result of the systematic investigation of reported cases, the ratio of reported to probable cases, which had been estimated to be 1:10, rose to 1:20 (and in Paraná to as high as 1:40). More than 50 per cent of the country's population live in this area, which appears to be the reason for the increase in the number of reported cases in 1969 (7,377), a figure 68.7 per cent higher than in 1968.

By the year's end a total of 46,390,132 persons had been vaccinated in Brazil from the outset of the program (50 per cent of the total population). The cost of the program in 1969 rose to 5,331,847 new cruzeiros (approximately US\$1,250,000).



In the smallpox vaccination program in Brazil, children wait their turn without fear, for vaccination with a jet injector is quick and painless.

A total of 61,000,000 doses of freeze-dried vaccine were produced during the year.

It was hoped that, if the same rate of progress is maintained, the disease can be brought under control in 1970.

In *Chile*, where there have been no cases of smallpox since 1959, the maintenance program was continued and smallpox vaccinations were administered at the same time as immunizations against measles. In 1969, 821,837 persons were vaccinated and 3,950,000 doses of freeze-dried vaccine produced.

In *Colombia* 3,280,096 persons were vaccinated in 13 departments (96 per cent of the target), the coverage (since 1967) being 63.7 per cent of the total population. A total of 7,586,500 doses of freeze-dried vaccine were produced.

In *Ecuador*, where smallpox has not occurred since 1964, a vertical maintenance program was being carried out; 929,413 persons were vaccinated in 1969, the proportion of takes being 95.5 per cent for primary vaccinations and 64.6 per cent for revaccinations. A fellowship was awarded to the executive chief of the program to enable him to observe vaccination methods in Brazil.

In *Paraguay* financial difficulties prevented the launching of the campaign. Notwithstanding this, personnel were trained, guidelines and procedures laid down, and a new operational plan was prepared. The program chief visited Brazil on an observation mission. A smallpox diagnostic laboratory was established and began its work. The general health services administered 214,870 vaccinations.

In *Peru* activities were continued in the departments bordering on Bolivia, Brazil, and Ecuador and an evalua-

tion system was introduced. A total of 1,028,184 persons were vaccinated, with takes of 96.8 per cent for primary vaccinations and 73.2 per cent for revaccinations. Production of freeze-dried vaccine reached 6,527,200 doses. The technician in charge of the laboratory producing smallpox vaccine visited the Connaught Laboratories in Toronto, Canada.

In *Uruguay* the eradication campaign was delayed by financial difficulties. In 1969 vaccination was begun in seven departments and 442,531 persons were vaccinated. The production of freeze-dried vaccine has not yet commenced. During the year two imported cases of smallpox were reported.

## TUBERCULOSIS

Notwithstanding the substantial reduction in mortality and morbidity rates for tuberculosis in recent years and the efficient means of control available, the disease has not been eliminated as a public health problem in any of the countries of the Region.

It is estimated that in Latin America there are still 85 million persons with the infection and 1,250,000 active cases. Mortality in 1967 was estimated at 28 per 100,000 inhabitants in South America and 18 in Middle America (Table 6), and in 1968 the respective rates for new cases were 92 and 47 per 100,000. In North America, where mortality was 4 per 100,000 inhabitants and the rate for

In all countries of the Americas, great importance is given to BCG vaccination. This child watches closely as the result of the tuberculin test is checked.



new cases 21 per 100,000, some 50,000 cases occurred each year.

In the face of the continued importance and complexity of the problem, the Governments of the Americas and the Organization continued to give the highest priority to measures to combat it. In 1969 the program laid emphasis on the promotion of effective and economical control activities through the systematic application of available knowledge and resources. Countries were assisted with the technical and administrative reorientation of programs with a view to the expansion, through their basic health services, of preventive and diagnostic activities and ambulatory treatment; the improvement of methods for the collection of epidemiological and operational data; and the intensification of personnel training.

In association with the responsible authorities of Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, El Salvador, Honduras, and Nicaragua, an examination was made of various aspects of the control programs, especially the training of personnel, operational research, and the use of general health services in rural areas.

Advisory services were rendered to Barbados, Dominica, Grenada, and Jamaica in the study of the epidemiological situation and the evaluation of programs as a basis for the technical and administrative reorientation of the activities.

With a view to assisting in the evaluation of BCG vaccine produced in Latin American laboratories and to advising on freeze-drying techniques, an expert traveled to Argentina, Brazil, Chile, Cuba, Ecuador, and Uruguay, thus completing the series of visits initiated with Colom-

bia, Mexico, Peru, and Venezuela. On the basis of the data collected, the BCG vaccination was extensively discussed at an international seminar held in Mexico under the auspices of the International Union against Tuberculosis and with the cooperation of the Organization. It was recommended that a standard procedure should be adopted by international agreement for the production of freeze-dried BCG vaccine in two or three regional laboratories, with the support of all the countries.

Efforts to promote the training of national personnel were continued. Discussions were held with the authorities of Chile and Colombia on how PAHO could continue to assist them with their respective tuberculosis courses.

In association with the Government of Venezuela, the Organization sponsored the first international course on epidemiology and administration of tuberculosis control programs and also the third international course on tuberculosis bacteriology, both held at Caracas. A more detailed account of educational and training activities appears in Chapter III.

The tuberculosis control activities under way in a number of countries of the Americas are summarized below:

In *Argentina* the National Commission on Bacteriology approved the organizational plan for laboratories, laying down technical and administrative guidelines to be applied at various levels. Six regional laboratories as well as 100 other establishments were equipped to carry out bacteriological tests.

In *Bolivia* a national BCG vaccination program was drawn up and was launched in Cochabamba Department, where some 230,000 persons were vaccinated. A control

TABLE 6. REPORTED CASES AND DEATHS FROM TUBERCULOSIS, WITH RATES PER 100,000 POPULATION IN THE THREE REGIONS OF THE AMERICAS, 1958-1968.

Year	Northern America				Middle America				South America			
	Cases		Deaths		Cases		Deaths <sup>a</sup>		Cases <sup>b</sup>		Deaths <sup>c</sup>	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
1958	70,775	37.0	13,449	7.0	30,344	48.0	14,544	24.8	68,597	130.4	13,926	34.9
1959	64,138	32.9	12,439	6.4	35,609	54.6	14,299	23.6	72,021	131.5	14,627	35.7
1960	61,860	31.3	11,691	5.9	39,722	59.0	14,814	23.7	71,179	125.6	14,725	34.7
1961	59,722	29.7	10,708	5.3	37,233	53.9	14,278	22.3	73,428	128.1	14,625	33.2
1962	60,099	29.4	10,295	5.0	40,067	57.1	14,842	22.4	74,747	128.2	14,181	32.9
1963	59,784	28.8	10,070	4.9	43,702	59.6	14,401	21.3	71,811	131.9	15,054	31.9
1964	55,441	26.3	8,976	4.3	41,872	55.1	14,203	19.7	70,751	119.8	13,733	29.1
1965	53,840	25.2	8,633	4.0	45,529	58.8	12,921	19.7	72,585	109.8	13,901	27.9
1966	52,296	24.2	8,294	3.8	37,435	46.6	14,003	18.7	77,580	118.2	...	...
1967	50,261	23.0	7,559	3.5	40,266	48.6	11,514	18.2	73,562	110.9	...	...
1968	47,454	21.4	...	...	39,077	47.2	...	...	70,159	92.3	...	...

... Data not available.

<sup>a</sup> Excluding Haiti and Jamaica in 1958-1966; Cuba in 1965 and 1966; and Trinidad and Tobago in 1965.

<sup>b</sup> Excluding Brazil and Chile.

<sup>c</sup> Excluding Argentina, Bolivia, and Brazil in 1958-1966; Guyana in 1964-1966; and Paraguay in 1962.

plan was prepared in the mining communities for whose welfare the Bolivian Mining Corporation is responsible.

In *Brazil* the studies of the administrative structure of the national control program were continued. The integrated health services of the Special Public Health Service Foundation in the State of Bahia were again used for the training of professionals from Brazil and other countries. The BCG laboratory in Rio de Janeiro reorganized its work in order to produce freeze-dried BCG vaccine for intradermal use.

In *Chile* ambulatory treatment under direct supervision in a series of "treatment centers" was extended and improved.

In *Colombia* a large-scale campaign was launched for administering BCG vaccinations simultaneously with vaccinations against smallpox and other diseases. The integrated program in the Department of Valle del Cauca was continued and the training of personnel was stepped up.

In *Costa Rica* an epidemiological survey was undertaken in Alajuela and Heredia Provinces and the training of personnel, especially of nurses, was continued. A new plan to make prevention, diagnosis, and treatment a part of the regular activities of the basic health services was prepared.

In *Cuba* more than 200,000 persons were vaccinated with BCG, including a high proportion of the newborn. Guidelines for diagnosis and treatment were simplified and studies for the establishment of verification areas were completed.

The *Dominican Republic* restructured and stepped up the activities for the training of personnel. The control programs in San Cristóbal and Puerto Plata were continued and it was hoped to extend them progressively to the rest of the country.

The health units in Manabí Province in *Ecuador* continued to be used for tuberculosis prevention, control, and treatment.

In *El Salvador* the operational data obtained in the Usulután verification area were used to reformulate the program with a view to its extension to cover the entire country.

*Guatemala's* tuberculosis campaign was completely reorganized. The central agency responsible for control was given the authority to regulate the planning and evaluation of programs.

In *Haiti* an exhaustive study was made of the harm done by tuberculosis and of the resources available for its control. It was hoped that this study would indicate the lines that the national program should follow.

The national control program in *Honduras* proceeded

successfully, with the support of the network of basic health services. Some 60 local units were discharging specific functions, including the treatment and control of the disease.

In *Mexico* almost 2 million persons were vaccinated with BCG. A program in which all the health services will participate was formulated for the Ciudad Juárez area, on the border with the United States of America, and it will serve as a model for all towns along that border. A location in the State of Puebla will be used as a demonstration area for the introduction of a control program.

In *Nicaragua* a new direction was given to the national program in order to organize the activities along horizontal lines and make greater use of the general health services. The epidemiological survey in Managua, León, Puerto Cabezas, and Estelí was continued and efforts were made to increase the bacteriological diagnosis of the disease.

## LEPROSY

The information reported to PASB in 1969 by the countries of the Americas on the problem of leprosy appears in Tables 7-11.

In 31 countries and territories there were 196,515 cases of leprosy in the active register, of which 139,303 (70.9 per cent) were under surveillance. Contacts in 21 countries and territories numbered 657,295, of which 229,383 (34.9 per cent) were under surveillance.

The data available on the various clinical forms of the disease showed that, of 185,847 cases, 100,076 (53.8 per cent) were lepromatous, 38,028 (20.5 per cent) tuberculoïd, 39,606 (21.3 per cent) indeterminate, and 8,137 (4.4 per cent) of other clinical forms. The new cases discovered in 20 countries and territories are shown in Table 10.

Although the data are incomplete and the true magnitude of the problem is unknown, the national health organizations have been showing increased interest and a general tendency to incorporate control activities in campaigns against other communicable diseases is evident.

The Organization continued to cooperate with countries in seeking to determine the prevalence and characteristics of leprosy in the Americas and furnished assistance to Governments in the programming and organization of control and rehabilitation activities and in the training of professional and auxiliary personnel. Emphasis was laid on the need to strengthen programs through the active



I. PROTECTION OF HEALTH: DISEASES

TABLE 7. LEPROSY CASES IN THE ACTIVE REGISTER, UNDER AND WITHOUT SURVEILLANCE, IN 31 COUNTRIES AND OTHER POLITICAL UNITS OF THE AMERICAS, 1969 OR MORE RECENT YEAR.<sup>a</sup>

Country or other political unit	Date	Cases			Per cent under surveillance
		Total	Under surveillance	Without surveillance	
Argentina <sup>b</sup> .....	31 Dec. 1967	9,627	6,122	3,505	63.6
Barbados.....	31 Dec. 1968	45	45	...	...
Bolivia.....	30 June 1969	1,560	1,560	...	...
Brazil.....	31 Dec. 1968	112,184	80,215	31,969	71.5
Canada.....	31 Dec. 1967	31	28	3	90.3
Chile <sup>c</sup> .....	31 Dec. 1968	31	31	...	...
Colombia.....	31 Dec. 1968	18,147	13,368	4,779	73.7
Costa Rica.....	31 Dec. 1968	532	527	5	99.1
Cuba.....	31 Dec. 1968	4,393	4,258	135	96.9
Dominican Republic.....	31 Dec. 1968	1,347	1,317	30	97.8
Ecuador.....	31 Dec. 1968	1,585	1,563	22	98.6
El Salvador.....	31 Dec. 1966	246	246	...	...
Guatemala.....	31 Dec. 1967	374	313	61	83.7
Guyana.....	31 Dec. 1968	754	545	209	72.3
Haiti.....	31 Dec. 1968	177	157	20	88.7
Honduras.....	31 Dec. 1969	274	166	108	60.6
Jamaica.....	11 Nov. 1967	1,015	610	405	60.1
Mexico.....	30 June 1969	13,654	9,630	4,024	70.5
Nicaragua.....	31 Dec. 1968	290	179	111	61.7
Panama.....	31 Dec. 1968	168	168	...	...
Paraguay.....	31 Dec. 1968	4,256	3,867	389	90.9
Peru.....	31 Dec. 1966	2,973	1,636	1,337	55.0
Trinidad and Tobago.....	31 Dec. 1968	1,461	671	790	45.9
United States of America.....	13 Feb. 1968	1,363	1,363	...	...
Uruguay.....	31 Dec. 1969	514	514	...	...
Venezuela.....	31 Dec. 1968	17,569	8,386	9,183	47.7
Antigua.....	31 Dec. 1967	68	68	...	...
French Guiana.....	31 Dec. 1967	948	821	127	86.6
Martinique.....	31 Dec. 1966	804	804	...	...
St. Lucia.....	31 Dec. 1968	112	112	...	...
St. Vincent.....	31 Dec. 1968	13	13	...	...
Total.....		196,515	139,303	57,212	70.9

... Data not available.

<sup>a</sup> Based on official reports received at PASE through 16 March 1970.

<sup>b</sup> Data refer to Provinces of Buenos Aires, Córdoba, Entre Ríos, Formosa, Misiones, Salta, Santa Fe, and Tucumán.

<sup>c</sup> Easter Island only.

search for new cases, the systematic control of contacts and new foci, and the establishment of simple and sure technical and administrative standards to ensure proper execution of the programs. A permanent adviser stationed in the Zone II Office, zone epidemiologists, and two short-term consultants of the Organization took part in this work.

In *Argentina*, on 31 December 1967, there were 9,627 cases in the active register in eight provinces, 6,122 (63.6 per cent) of which were under surveillance. Of a total

of 16,812 contacts registered in seven provinces, 7,884 (46.9 per cent) were under surveillance.

In *Bolivia* the Recovery Center at Los Negros (Department of Santa Cruz) had 1,085 patients registered and the Monteagudo (Chuquisaca) program, which has been carried out with assistance from the German Mission for Aid to Leprosy Patients, had 475 patients under surveillance. Ninety-three persons attended a training course for medical and paramedical personnel which was held at Monteagudo.

In order to encourage patients and their contacts to come regularly to the control service, the National Institute of Communicable Diseases submitted a food-assistance plan to the authorities of the World Food Program.

In *Colombia* the reorganization of the leprosy control services and their administrative integration in the malaria eradication zones were successfully completed. The statistical office of the program reorganized its central register. On 31 December 1968 there were 18,147 registered cases, with 13,368 (73.7 per cent) under surveillance, and 48,614 contacts, with 14,146 (29.1 per cent) under surveillance. In 1968, 127,976 persons were examined and 942 cases discovered.

The leprosy control service in *Costa Rica* was well organized and functioned efficiently as a vertical program under the Social Welfare Department of the Ministry of Public Health. It was assisted by the country's 19 health districts and the social security medical services. On 31 December 1968 there were 532 cases registered, with 99.1 per cent under surveillance, and 2,992 contacts, with 46.4 per cent under surveillance.

The program in *Cuba*, fully integrated into the general health services, was the responsibility of the dermatological services existing in all the provincial capitals and in some of the regions. The diagnosis, treatment, and control of cases was subject to uniform guidelines drawn up by a national group of dermatologists.

On 31 December 1968 there were 4,393 cases, of which 4,258 (96.9 per cent) were under surveillance. Of the 14,774 contacts registered, 86.2 per cent were under surveillance.

In the *Dominican Republic* the program was the responsibility of the Dermatological Institute and of the Colonia Nuestra Señora de las Mercedes Sanatorium. On 31 December 1968 there were 1,374 cases, with 97.8 per cent under surveillance, and 1,329 contacts, of which 982 (73.9 per cent) were under surveillance.

In *Ecuador* budgetary difficulties imposed limitations on the achievement of the program target. On 31 December 1968 there were 1,585 registered cases, of

TABLE 8. LEPROSY CASES IN THE ACTIVE REGISTER, BY CLINICAL FORM, IN 23 COUNTRIES AND OTHER POLITICAL UNITS OF THE AMERICAS, 1969 OR MOST RECENT YEAR.

Country or other political unit	Date	Clinical form					Per cent	
		Total	Lepromatous	Tuberculoid	Indeterminate	Other forms and not specified	Lepromatous	Tuberculoid
Argentina <sup>a</sup> .....	31 Dec. 1967	6,122 <sup>b</sup>	3,164	1,806	889	263	51.7	29.5
Barbados.....	31 Dec. 1968	45	3 <sup>c</sup>	...	...	42	6.7 <sup>c</sup>	...
Brazil.....	31 Dec. 1968	112,184	61,589 <sup>c</sup>	23,110	27,485	—	54.9 <sup>c</sup>	20.6
Canada.....	31 Dec. 1967	31	8	4	1	18	25.8	12.9
Chile <sup>d</sup> .....	31 Dec. 1968	31	5 <sup>c</sup>	23	3	—	16.1 <sup>c</sup>	74.2
Colombia.....	31 Dec. 1968	18,147	11,103	...	...	7,044	61.2	...
Costa Rica.....	31 Dec. 1968	532	344 <sup>c</sup>	45	143	—	64.7 <sup>c</sup>	8.5
Cuba.....	31 Dec. 1968	4,393	2,658	994	571	170	60.5	22.6
Dominican Republic.....	31 Dec. 1968	1,347	594	400	347	6	44.1	29.7
Ecuador.....	31 Dec. 1968	1,585	685	332	528	40	43.2	20.9
Guatemala.....	31 Dec. 1967	374	200	111	16	47	53.5	29.7
Haiti.....	31 Dec. 1968	177	44 <sup>c</sup>	115	6	12	24.9 <sup>c</sup>	65.0
Honduras.....	31 Dec. 1969	274	42	124	106	2	15.3	45.3
Jamaica.....	11 Nov. 1967	610 <sup>b</sup>	267	192	138	13	43.8	31.5
Mexico.....	30 June 1969	13,654	7,453	2,678	3,354	169	54.6	19.6
Nicaragua.....	31 Dec. 1968	290	114	131	44	1	39.3	45.2
Panama.....	31 Dec. 1968	168	100	62	6	—	59.5	36.9
Paraguay.....	31 Dec. 1967	4,256	2,186	1,179	804	87	51.4	27.7
Peru.....	31 Dec. 1966	1,636 <sup>b</sup>	800	250	558	28	48.9	15.3
Trinidad and Tobago.....	31 Dec. 1968	1,461	309	958	15	179	21.1	65.6
Venezuela.....	31 Dec. 1968	17,569	8,228 <sup>c</sup>	5,159	4,182	—	46.8 <sup>c</sup>	29.4
French Guiana.....	31 Dec. 1967	948	176	355	410	7	18.6	37.4
St. Vincent.....	31 Dec. 1968	13	4 <sup>c</sup>	...	...	9	30.8 <sup>c</sup>	...
Total.....		185,847	100,076	38,028	39,606	8,137	53.8	20.5

— None.

... Data not available.

<sup>a</sup> Data refer to Provinces of Buenos Aires, Córdoba, Entre Ríos, Formosa, Misiones, Salta, Santa Fe, and Tucumán.

<sup>b</sup> Only cases under surveillance.<sup>c</sup> Including borderline cases.<sup>d</sup> Easter Island only.

which 1,563 (98.6 per cent) were under surveillance. Of the 5,383 contacts, 3,362 (62.5 per cent) were under surveillance.

The program in *Guatemala* was the responsibility of the Ramiro Gálvez Hospital (leprosarium). The reorganization of the Ministry of Health and Social Welfare, which was under consideration, called for the establishment of a leprosy control section in the Department of Communicable Diseases of the Division of Epidemiology.

The prevalence of the disease was practically unknown. In December 1967 there were 374 registered cases.

The cases registered in *Haiti* were those diagnosed at the Dermatological Clinic of the University Hospital of Port-au-Prince and numbered 177 in December 1968.

In *Honduras* the control work was done through a dermatological clinic and a mobile unit. On 31 December 1969 there were 274 registered cases, of which 166 (60.6 per cent) were under surveillance.

In *Mexico* the program had 19 dermatological clinics

and 19 mobile teams and, in addition, 760 regular units of the health services assisted with the follow-up of patients and contacts. On 30 June 1969 there were 13,654 cases in the active register, 9,630 (70.5 per cent) of them under surveillance, and 33,131 contacts, 16,442 (49.6 per cent) of which were under surveillance.

In *Nicaragua* a reorganization of the leprosy control service was under consideration. On 31 December 1968 there were 290 registered cases, with 179 (61.7 per cent) under surveillance. Of the 1,448 registered contacts, 20.8 per cent were under surveillance.

The program in *Panama* was a vertical one supported by units of the general health services. CARE provided food for distribution to patients and contacts in order to encourage their attendance at the control service. On 31 December 1968 there were 168 registered cases. Of the 852 contacts, 581 (68.2 per cent) were under surveillance.

In *Paraguay* the review and updating of the register was continued. On 31 December 1968 there were 4,256

TABLE 9. CASES OF LEPROSY IN THE ACTIVE REGISTER AND UNDER SURVEILLANCE, ACCORDING TO TREATMENT, IN 28 COUNTRIES AND OTHER POLITICAL UNITS OF THE AMERICAS, 1969 OR MOST RECENT YEAR.

Country or other political unit	Date	Total	Treatment			Per cent under ambulatory treatment <sup>c</sup>
			Hospitalized	Ambulatory	Not specified	
Argentina <sup>b</sup>	31 Dec. 1967	6,122	874	5,248	—	85.7
Barbados	31 Dec. 1968	45	7	38	—	84.4
Bolivia	30 June 1969	1,560	98	1,462	—	93.7
Brazil	31 Dec. 1968	80,215	17,799	62,416	—	77.8
Canada	31 Dec. 1967	28	1	19	8	95.0
Chile <sup>c</sup>	31 Dec. 1968	31	4	27	—	87.1
Colombia	31 Dec. 1968	13,368	714	12,654	—	94.7
Costa Rica	31 Dec. 1968	527	84	443	—	84.1
Cuba	31 Dec. 1968	4,258	442	3,816	—	89.6
Dominican Republic	31 Dec. 1968	1,317	118	1,117	82	90.4
Ecuador	31 Dec. 1968	1,563	204	1,350	9	86.9
Guatemala	31 Dec. 1967	313	37	276	—	88.2
Guyana	31 Dec. 1968	545	135	410	—	75.2
Haiti	31 Dec. 1968	157	—	157	—	100.0
Honduras	31 Dec. 1969	166	6	160	—	96.4
Jamaica	11 Nov. 1967	610	95	—	515	...
Nicaragua	31 Dec. 1968	179	85	65	29	43.3
Panama	31 Dec. 1968	168	73	95	—	56.5
Paraguay	31 Dec. 1968	3,867	256	3,602	9	93.4
Peru	31 Dec. 1966	1,636	317	1,003	316	76.0
Trinidad and Tobago	31 Dec. 1968	671	198	473	—	70.5
United States of America	31 Dec. 1967	1,363	293	689	381	70.2
Venezuela	31 Dec. 1968	8,386	550	7,234	602	92.9
Antigua	31 Dec. 1967	68	23	30	15	56.6
French Guiana	31 Dec. 1967	821	95	492	234	83.8
Martinique	31 Dec. 1966	804	149	655	—	81.5
St. Lucia	31 Dec. 1968	112	8	104	—	92.9
St. Vincent	31 Dec. 1968	13	13	—	—	—
Total		128,913	22,678	104,035	2,200	82.1

— None.

... Data not available.

<sup>a</sup> Percentage based on total cases under hospital and outpatient care.

<sup>b</sup> Data refer to Provinces of Buenos Aires, Córdoba, Entre Ríos, Formosa, Misiones, Salta, Santa Fe, and Tucumán.

<sup>c</sup> Easter Island only.

TABLE 10. NEW LEPROSY CASES DETECTED IN 20 COUNTRIES AND OTHER POLITICAL UNITS OF THE AMERICAS, BY CLINICAL FORM, 1969 OR MOST RECENT YEAR.<sup>a</sup>

Country or other political unit	Period	Total	Clinical form			
			Lepromatous	Tuberculoid	Indeterminate	Others
Argentina <sup>b</sup>	July-Dec. 1967	422	138	143	56	85
Canada	Jan.-Dec. 1967	6	3	1	—	2
Colombia	Jan.-Dec. 1968	942	495	227	220	—
Costa Rica	Jan.-June 1969	14	4	2	8	—
Cuba	July-Dec. 1968	175	63	60	46	6
Dominican Republic	July-Dec. 1968	230	76	76	76	2
Ecuador	Jan.-Dec. 1968	200	44	52	90	14
El Salvador	Jan.-Dec. 1969	4	1	3	—	—
Guatemala	Jan.-Dec. 1967	22	5	11	4	2
Honduras	Jan.-Dec. 1969	8	2	4	2	—
Mexico	Jan.-June 1969	356	165	98	89	4
Nicaragua	Jan.-Dec. 1968	8	2	4	1	1
Panama	July-Dec. 1968	4	—	4	—	—
Paraguay	Jan.-Dec. 1967	298	136	101	55	6
Peru	Jan.-Dec. 1966	98	25	27	44	2
Trinidad and Tobago	Jan.-Dec. 1968	45	5	26	—	14
United States of America	Jan.-Dec. 1968	147 <sup>c</sup>	78 <sup>d</sup>	40 <sup>e</sup>	—	29
Venezuela	Jan.-Oct. 1968	449	146	152	106	45
Martinique	Jan.-Dec. 1966	132	56	50	25	1
Surinam	Jan.-Nov. 1969	249	16	187	38	8
Total		3,809	1,460	1,268	860	221

— None.

... Data not available.

<sup>a</sup> These new cases classified by clinical form do not correspond exactly to new cases officially reported for the first time in the same years.

<sup>b</sup> Data refer to Provinces of Buenos Aires, Córdoba, Entre Ríos, Formosa, Misiones, Salta, Santa Fe, and Tucumán.

<sup>c</sup> Including 26 cases in Puerto Rico.

<sup>d</sup> Lepromatous and borderline.

<sup>e</sup> Tuberculoid and indeterminate.

TABLE 11. CONTACTS OF LEPROSY PATIENTS, UNDER AND WITHOUT SURVEILLANCE, IN 21 COUNTRIES AND OTHER POLITICAL UNITS OF THE AMERICAS, 1969 OR MOST RECENT YEAR.

Country or other political unit	Date	Contacts <sup>a</sup>			Per cent under surveillance
		Total	Under surveillance	Without surveillance	
Argentina <sup>b</sup> .....	31 Dec. 1967	16,812	7,884	8,928	46.9
Bolivia <sup>c</sup> .....	April 1968	691	691	...	...
Brazil.....	31 Dec. 1968	428,376	135,137	293,239	31.5
Chile <sup>d</sup> .....	31 Dec. 1968	34	34	...	...
Colombia.....	31 Dec. 1968	48,614	14,146	34,468	29.1
Costa Rica.....	31 Dec. 1968	2,992	1,387	1,605	46.4
Cuba.....	31 Dec. 1968	14,774	12,739	2,035	86.2
Dominican Republic.....	31 Dec. 1968	1,329	982	347	73.9
Ecuador.....	31 Dec. 1968	5,383	3,362	2,021	62.5
Guatemala.....	31 Dec. 1967	2,463	1,835	628	74.5
Haiti.....	31 Dec. 1968	269	58	211	21.6
Honduras.....	31 Dec. 1969	2,228	870	1,358	39.0
Mexico.....	30 June 1969	33,131	16,442	16,689	49.6
Nicaragua.....	31 Dec. 1968	1,448	301	1,147	20.8
Panama.....	31 Dec. 1968	852	581	271	68.2
Paraguay.....	31 Dec. 1968	14,408	3,847	10,561	26.7
Peru.....	31 Dec. 1966	20,120	2,732	17,388	13.6
Trinidad and Tobago.....	31 Dec. 1968	488	298	190	61.1
Venezuela.....	31 Dec. 1968	62,596	25,868	36,728	41.3
St. Lucia.....	31 Dec. 1968	273	175	98	64.1
St. Vincent.....	31 Dec. 1968	14	14	...	...
Total.....		657,295	229,383	427,912	34.9

... Data not available.

<sup>a</sup> Owing to variations in reporting forms used, criteria for including contacts and defining control may not correspond to those of previous years.

<sup>b</sup> Data refer to Provinces of Buenos Aires, Córdoba, Entre Ríos, Formosa, Misiones, Salta, Santa Fe, and Tucumán.

<sup>c</sup> Data provided by the Los Negros Rehabilitation Center, Department of Santa Cruz.

<sup>d</sup> Easter Island only.

registered cases, of which 3,867 (90.9 per cent) were under surveillance, and 14,408 contacts, of which 3,847 (26.7 per cent) were under surveillance.

Peru's control activities were the responsibility of the polyvalent health units and of the health posts. As of 31 December 1966 there were 2,973 cases in the active register and 20,120 contacts.

A survey undertaken in the central Ucayali region between December 1968 and February 1969 disclosed 24 new cases and identified 33 patients whose whereabouts had been unknown. In the Department of Apurímac a survey conducted in December 1968 revealed the existence of 35 new cases.

Of 1,637,453 BCG vaccinations administered in 1968, 150,738 were in the Department of Loreto.

In Venezuela responsibility for the campaign lay with

the Division of Dermatology, which was applying the administrative methodology recommended in the Cuernavaca Seminar (1963), with the necessary adaptations to its own operating system. Satisfactory results were achieved with respect to specific forms of treatment and outpatient follow-up, functional rehabilitation through surgery and prevention of deformities, and also with respect to the programming, administration, and evaluation of activities.

On 31 December 1968 there were 17,569 cases in the active register, with 8,386 (47.7 per cent) under surveillance, and 62,596 contacts, with 41.3 per cent under surveillance.

## VENEREAL DISEASES

The venereal diseases continue to be a source of concern to health authorities in the countries of the Americas and to the Organization. After a marked drop in the incidence of new syphilitic infections in the period between 1950 and 1957, the increase in recent years in the number of reported cases of syphilis and gonorrhoea constitutes a disquieting problem. Moreover, the true magnitude of the problem is unknown, the procedures for reporting vary, and the proportion of cases reported is very low. For instance, a survey made in the United States of America of case-reporting by private practitioners indicated that they notified the appropriate health authorities of only 11 per cent of all cases of infectious syphilis, 38 per cent of syphilis cases in other phases, and 11 per cent of the gonorrhoea cases they treated.

Table 12 shows the number of cases of syphilis and gonorrhoea reported to the Organization in 1969 by 31 countries and other political units in the Americas.

The Organization cooperated with Governments in the study of the problems encountered and in the preparation and evaluation of control programs, giving special attention to personnel training and the improvement of laboratory services. It also continued to encourage the participation by countries in the evaluation of laboratory test performance undertaken annually by the WHO International Reference Center at the National Communicable Disease Center in Atlanta, Georgia (USA). In 1969, 18 countries participated in the study.

As to Central America, in Guatemala and Panama, as a result of the reorganization of the health services, the control programs for venereal diseases have become the direct responsibility of epidemiological units.

I. PROTECTION OF HEALTH; DISEASES

TABLE 12. REPORTED CASES OF SYPHILIS AND GONORRHEA IN 31 COUNTRIES AND OTHER POLITICAL UNITS OF THE AMERICAS, 1969<sup>a</sup>

Country or other political unit	Syphilis	Gonorrhoea
Argentina.....	4,814	8,065
Bolivia <sup>b</sup> .....	271	238
Canada.....	2,301	27,036
Chile.....	3,193	...
Colombia <sup>b</sup> .....	...	30,464
Costa Rica.....	1,090	3,377
Cuba.....	594	235
Dominican Republic.....	9,432	14,222
El Salvador.....	8,209	5,685
Guatemala.....	1,174	4,751
Haiti.....	1,455	1,177
Honduras <sup>b</sup> .....	1,476	3,194
Jamaica.....	1,176	34,701
Mexico <sup>b</sup> .....	9,204	9,039
Nicaragua.....	896	2,222
Panama <sup>b</sup> .....	194	463
Paraguay.....	2,006	757
Trinidad and Tobago.....	750	9,104
United States of America.....	19,438 <sup>c</sup>	...
Uruguay <sup>b</sup> .....	136	85
Bahamas.....	285	115
Bermuda.....	23	263
British Honduras.....	16	71
Canal Zone.....	11	50
Dominica <sup>b</sup> .....	13	62
French Guiana.....	56	280
Grenada.....	222	1,144
Guadeloupe.....	124	...
Puerto Rico.....	2,358	2,874
St. Kitts, Nevis, and Anguilla.....	2	7
St. Lucia.....	421	450

... Data not available.

<sup>a</sup> Based on official reports received at PASB through 5 March 1970.

<sup>b</sup> Data for entire year not yet available.

<sup>c</sup> Primary and secondary syphilis.

In Costa Rica, Nicaragua, and Panama manuals of control techniques and procedures, prepared specially for physicians in the local health services, were published.

In British Honduras, with the establishment of five laboratories in the districts, it was hoped to be able to lay greater emphasis on the control program for venereal diseases, which represent a particularly serious problem in this territory.

Advisory services on serological tests for syphilis diagnosis were provided for the venereal disease campaign laboratory in Costa Rica.

In Argentina guidelines for the control of the venereal diseases were being reviewed under the National Communicable Diseases Plan.

In Chile the program continued to develop satisfactorily, especially in Santiago Province, where more cases were being detected through the investigation of contacts. A diagnostic laboratory was being organized that would

permit the routine use of the VDRL test. An evaluation of the program was made.

A three-week course was held in Colombia for personnel conducting the survey of venereal diseases in the Special District of Bogotá.

In Cuba, where the program was integrated into the general health services, the incidence of venereal diseases continued to be low in keeping with the falling trend that has continued uninterruptedly since 1962. A draft agreement with the Organization was under consideration; its object was to improve the control program, especially in regard to laboratory techniques.

The Organization signed an agreement with the Government of Ecuador to furnish technical assistance in the control of venereal diseases. The agency responsible for control activities underwent an administrative and technical reorganization and became a part of the Epidemiological Division.

In Mexico the most active programs were those in the Federal District and in the northern border states, which are those reporting the highest number of syphilis and gonorrhoea cases. The data available indicated a reduction in the incidence of both diseases in comparison with 1968.

In Venezuela a joint border meeting with the Colombian authorities, in which the Organization participated, was held at San Cristóbal on 31 October. Colombia reported on its programs of training in the investigation of contacts and Venezuela on the experience of the school operated for this purpose in Caracas, where three or four training courses for auxiliary personnel are held each year.

## YAWS

Programs for the eradication of yaws in the countries and territories of the Americas have been slowly tapering off.

According to reports received, in 1969, 23 cases were diagnosed in Colombia, 52 in Haiti, 4 in Jamaica, 1 in Panama, 1 in Trinidad and Tobago, 65 in Dominica, 75 in Grenada, and 11 in St. Lucia.

Yaws is a disease that, by its nature, can be eradicated. All that is required is to carry through a program uninterruptedly and follow it up with an epidemiological surveillance service for an adequate period of time. The cost of such measures is minimal in relation to the harm and injury done by the disease.

The reappearance of the disease is disquieting and it is

to be hoped that the problem will again receive the attention it deserves and that programs will be given the support they need to make it possible to eradicate yaws from the Hemisphere.

The Organization remains prepared to assist in achieving this objective. In recent years it has cooperated with a number of countries in preparing the ground for surveys to determine the frequency and distribution of the disease and in designing studies to evaluate the progress made. The reports made by it were submitted to each of the countries concerned.

Haiti was provided with material and equipment for its program and a medical consultant was being recruited.

## ZOONOSES

The high incidence of zoonoses in Latin America has had a serious impact on the economy and on public health in the countries. While the population is increasing at a rapid pace and the ratio of food supply to number of inhabitants becomes more critical, losses due to zoonotic diseases continue to affect livestock production and the availability of protein of animal origin, thereby compounding the nutritional problems.

Recognizing the need for effective control measures, the Governments have increased their requests for assistance from the Organization in the development of national programs and in the training of public health veterinarians specialized in zoonoses control.

During the II Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control, at the Ministerial Level, held in Rio de Janeiro, Brazil, 14-17 May, five resolutions bearing on the zoonoses programs were passed. The group recommended that Governments make provision in their agricultural development plans for the control of these serious diseases, that they give preferential treatment to veterinary medical education, and that they study the possibility of providing the Pan American Zoonoses Center with the necessary funds to expand its activities.

*Rabies*, with its wide distribution throughout the Hemisphere and the diversity of its epidemiology, continued to be the leading zoonosis in many of the countries (Table 13). Progress in the notification of this disease was made possible by the Rabies Surveillance System for the Americas (*see under* Pan American Zoonoses Center).

Great advances in canine rabies control were made in the United States-Mexico border area. Since the begin-

TABLE 13. REPORTED CASES OF RABIES IN MAN AND ANIMALS, 1968 AND 1969.<sup>a</sup>

Country or other political unit	Man		Animals	
	1968	1969	1968	1969
Argentina.....	31	2	805	551 <sup>b</sup>
Bolivia.....	5	...	...	...
Brazil.....	130	98	...	31 <sup>b</sup>
Canada.....	—	—	2,463	1,655
Chile.....	—	1	62	28
Colombia.....	95	51	130	1,843 <sup>b</sup>
Costa Rica.....	8	...	512	51 <sup>b</sup>
Cuba.....	1	—	103	140
Dominican Republic....	2	14	61	289
Ecuador.....	20	12	244	195
El Salvador.....	3	8	120	6 <sup>b</sup>
Guatemala.....	2	1	...	47
Guyana.....	—	—	...	24 <sup>b</sup>
Honduras.....	3	...	598	102 <sup>b</sup>
Mexico.....	59	10	...	1,253 <sup>b</sup>
Nicaragua.....	3	2	...	50 <sup>b</sup>
Paraguay.....	1	4	144	181
Peru.....	7	5	...	212 <sup>b</sup>
Trinidad and Tobago...	—	—	...	8 <sup>b</sup>
United States of America	1	1	3,591	3,335
Venezuela.....	16	18	880	430
Grenada.....	—	—	...	14 <sup>b</sup>
Puerto Rico.....	—	—	22	30

— None.

... Data not available.

<sup>a</sup> Data for 1969 are provisional, and, in many instances, incomplete, and are based on official reports received at PASB through 13 May 1970.

<sup>b</sup> July-December; reported in the rabies surveillance program for the Pan American Zoonoses Center.

ning of that program in 1966, no human cases of rabies have been reported. A sharp reduction in the incidence of canine rabies has been achieved; the number of owned dogs vaccinated exceeded 80 per cent of the estimated total, and about 30 per cent of the estimated stray dog population was captured and sacrificed.

As part of its assistance to the countries, the Organization sponsored several courses and seminars on rabies during the year (*see* Chapter III).

Technical advisory services were rendered to the control programs under way in Argentina, Bolivia, Brazil, British Honduras, Colombia, Costa Rica, Ecuador, Nicaragua, Panama, Peru, and Uruguay. In the first three months of a program in São Paulo, Brazil, more than 70,000 dogs were vaccinated.

As the campaigns in Central America were stepped up, the cases of rabies in man and animals were decreasing; 11 cases were reported in man and 256 in animals, as compared with 19 and 1,230, respectively, in 1968.

With the intensification of the program in Grenada to reduce the mongoose population, the number of cases of rabies in animals dropped 50 per cent as compared with

1968. Increasing use was being made of fluorescent-antibody tests for diagnostic purposes, and the canine vaccination campaign was maintained at an effective level.

With the support and assistance of the Organization, more countries were producing vaccines under quality control procedures, than at any time in the past.

*Brucellosis* continued to cause high morbidity and mortality in man in Latin America (Table 14). Of the 1,918 human cases reported, most were associated with the ingestion of infected animal products. In Peru, where an outbreak had occurred in 1968, the incidence of human cases, especially in Lima, was greatly reduced in 1969 through the control of the disease in goats. Serological sampling methods, elimination of carrier animals, and vaccination of the young replacement animals were systematically carried out. For this program, the Organization provided consultants, vehicles, and laboratory equipment; the Pan American Zoonoses Center is conducting the quality-control tests of the vaccine produced in Peru.

Assistance was also rendered to the brucellosis programs in Colombia and Mexico. In Cuba, the brucellosis

eradication program brought about a reduction in the proportion of positive reactors from 5.5 per cent in 1960 to the all time low of 1.3 per cent in 1969.

*Bovine tuberculosis.* Argentina completed studies on the prevalence of the disease in 11 ecological areas of the country. A total of 11,400 cattle were examined by means of the intradermal test. Observations were made on 2,000 cattle to evaluate the diagnostic efficacy of various concentrations of avian and mammalian tuberculin.

*Venezuelan equine encephalitis.* Several of the countries of South and Central America experienced outbreaks of this disease, which produced many clinical cases, human deaths, and a large number of deaths in horses. The Organization gave assistance to Ecuador, where the disease was first reported in April and where it caused numerous cases, 16 human deaths, and approximately 30,000 equine deaths. Consultation was provided in programs for the vaccination of equines and for vector control through the use of insecticides, and emergency laboratory facilities were set up. Guatemala reported a serious outbreak in May and June, the disease having first appeared

TABLE 14. REPORTED CASES OF ANTHRAX, BRUCELLOSIS, HYDATIDOSIS, LEPTOSPIROSIS, TRICHINOSIS, TRYPANOSOMIASIS, AND TULAREMIA, 1968 AND 1969.<sup>a</sup>

Country or other political unit	Anthrax		Brucellosis		Hydatidosis		Leptospirosis		Trichinosis		Trypanosomiasis		Tularemia	
	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969	1968	1969
Argentina.....	42	75	1,442	1,129	345	222	—	...	10	—	2,726	1,594	...	...
Barbados.....	...	...	...	...	...	...	3	8	...	...	...	...	...	...
Bolivia.....	2	...	—	...	—	...	—	...	—	...	12	...	—	...
Brazil:														
State of Alagoas <sup>b</sup> .....	—	...	—	...	...	...	...	...	...	...	7	...	...	...
State of Pernambuco <sup>b</sup> .....	...	...	...	...	...	...	16	34	...	...	...	...	...	...
State of Rio Grande do Sul <sup>b</sup> .....	...	...	...	...	...	...	...	...	...	...	1	...	...	...
State of Rio de Janeiro.....	—	...	2	...	...	...	...	...	...	...	3	...	...	...
State of São Paulo.....	...	...	1	1	...	...	60	8	...	...	6 <sup>b</sup>	...	...	...
Canada.....	—	—	19	15	...	...	...	...	14	11	...	...	12	6
Chile.....	158	74	3	...	780	...	...	...	77	...	...	...	...	...
Colombia.....	3	...	42	17	...	...	—	...	...	...	...	...	...	...
Cuba.....	...	...	33	15	...	...	...	...	...	...	...	...	...	...
El Salvador <sup>c</sup> .....	26	16	—	—	...	...	...	...	...	...	232	187	—	...
Honduras <sup>c</sup> .....	3	...	3	3	...	...	...	...	...	...	28	...	...	...
Jamaica.....	—	—	—	—	...	...	15	8	...	...	...	...	...	...
Mexico.....	24	...	1,098	502	—	...	—	...	1	...	—	...	—	...
Panama.....	...	...	—	5	...	...	...	...	...	...	1	...	...	...
Paraguay <sup>c</sup> .....	2	...	4	—	...	...	—	...	...	...	96	...	...	...
Peru.....	...	...	1,409	...	89	...	...	...	...	...	...	...	...	...
Trinidad and Tobago.....	—	...	1	—	—	...	—	...	—	...	—	...	—	...
United States of America.....	3	4	218	231	...	...	69	92	77	175	...	...	186	148
Uruguay.....	58	21	3	—	319	167	—	—	—	—	1	1	...	...
Venezuela <sup>c</sup> .....	—	...	6	...	...	...	1	...	...	...	538	...	...	...
Bahamas.....	—	...	—	...	—	...	—	...	1	...	—	...	—	...
Guadeloupe.....	...	...	—	—	...	...	...	1	...	...	...	...	...	...
Martinique.....	...	...	...	...	...	...	1	...	...	...	...	...	...	...

— None.

...Data not available.

\* Data for 1969 are provisional and, in many instances, incomplete, and

are based on official reports received at PASB through 13 May 1970.

<sup>b</sup> Data for capital city.

<sup>c</sup> 1968 data for reporting area.

along the border with El Salvador and progressing thereafter across the southern boundary of the country. The Organization gave assistance in isolating the sick animals and in obtaining modified live virus vaccine from laboratories in the United States of America in order to launch a national vaccination campaign. Subsequent outbreaks occurred in El Salvador, Honduras, and Nicaragua. Several human cases and deaths were recorded, principally in children under 5 years of age. In Central America there were approximately 8,000 equine deaths, and 300,000 animals were vaccinated.

### Pan American Zoonoses Center

Renewed support for the work of the Center was expressed at the II Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control, and as the countries made greater use of its technical services and training and research facilities, the Center continued to extend its activities on the continental scale.

The addition of new scientists brought the Center's professional staff to full capacity. An additional veterinary epidemiologist was added to the staff, on detail from the Veterinary Medical Section of the U.S. Air Force. A total of 32 consultants and temporary advisers provided assistance to the Center during the year.

**Technical services.** With the cooperation of 24 countries of the Hemisphere, the Rabies Surveillance System for the Americas was established, and its first report was prepared and distributed during the year. Each participating country forwarded the monthly epidemiological data to the Center, which made the pertinent analyses and reported the results back to the participants. The basic data covered the occurrence of cases in man and animals, activities for diagnosis and treatment in man, and information relative to postvaccinal neuroparalytic reactions.

In Argentina the Center continued to collaborate in the canine vaccination program against rabies in the Federal District and greater Buenos Aires. It assisted in obtaining first-hand information on the prevalence of rabies in the interior, gave technical advice in connection with a cattle vaccination program in the northern provinces, and assisted with a study of methods for controlling vampire bats. Staff of the Center cooperated in studies on the microbiological contamination of meat for export, in the diagnosis of hydatidosis in the area of Neuquén, and in studies on the production and management of laboratory animals in Santa Fe Province.

Programs for the control of rabies and brucellosis were being conducted in Bolivia with financial aid from the

Inter-American Development Bank and technical assistance from the Center. During an outbreak of hemorrhagic fever in that country, the national authorities were assisted with the investigations and the establishment of control measures.

The Center was collaborating in a study in Colombia to determine the prevalence of hydatidosis in the sheep-raising zones and develop measures to reduce the risk of introduction of the disease into non-affected areas. In the brucellosis control program, advice was given on the production of antigens and vaccines and on interpretation of serologic results.

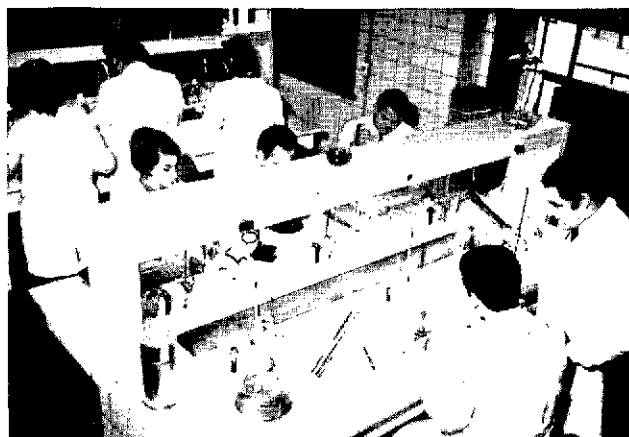
In Mexico assistance was rendered in connection with the program for the control of brucellosis, using *Br. melitensis* Rev. 1 vaccine in goats.

The health authorities of Peru were assisted with the goat brucellosis control program and also with the diagnosis of hydatidosis.

In Uruguay technical advice was given on epidemiological aspects of hydatidosis control and also on the latest techniques for the microbiological sampling of foods, especially those of animal origin.

Laboratory services were rendered to 12 countries of Latin America. They included assistance in the standardization and evaluation of biological reagents essential for the epidemiological investigations. In addition, many reagents were produced at the Center and distributed to 15 countries of the Hemisphere. Other services were those related to reference diagnosis, control of vaccines, and typing of strains of various mycobacteria. The Center's facilities for producing biologicals were being expanded.

**Education and training.** Three international courses were conducted at the Center: a two-week course on the production of *Br. abortus* strain 19 vaccine and diagnos-



Serologic tests for the diagnosis of hydatidosis are made at the Pan American Zoonoses Center.





Radiotelemetry is used in studies on vampire bat ecology. A mini-radio transmitter attached to the bat's back emits signals when the animal is in flight. These are picked up by a field receiver and reveal the exact location of bat colonies.

tic antigens, in June, for 17 fellows from seven countries; a two-week course on the breeding and handling of laboratory animals, in August, for 17 participants from eight countries; and a two-week seminar on the production and control of rabies vaccines, in November, for 25 fellows from 11 countries.

Staff of the Center conducted or assisted in the following Organization-sponsored courses: in Argentina, courses on rabies and immunofluorescence diagnostic techniques (Buenos Aires, Córdoba, and Tucumán), on epidemiology of communicable diseases (Santa Fe), and on parasitology (Buenos Aires); in Belo Horizonte, Brazil, a course on production and control of rabies vaccines (23 participants); in Medellín, Colombia, a public health course; in Mexico, courses on diagnostic techniques for brucellosis; and in Lima, Peru, a rabies seminar (80 participants from five countries) and a course on epidemiology. They also gave assistance in a FAO course on milk hygiene in Santiago, Chile.

Twenty-eight fellows from 11 countries received individual training in the Center during the year.

**Research.** Basic and applied research was conducted by 15 scientists of the Center in the fields of rabies, brucellosis, tuberculosis, leptospirosis, hydatidosis, food microbiology, laboratory animal medicine, and the use of radio telemetry related to vampire bat ecology.

**Rabies.** The greater part of the research work was devoted to rabies, the most important of the zoonoses affecting Latin America. The studies included those related to

reference control of vaccines, evaluation of vaccines for bovine use, development of a serologic test, interference between rabies and Echo-11 viruses, nonfatal rabies in dogs, ecological and virological aspects of bat rabies, evaluation of schedules of postexposure vaccination of humans, sensitivity of tissue culture systems supplemented with DEAD-Dextrine for isolation of street rabies virus, and evaluation of the corneal test as an ante-mortem laboratory method for rabies diagnosis.

**Brucellosis.** Study trials were being conducted to determine the best type and method of vaccination for the prevention of caprine and swine brucellosis. As part of the applied research, a brucellosis eradication program was being carried out in two large dairy establishments where 9,500 animals were kept for milk production. By vaccinating calves aged from 3 to 6 months with *Br. abortus* strain 19 vaccine, using the serum agglutination plate test and isolating the reactors, it was possible to reduce the prevalence of the disease from 26 per cent in 1960 to less than 1 per cent in 1969.

**Hydatidosis.** In search of a better method for diagnosing hydatidosis in man, a study was being conducted for the purification of antigens from *E. granulosus* hydatid cyst fluid. This purified antigen was constantly being evaluated in a series of about 100 patients from Argentina, Chile, Peru, and Uruguay. Concurrently with this study, the introduction of a rapid and reliable system for the production of specific antisera has made available large quantities of antisera for use both within

the Center and as standard reagents for distribution to other laboratories of the Americas. For the purpose of improving the diagnosis of ovine hydatidosis carriers, immunological studies were conducted with infected and noninfected sheep; serologic responses were measured by hemagglutination and immunoelectrophoresis tests.

**Tuberculosis.** With the addition of a consultant in tuberculosis to the staff, several applied research studies were undertaken, among them tuberculin testing in swine and cattle and examination of milk samples for tubercle bacilli.

**Laboratory animals.** A survey was conducted to determine the need for laboratory animals and the conditions under which they are bred in Latin America. The survey revealed that 90 per cent of the animals were produced in Argentina, Brazil, Colombia, Mexico, and Venezuela; that 46 per cent of the organizations using laboratory animals were teaching institutions; and that of the 157 colonies surveyed (representing 90 per cent of the animals produced), 40 per cent lacked professional supervision.

**Other activities.** Staff of the Center participated in the following meetings: IX International Congress of Hydatidosis (San Martín de los Andes, Argentina); II Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control (Rio de Janeiro, Brazil); Meeting of the International Committee on Food Microbiology (Dubrovnik, Yugoslavia); X and XI Meetings of the Technical Regional Committee of Animal Health (Buenos Aires, Argentina, and Rio de Janeiro, Brazil); Meeting of the American Veterinary Medical Association (Minneapolis, U.S.A.); Meeting of the Association for Research in Nervous and Mental Diseases, Inc. (New York, U.S.A.).

The Third Meeting of the Scientific Advisory Committee of the Center, held in November, evaluated the activities carried out and made recommendations for the next year's program.

### **Pan American Foot-and-Mouth Disease Center**

Foot-and-mouth disease continued to be the principal health problem in livestock in most countries of South America. The major concern was to control the disease in areas where it was present and to prevent its spread to non-affected areas. Efforts to strengthen the campaigns were under way at three levels: (a) within the countries themselves, the animal health authorities were mobilizing their own resources; (b) intercountry working arrangements were established in order to better utilize available facilities and personnel; and (c) the Inter-American Development Bank was providing financial assistance at the

international level. On an increasing scale, the Center gave assistance at all three levels, providing consultation, technical services, and training and undertaking research.

Decisions taken by the Ministers of Agriculture at the II Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control led to the recognition of the Center as the diagnostic reference laboratory for this disease in the Americas and to the establishment of the Inter-American Foot-and-Mouth Disease Epidemiological Surveillance System. The need was apparent for a reliable surveillance system to assess the disease situation in all the countries, evaluate the effects of the campaigns, and provide the necessary monitoring to ensure early detection of new outbreaks. The Center was receiving the basic epidemiological data from the countries for analysis, and the results were reported in the first issue of its *Epizootiological Bulletin*. Also, advisory services were rendered to the countries on the location, design, and construction of the necessary laboratories to support the control campaigns.

**Technical services.** The Center continued to assist the affected countries with the planning of foot-and-mouth disease campaigns, the drafting of loan requests to the Inter-American Development Bank, and the organization of statistical services. Cooperation was also extended to all countries in the disease-free area, through the provision of technical assistance and training and diagnostic services. Consultants advised the Governments of Colombia and Panama on the development of a prevention program along their common border, which represents the line of separation between affected and non-affected countries. The presence of vesicular stomatitis in the non-affected area could very easily hide the introduction of foot-and-mouth disease, and strict surveillance of any vesicular disease in that area therefore received top priority.

In June, Argentina declared all of its territory south of latitude 42° to be free of foot-and-mouth disease. The Argentine-U.S. Joint Commission was given assistance in the study trials of various types of inactivated vaccines in cattle.

In Bolivia plans were being made to develop a program of epidemiological research and vaccine testing in the Cochabamba area.

The production of vaccine in Brazil reached the record high of 80 million doses, and estimates of cattle vaccinated in the country reached 25 million head. In Rio Grande do Sul, for example, 84 per cent of all cattle were vaccinated, and the morbidity rate for the disease was less than 0.02 per cent. The Government submitted a loan request to the IDB to assist in financing a national foot-and-

mouth disease control program costing approximately US\$61.2 million.

The IDB approved a national plan for combating foot-and-mouth disease in Chile. Preparations for the campaign were begun at midyear.

From March to August, Ecuador suffered a serious outbreak of foot-and-mouth disease, caused by virus types O and A. The Center assisted in assessing the problem and planning suitable control measures.

Continuing assistance was given to Paraguay in the design of a vaccine quality-control laboratory and in the organization of the second phase of the vaccination program.

Peru completed the planning of a national control program, to be carried out with financial assistance from the IDB.

In Uruguay the foot-and-mouth disease vaccination program covered the entire country. Some 6.5 million doses were administered to 75 per cent of the bovine population of vaccination age. Consequently, the incidence of the disease was extremely low.

Assistance was rendered to Venezuela and Brazil in the detection of carriers among cattle to be imported from the latter country; 10 per cent of the 186 animals examined were identified as carriers. The Center also worked closely with the Veterinary Research Center in Maracay in connection with certain studies on foot-and-mouth disease.

The Center's laboratory diagnosis services examined 611 samples from 11 South American countries, completing the typing and subtyping of the viruses isolated. They prepared a vaccine with the new subtype isolated in Colombia, which was subsequently utilized in the epidemic area. The new subtype was also made available to laboratories in the neighboring countries. Another new subtype identified in Uruguay was forwarded to the World Reference Laboratory.

Since very little is known about the prevalence of carriers in convalescent cattle under natural conditions, studies of these animals were being conducted in many different ecological areas.

**Education and training.** Three international courses were presented by staff of the Center: a course at the Center (May-June) on the diagnosis of vesicular diseases, attended by 14 participants from 12 countries; one presented in Spanish in Guayaquil, Ecuador (September), on preventive campaigns for disease-free countries, attended by 14 veterinarians from eight countries; and another on the same subject presented in English, in Maracay, Venezuela (December). National courses on control procedures were held in Salvador and Pôrto Alegre, Brazil.



Reference diagnosis services are an important part of the work of the Pan American Foot-and-Mouth Disease Center. Many countries of the Americas send in for examination specimens from animals suspected of having the disease.

Individual instruction continued to be an important function of the Center's training program. Of the 21 trainees received in 1969, 14 held PAHO fellowships and the others were assisted by grants from their respective institutions.

**Research.** In collaboration with the U.S. Department of Agriculture Laboratory at Plum Island, New York, further research was conducted for the preparation and use of an inactivated vaccine with an oil adjuvant.

A study carried out by the Center revealed that variation of the inoculation schedule of vaccines did not provide an acceptable degree of protection when applied in calves less than one year of age.

A large amount of the research at the Center was conducted with the modified live virus vaccine because of the higher degree of protection it confers. The studies were designed to improve its usefulness by maintaining its anti-

genic properties and reducing or eliminating the undesirable aspects.

Another important project was the search for genetic markers of the foot-and-mouth disease virus for the purpose of differentiating between virulent and attenuated strains. Other studies dealt with the effects of polyionic compounds on plaque production in some strains of vesicular stomatitis virus; preliminary tests on the quality control of foot-and-mouth disease vaccines by means of a special index; *in vitro* studies of foot-and-mouth disease viruses; immunity tests in cattle with two virus subtypes; and convalescence immunity in swine and sheep.

**Other activities.** The Scientific Advisory Committee of the Center met from 5 to 7 November to review the year's activities and make recommendations for future programs.

Short-term consultants made studies at the Center on the expansion of its facilities, on operational research, on computerized data recording and analysis, and on immunochemical relationships of inactivated and live virus immunization.

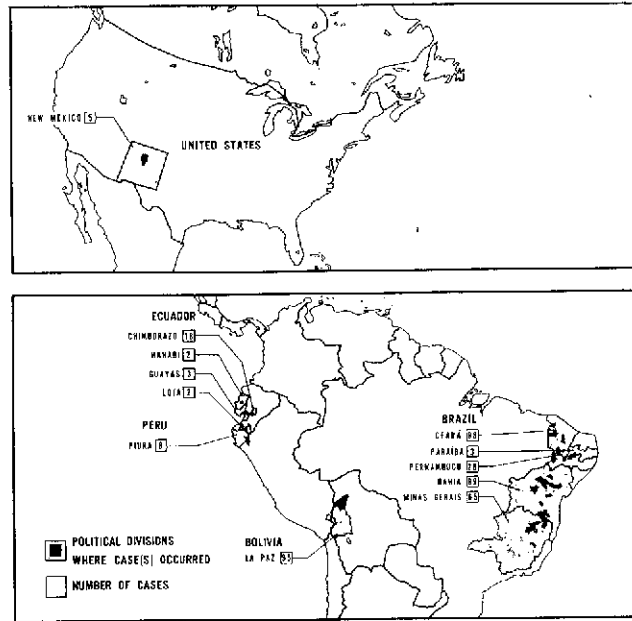


FIG. 4. REPORTED CASES OF PLAGUE IN THE AMERICAS, 1969.

## PLAGUE

Plague continues to exist in its sylvatic form in Bolivia, Brazil, Ecuador, Peru, United States of America, and Venezuela. In the past 10 years, reported human cases in the Americas have been limited to these countries.

Ever since its foundation, the Organization has concerned itself with the problem of plague and has assisted Governments in the control of this disease.

In 1959, 93 cases were reported, whereas the total rose to 258 in 1960, initiating an upward trend in the incidence of human cases that continued until 1966. In 1967, however, there was a sharp drop, although the figures for

the past two years appear to indicate the reappearance of a slight upward trend.

In 1969, 424 cases were reported to the Organization (Table 15 and Figure 4), 32 more than those recorded in 1968. Of the reported cases, 293 occurred in Brazil, 95 in Bolivia, 23 in Ecuador, eight in Peru, and five in the United States of America. In Venezuela, where no human cases have occurred since 1962, none were reported in 1969.

In *Bolivia* the 95 cases occurred in Apolo Canton, Caupolicán Province in the Department of La Paz. Of these, 80 were the result of a serious outbreak that occurred between February and March and in which 22 persons died. The Regional Plague Adviser assisted in the study of the outbreak.

TABLE 15. REPORTED CASES OF PLAGUE IN THE AMERICAS, 1959-1969.<sup>a</sup>

Country	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	Total
Bolivia	—	12	20	—	53	49	149	3	3	35	95	419
Brazil	16	28	106	36	39	285	119	48	157	285	293	1,412
Ecuador	40	77	105	326	258	194	369	171	19	24	23	1,606
Peru	33	139	68	164	72	125	200	669	41	45	8	1,564
United States of America	4	2	3	—	1	—	8	6 <sup>b</sup>	3	3	5	35
Venezuela	—	—	6	1	—	—	—	—	—	—	—	7
Total	93	258	308	527	423	653	845	897	223	392	424	5,043

— None.

<sup>a</sup> Based on official reports received at PASB through 28 April 1970.

<sup>b</sup> Including one imported case.

In *Brazil* the high 1968 rate of incidence was maintained. The 293 cases were in the States of Bahia (99), Ceará (98), Minas Gerais (65), Pernambuco (28), and Paraíba (3).

The research that has been conducted since 1966 at the Plague Research Center in Exu (Pernambuco) was continued with PAHO/WHO support in the form of visits to the Center by expert consultants who assisted with field work. The factors in the chain of transmission in the Exu-Bodocó areas were identified, but so far no evaluation has been made of the results obtained or of how they should be applied to bring about improvements in programs to control the disease. In 1969 a permanent consultant was attached to the Center with the task of assisting with the epidemiological studies on plague that were under way in Brazil.

In *Ecuador* the incidence of the disease was practically the same (23 cases) as in 1968 (24). The cases occurred in the Provinces of Chimborazo (16), Guayas (3), Manabí (2), and Loja (2).

With guidance from the Organization, a start was made on the reorganization of the system of plague control. Special importance was attached to ecological research and to indicators that would make it possible to determine in which areas control activities were most necessary. In accordance with this new approach, such activities would be concentrated in areas in which outbreaks occurred and where the results of surveillance indicated the need for control. The Organization also provided materials for the campaign.

In the Provinces of Chimborazo and Manabí, a short training course for program personnel was held.

The eight cases in *Peru* occurred in the Department of Piura, Huancabamba Province. The program, in its administrative and financial aspects, was integrated into the Piura-Tumbes Health Area. In field activities the guiding principle was to provide protection through disinsectization and deratting operations in areas in which plague was present, according to the analysis of the occurrence of human cases in previous years and the results of epidemiological surveillance.

During August and September a consultant from the Organization conducted a training course for program personnel on the role of rodents in plague transmission.

The five cases in the *United States of America* occurred in the State of New Mexico.

Chapter V contains further information on research activities in this field.

## POLIOMYELITIS

Oral vaccination against poliomyelitis has resulted in a complete reversal of morbidity and mortality rates for this disease in all countries of the world in which campaigns of this kind have been effectively planned and conducted. In the Region of the Americas this change has been observed in Canada, Cuba, and the United States of America.

The available information on reported cases of poliomyelitis and rates per country between 1964 and 1969 is given in Table 16 and data on persons immunized between 1965 and 1968 appears in Table 17.

In Canada two cases occurred during the year. In Cuba no cases were reported. In the United States of America, the occurrence of 17 cases without a single death in 1969 represents a spectacular reduction when compared with the 30,000 cases and more than 1,000 deaths reported in 1955.

Vaccination programs carried out in Mexico have held down morbidity rates to below 2 per 100,000 inhabitants since 1962, with the single exception of 1966. Because of financial and administrative difficulties, none of the countries of Central America have achieved the same success. In 1969 there was a significant increase in the number of cases in Costa Rica, Nicaragua, and British Honduras. The majority of these were children under 3 years of age, a fact that reflects the low level of immunization in this age group and is the result of sporadic vaccinations of the population undertaken in the face of outbreaks of the disease.

In South America the incidence pattern has been similar to that in Middle America. Between 1958 and 1968 the rate fell from 4.1 to 1.9 per 100,000 inhabitants. In Argentina, Ecuador, and Peru epidemic outbreaks occurred in 1969. In the first months of the year Argentina suffered an outbreak of 107 cases (type 1 virus), 95.2 per cent of them children under 5 years of age; the total number of cases during the year was 256. In Ecuador 503 cases (type 1 virus) occurred in 1969, 92 per cent of them children under 4 years. Peru recorded 103 cases (type 1), 92 per cent of them children under 3 years. A marked rise in cases occurred in May, which, as it exceeded the critical level, was regarded as the beginning of an epidemic outbreak. The appropriate measures were therefore taken and the immunization of the susceptible population with type 1 monovalent vaccine was initiated. A 63.6 per cent coverage of children between 2 months and 4 years of age was achieved.

TABLE 16. REPORTED CASES OF POLIOMYELITIS IN 26 COUNTRIES OF THE AMERICAS, WITH RATES PER 100,000 POPULATION, 1964-1969.

Country	Cases						Rates					
	1964	1965	1966	1967	1968 <sup>a</sup>	1969 <sup>b</sup>	1964	1965	1966	1967	1968 <sup>a</sup>	1969 <sup>b</sup>
Argentina.....	557	260	574	80	168	256	2.5	1.2	2.5	0.3	0.7	1.1
Barbados.....	—	—	—	1	—	—	—	—	—	0.4	—	—
Bolivia <sup>c</sup> .....	10	41	14	4	5	20	0.2	0.9	0.8	0.4	0.2	0.8
Brazil.....	...	...	...	...	1,585	1,121	...	...	...	...	1.8	1.2
Canada.....	19	3	3	2	—	2	0.1	0.0	0.0	0.0	—	0.0
Chile.....	363	206	141	79	63	76	4.3	2.4	1.6	0.9	0.7	0.8
Colombia.....	755	330	489	520	261	159	4.3	1.8	2.6	2.8	1.3	0.8
Costa Rica.....	10	15	10	7	3	105	0.7	1.0	0.6	0.4	0.2	6.3
Cuba.....	1	—	—	—	—	—	0.0	—	—	—	—	—
Dominican Republic.....	17	46	17	51	30	32	0.5	1.3	0.5	1.3	0.7	0.8
Ecuador.....	89	217	148	796	52	503	1.8	4.2	2.8	14.5	0.9	8.7
El Salvador <sup>d</sup> .....	20	81	36	74	63	38	0.7	3.7	1.6	3.0	2.3	1.4
Guatemala.....	74	210	118	240	141	124	1.7	4.7	2.6	5.1	2.9	2.5
Guyana.....	—	—	—	1	—	—	—	—	—	0.1	—	—
Haiti.....	23	5	5	3	162	3	0.5	0.1	0.1	0.1	3.5	0.1
Honduras <sup>e</sup> .....	38	265	38	79	62	32	3.0	23.2	2.8	4.9	3.8	1.9
Jamaica.....	57	53	6	7	—	1	3.3	3.0	0.3	0.4	—	0.1
Mexico.....	404	477	1,024	636	850	336	1.0	1.1	2.3	1.4	1.8	0.7
Nicaragua.....	47	105	15	461	7	154	2.9	6.3	0.9	25.9	0.4	8.0
Panama.....	20	9	4	55	2	—	1.7	0.7	0.3	4.1	0.1	—
Paraguay <sup>c</sup> .....	40	18	14	63	70	111	3.6	1.7	1.3	5.6	6.0	9.3
Peru <sup>e</sup> .....	553	444	138	161	270	103	10.2	7.5	2.3	2.6	4.2	1.6
Trinidad and Tobago.....	4	—	1	3	1	9	0.4	—	0.1	0.3	0.1	0.9
United States of America.....	122	72	113	41	53	17	0.1	0.0	0.1	0.0	0.0	0.0
Uruguay.....	21	12	29	22	6	3	0.8	0.4	1.1	0.8	0.2	0.1
Venezuela <sup>e</sup> .....	226	118	199	121	568	40	3.9	2.0	3.2	1.9	8.5	0.6
Northern America.....	141	75	116	43	53	19	0.1	0.0	0.1	0.0	0.0	0.0
Middle America.....	715	1,266	1,274	1,617	1,321	834	1.0	1.7	1.7	2.1	1.6	1.0
South America <sup>f</sup> .....	2,614	1,646	1,746	1,856	1,463	1,271	3.6	2.2	2.4	2.5	1.9	1.6

— None.

... Data not available.

<sup>a</sup> Provisional data for some countries.<sup>b</sup> Provisional data; incomplete data for Colombia, Honduras, Mexico, Panama, Peru, Uruguay, and Venezuela.<sup>c</sup> Reporting area from 1966.<sup>d</sup> Reporting area from 1965.<sup>e</sup> Reporting area.<sup>f</sup> Excluding Brazil.

Undoubtedly, with improvements in environmental sanitation, the opportunities for propagation of enteric viruses, including those of poliomyelitis, will be reduced and the number of susceptible persons will increase as a consequence of the absence of natural infection. Furthermore, the accelerated rate of urbanization is substantially increasing the proportion of the population that is unprotected, progressively transforming poliomyelitis into an important public health problem. In recent years the viruses have been extremely active, even in areas in which the disease was unknown clinically.

Aware of this situation, the Organization established at the Headquarters Office the poliomyelitis unit in the Department of Communicable Diseases. It also signed an agreement with the Government of Mexico, under which

the production of poliomyelitis vaccine will be increased to meet the demands from other Latin American countries. An expert adviser was appointed to Mexico and equipment was supplied for the expansion and modernization of the vaccine production laboratory. Also, fellowships were awarded to enable technicians to study vaccine production techniques in England and in Italy. The direction of these technical and scientific activities was undertaken by Dr. Albert Sabin.

According to a survey made by the Organization, satisfactory conditions for poliomyelitis diagnosis, including the virus typing, existed in the following countries (in addition to Canada and the United States of America): Argentina, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Peru, Trinidad and Tobago, and Venezuela. With

TABLE 17. PERSONS IMMUNIZED WITH ATTENUATED LIVE POLIOVIRUS VACCINE BY COUNTRY, 1965-1968.

Country	Number of doses <sup>a</sup>	1965	1966	1967	1968
Argentina <sup>b</sup>	3	6,774,571	10,186,196	3,005,529	2,244,742
Barbados	3	2,118	1,521	2,484	18,068
Bolivia	2	10,505	71,797	...	608
Brazil	2	...	...	7,708,056	...
Chile	2	190,935	228,271	268,227	239,590
Colombia	2	29,364	92,421	228,878 <sup>b</sup>	...
Costa Rica	3	...	94,967 <sup>b</sup>	...	...
Cuba	2	230,716	234,985	222,872	...
Dominican Republic	2	72,101	28,659	24,436	...
Ecuador	3	...	15,484	620,091 <sup>c</sup>	493,634
El Salvador	2	174	325,000 <sup>b</sup>	82,853	69,241
Guatemala	2	...	46,362	116,127	...
Guyana	Not stated	...	20,604	...	...
Honduras	2	106,540	50,213	79,832	64,505
Jamaica	3	13,135	21,347	7,351	...
Mexico	3	3,635,686	1,140,510	1,704,127	2,293,027
Nicaragua	3	19,680	...	...	...
Panama	2	5,761	8,958	60,970	14,010
Paraguay	2	266,789	16,931	11,976	763
Peru	3	17,981	1,969,500 <sup>c</sup>	755,800 <sup>c</sup>	...
United States of America <sup>d</sup>	3	...	...	10,240,902	...
Uruguay <sup>b</sup>	2	34,043	81,915	335,854	188,417
Venezuela	3	476,311 <sup>c</sup>	486,801	137,914	190,730

... Data not available.

<sup>a</sup> From country reports on the number of doses usually given in the primary course.

<sup>b</sup> Number of doses administered.

<sup>c</sup> Based on second doses only.

<sup>d</sup> Based on the percentage of the population 1-4 years of age found to have had 3 or more doses of live or inactivated poliovirus vaccine in a sample survey in 1968; in addition 10.4% of this population had 2 live and 0.1 or 2 inactivated doses and 64.5% of the infants under 1 year old had one dose or more of live or inactivated poliovirus vaccine.

these resources it would be possible to assist the other countries when they face emergencies. Arrangements were being made for the PAHO laboratory specialist to visit these countries in order to obtain additional data and provide advisory services to enable the laboratories to increase their efficiency in poliomyelitis diagnosis.

These studies were initiated to obtain an estimate of the quantities of vaccine needed to undertake an immunization campaign in Latin America as a whole, and in Central America in particular, as the first stage of a continental program.

An approach was also being made to the World Health Foundation to obtain its support for vaccination campaigns.

## INFLUENZA

The epidemic of A2 Hong Kong influenza which was first recognized in July 1968 in Hong Kong, and then spread throughout Southeast Asia to the United States of America and to Europe during the fall and winter of 1968, diminished in late spring 1969 in most areas of the

world. Although little or no activity of the virus was reported in the northern hemisphere after that, smoldering activity was reported in the southern hemisphere.

Outbreaks of A2/Hong Kong/68 influenza were confirmed in Argentina, Aruba, Brazil, Chile, Jamaica, Mexico, Peru, Uruguay, and Venezuela.

In *Argentina* three outbreaks of influenza-like disease were reported in May and June. The first occurred in Comodoro Rivadavia, Patagonia, and the second in the suburbs of Buenos Aires; in both outbreaks the disease was mild and several strains of A2/Hong Kong/68 influenza virus were isolated. In the third outbreak, reported in Córdoba and other cities of Córdoba Province, 22 strains of that virus were recovered.

An epidemic on the island of *Aruba* in early December was associated with A2/Hong Kong/68 virus.

In *Brazil* a progressive increase in incidence of influenza-like disease was observed in Guanabara State in early March, and in Belém, Pará State, in February and March. Four strains of A2/Hong Kong/68 virus were isolated in Guanabara and three in Belém. A survey of 9,000 persons in 11 establishments in Belém revealed that more than half of them had been affected since January.

*Chile* reported influenza-like disease of epidemic pro-

portions in Santiago and the central provinces. The peak occurred in the third week of July and the epidemic was waning by mid-August.

In *Mexico* the seasonal increase in respiratory illnesses which began in the Federal District in November rapidly surpassed the average incidence observed in previous years, reaching the peak during December. All age groups were affected; the greatest numbers of deaths occurred in the oldest groups, followed by those in small children. From 35 to 40 per cent of the population was affected. Influenza virus A2/Hong Kong/68 was isolated.

Outbreaks of moderate extent were reported in several other areas of the country, beginning at the same time as the one in Mexico City or soon after.

*Uruguay* reported widespread epidemic activity during June. School and industrial absenteeism reached 50 and 20 per cent, respectively, and schools were completely closed from 18 to 30 June.

Strains of influenza virus from both Uruguay and Chile, as well as strains isolated in Argentina in the same period, were confirmed as closely related to A2/Hong Kong/68 by the World Health Organization International Influenza Center for the Americas, in Atlanta, Georgia, U.S.A.

In *Venezuela* an increase in influenza-like disease associated with A2/Hong Kong/68 virus occurred in Caracas during the first three weeks of December. Increased demand for medical care and a slight rise in the general mortality were observed during that period, but the outbreak was considered to be declining by the end of the month.

In *Canada* influenza appeared in early December 1968 in Montreal and outbreaks occurred throughout most of the country in that month and during January and February 1969. The disease attacked all age groups, was generally mild, and was most prevalent in urban populations. Excess mortality and absences due to sickness appear to have been no higher than in 1967-1968, when influenza was also epidemic.

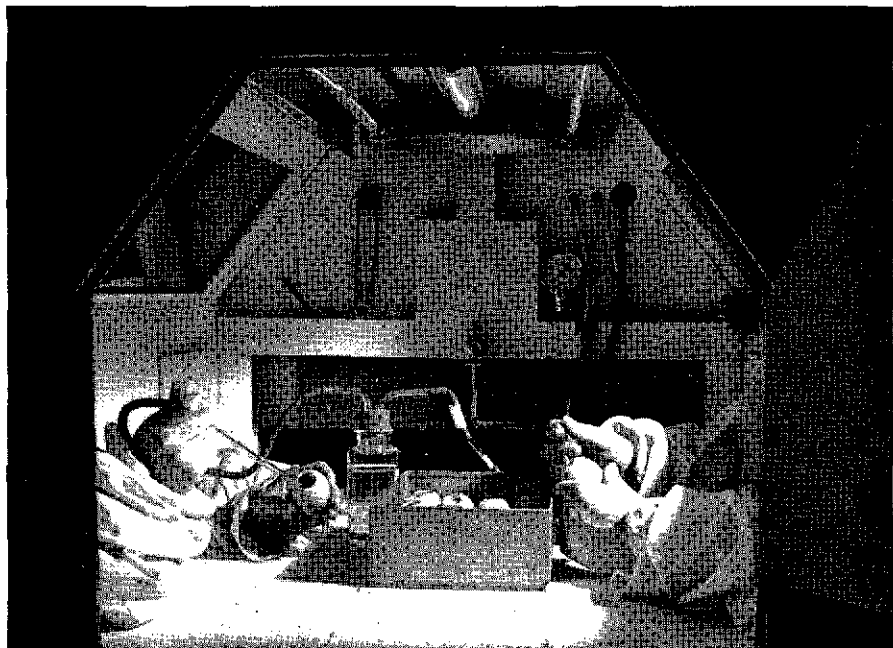
During the 1968-1969 influenza season in the *United States of America*, there was widespread activity due to A2/Hong Kong/68 strains and some activity due to influenza B. The Hong Kong virus was first introduced in the country in early September 1968. Outbreaks reached their peak in early January 1969 and declined in late January. In all, 44 states, the District of Columbia, and Puerto Rico reported widespread influenza A2 activity. Activity by the Hong Kong strains was confirmed in all states except Nebraska. All strains which were examined were almost identical antigenically with those isolated in Hong Kong in July 1968.

In all nine geographic divisions of the country excess pneumonia and influenza mortality peaked sharply in early January (Figure 5).

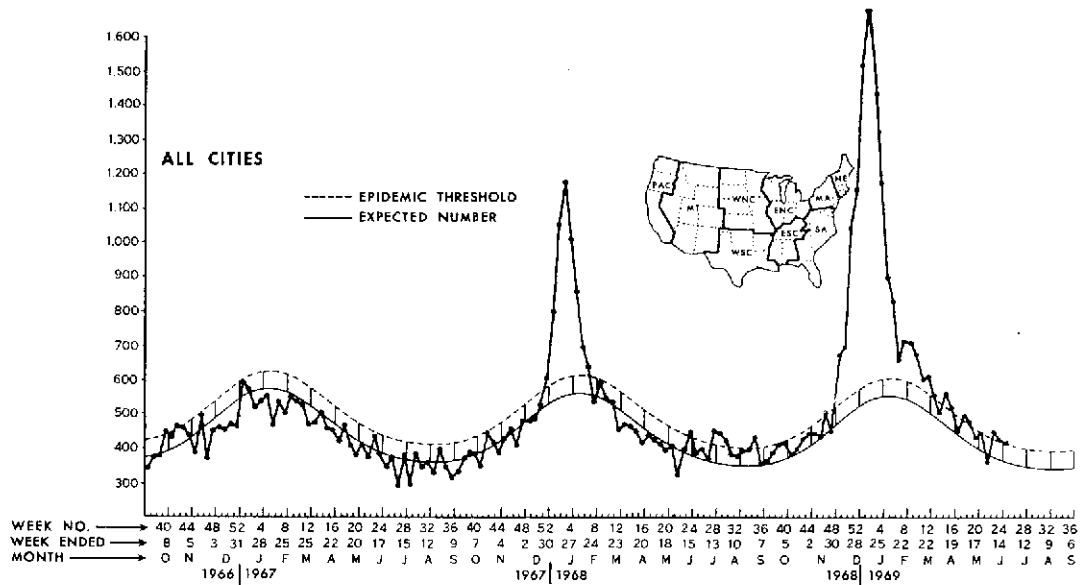
Outbreaks of influenza B infection began in January and became widespread only in the central part of the country. Unlike the A2 Hong Kong strain, which affected all age groups, type B occurred primarily in school-age children; all strains examined were closely related to the B/Massachusetts/3/66 strain.

The influenza outbreaks which began in late November

Harvesting the virus for the preparation of influenza vaccine. The Organization's assistance to Governments includes the provision of strains for the preparation of their vaccines.







Source: National Communicable Disease Center, U.S. Public Health Service: *Morbidity and Mortality -- Weekly Report*, Vol. 18, No. 25, 1969.

FIG. 5. PNEUMONIA-INFLUENZA DEATHS IN 122 CITIES IN THE UNITED STATES OF AMERICA, 1966-1969.

in the northern and south-central regions of Alaska were on the wane by the end of December. Information received for the last week of 1969 indicated that outbreaks of influenza-like illness were just beginning to be noted in the southeastern region, in Juneau and Sitka.

At the year's end in the United States there were only a few scattered isolations of A2/Hong Kong/68-like virus and no influenza B isolations. During the fall and winter, there was no sustained excess mortality due to pneumonia-influenza in the 122 cities reporting.

As a part of its program on viral diseases, the Organization continued to assist the Governments by providing information on influenza outbreaks in different regions of the world, reagents for early diagnosis of the disease, strains for the preparation of vaccines, fellowships for training, and technical assistance for control activities.

## ARBOVIRUS INFECTIONS

### Encephalitis

In the *United States of America* \* there were no outbreaks of arthropod-borne encephalitis in man in 1969,

\* Source: National Communicable Disease Center, U.S. Public Health Service. *Morbidity and Mortality—Weekly Report*, Vol. 18, Nos. 28, 31, 38, 39, and 52 (1969).

although some sporadic cases among humans and outbreaks among horses did occur.

In the western states, reports of the disease in horses in the Columbia River Basin decreased after a peak was reached in late July and early August. Western encephalitis virus was confirmed as the etiologic agent in 20 equine cases in the States of Washington and in 34 in Oregon. Equine cases due to the same virus were reported from California, Idaho, New Mexico, and Texas.

One case of St. Louis encephalitis in man was reported from Nevada. In California the encephalitis surveillance activities, from June to September, resulted in the detection of five cases in man due to St. Louis virus. This virus was isolated from pools of *Culex tarsalis* mosquitoes collected during the same period and in the same areas where the human cases occurred. In the entire state, 57 clinical cases of encephalitis in equines were reported, and Western equine virus infection was confirmed in two of them.

In the midwestern states, cases due to California encephalitis virus were confirmed in 12 children hospitalized in Wisconsin.

In the eastern states, cases of Eastern encephalitis in equines were confirmed in Florida, Georgia, New Jersey, North Carolina, and South Carolina. In Florida, two cases were reported in man.

In *Canada* one confirmed human case of Western equine encephalitis was reported in Manitoba Province, where there were also two cases in horses.

The results of the studies carried out in *British Honduras, Guatemala, and Honduras* during 1965-1968 to obtain information on the geographic distribution of Venezuelan equine encephalitis virus in the Caribbean region were submitted to the Eighth Meeting of the PAHO Advisory Committee on Medical Research in a report prepared by investigators from the Department of Microbiology of Cornell University Medical College, U.S.A., and from the Department of Preventive Medicine of the University of San Carlos Medical School in Guatemala.

In May an epizootic of the Venezuelan virus infection was reported in *Guatemala*, in a village in Jutiapa Department on the border with El Salvador. It spread later to Escuintla Department in the southeast of the country. Vaccination of horses on both sides of the border was undertaken (112,000 were immunized), an area of quarantine was established, and the movements of people and animals from the affected area were controlled. After this outbreak subsided, new cases appeared near Flores in El Petén, and sporadic cases also occurred in two localities in Escuintla. About 5,200 horses died in the epizootic. Although there was no definite information on human cases, several mild cases in several persons were attributed to encephalitis in the affected area. Venezuelan equine encephalitis virus was isolated from one soldier in Placetas.

The disease appeared in *El Salvador* in mid-June, along the southwest frontier, and spread to the five departments bordering on Guatemala. The epizootic began to decline by mid-September. About 125,000 horses were vaccinated, and 1,500 died. Fourteen human cases were diagnosed, many of them in children aged from 6 months to 7 years, and there were six deaths.

In *Honduras* the epizootic started in early September along the Pacific coast Departments of Valle and Choluteca, which border on El Salvador and Nicaragua. The few samples taken from horses were positive for the Venezuelan equine encephalitis virus. About 58,000 horses were vaccinated, and 1,200 died. Three human cases were reported, all in children under 5 years of age, and there was one death.

In *Nicaragua* the epizootic began near Valencia, Chinandega Department, along the Pacific coast, two weeks after the appearance of the outbreak in Honduras. Vaccination of horses was started immediately.

In *Peru* an outbreak of encephalomyelitis in equines occurred in Tumbes Department, where human cases, with one death, also occurred. Venezuelan equine encephalitis was believed to be responsible for the outbreak.

A severe epidemic and epizootic of Venezuelan equine encephalitis affected the coastal region of *Ecuador* (Prov-

inces of Guayas and Manabí). It was estimated that 15 per cent of the 180,000 equines in the area died, and that 90 per cent of the equine cases were fatal. More than 1,000 human cases may have occurred, most of them mild illnesses, and there were 16 recorded deaths. Those principally affected were children under 10 years of age.

In *Venezuela* an outbreak of Venezuelan equine encephalitis was reported in November in San Rafael de Mara, Zulia State, and it spread to other localities in Falcón State. A total of 4,017 cases were reported, the majority of them mild. Only 200 presented neurological symptoms; 19 cases were fatal.

## Dengue

Dengue continued to appear in the Caribbean area in countries and territories that were still infested with *Aedes aegypti*. Cases were reported to have occurred in Barbados, Dominica, Dominican Republic (13), Grenada (46), Jamaica (53), and in Puerto Rico and Venezuela.

An extensive epidemic occurred in *Puerto Rico* starting in March. By the year's end 16,665 cases of dengue-like disease were reported. The disease was generally mild. Surveillance centers were established to facilitate reporting and obtain confirmatory evidence of cases. Surveys of *A. aegypti* populations were conducted in six towns, and adult mosquitoes were recovered in 50 per cent of the houses investigated. Few cases were reported from the southern part of the island, where previous *A. aegypti* eradication efforts had been concentrated.

In an attempt to reduce the number of mosquitoes and interrupt the cycle of infection, aerial spraying with an ultra-low volume thiophosphate insecticide was conducted in two areas with a high incidence of cases; ground spraying was also carried out. The results of these measures were still to be reported.

In *Venezuela* 4,097 cases of dengue were recorded. The first occurred in early April in the eastern States of Bolívar, Monagas, and Sucre. Outbreaks in the west began in late April in Lara State.

## Hemorrhagic Fever

During 1969, 721 cases of viral hemorrhagic fever were reported in *Argentina*—as compared with 164 cases in 1968, 1,125 in 1967, 643 in 1966, and 148 in 1965. Of the 721 cases, 702 (97 per cent) occurred in Buenos Aires Province, 14 in Córdoba, and 5 in Entre Ríos, Santa Fe, and Santiago del Estero.

In *Bolivia* a new outbreak of hemorrhagic fever occurred during January and February in the small agricultural community of La Cayoba, near Magdalena, in Beni Department. There were 10 cases with six deaths among the 245 inhabitants. Machupo virus was isolated in three of the fatal cases and also from trapped *Calomys callosus* rodents. About 100 of the inhabitants fled during the outbreak, and the remaining 145 were removed to a nearby locality while rodent control measures were carried out.

## PARASITIC DISEASES

During 1969 continuing efforts were made to stimulate national programs more commensurate, in size and scope, with the seriousness of the parasitic disease problems affecting the Americas. Although there was some increase in interest in the more important of these problems, progress toward that objective was disappointing and in most of the countries the programs for the study and control of parasitic diseases were inadequate.

Since awareness of the importance of such diseases can come from accurate measurement of the prevalence of the parasites and the morbidity they cause, the collection of more adequate data on these factors was encouraged. Also, in order to improve the efficacy and the efficiency of the existing control programs, the adoption of suitable evaluation procedures was advocated.

The undertaking of operations research to support the programs against these diseases—including the collection of sound epidemiological data and information on the suitability of the available control measures under local conditions—was another activity that continued to be encouraged.

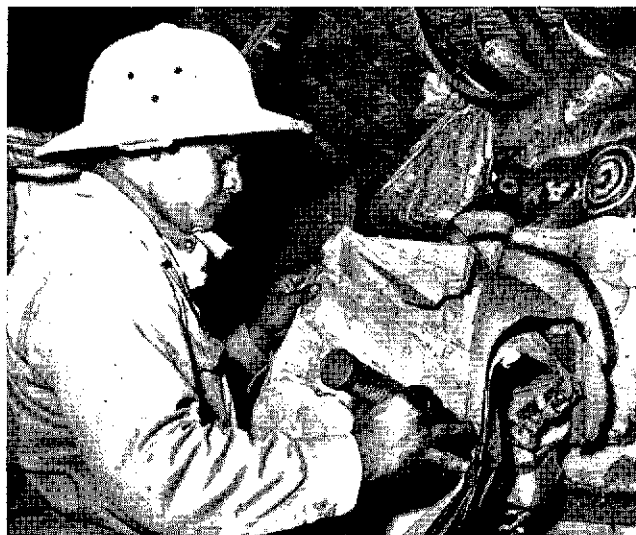
### Chagas' Disease

Chagas' disease ranks high among the public health problems in the Americas, affecting perhaps as many as 10,000,000 persons, according to rough estimates. The Organization continued to encourage the countries to enlarge and improve their activities to combat the disease and to assess its true magnitude. Carefully planned sampling procedures are the most effective and economical way to obtain accurate data on prevalence of the infection and of the vectors, but progress in that direction was slow.

The project (AMRO-0902) to develop a better antigen and a standardized and more economical method for the diagnosis of the disease was continued. Eight candidate antigens were tested for specificity by seven collaborating laboratories using the same test sera. Three antigens were discarded as unspecific and the remaining five were being tested for sensitivity. It is expected that when a proved antigen becomes available, it will be possible, on the basis of systematic nation-wide samples, to provide for the first time an accurate picture of the prevalence of the disease in the Hemisphere.

In September the Organization convened in Washington, D.C., a Study Group on Chagas' Disease comprising 14 specialists from eight countries. The Group discussed existing programs, made recommendations concerning control, survey and evaluation procedures, and advised the Organization concerning future policy. It concluded that the programs using insecticides to control the vectors had been effective in reducing transmission. Continuing evaluation of control measures and of their impact on human infection, the search for better methods, and the use of sampling procedures for the collection of basic data were strongly recommended.

A project to produce a comprehensive bibliography of periodical literature on Chagas' disease, for use by specialists engaged in both control work and research, was undertaken with the aid of a grant from the Wellcome Trust and the collaboration of the U.S. Department of



A field inspector examines the interior of a rural house for the vectors of Chagas' disease. The vectors are insects that prefer the dark, and come out of their hiding places to feed on blood of humans and of animals living in and near houses.

Agriculture (Index Catalog of Medical and Veterinary Zoology). All references were collected, and the work of presenting them in two languages (English and Spanish), and of listing all entries by both author and subject, was fully under way.

Uruguay signed an agreement with the Organization for a national program to combat Chagas' disease, which occurs in a large part of the country. Emphasis will be given to the systematic use of insecticides in houses to destroy the insect vectors.

At the request of El Salvador and Panama, a consultant on serologic diagnosis presented brief training courses to selected laboratory personnel in those countries.

### Schistosomiasis

In Brazil, where the number of persons infected with schistosomiasis has been estimated at more than 6,000,000, the Organization continued to give assistance in the national pilot control programs.

In the pilot area in Bahia, a consultant reviewed in detail the plans for combatting the infection in Taquarandí by the intensive use of molluscicides. He also studied the possibilities for controlling the disease in Caatinga do Moura by revising the irrigation system and constructing a low dam that would both reduce the cost of schistosomiasis control and increase land productivity.

For the purpose of studying the problem of water resources development in relation to the spread and intensification of schistosomiasis, two consultants visited the San Francisco River area where such development schemes were being planned or were under way. Their report laid stress on the public health problems to be faced and on the need for interagency and interministerial collaboration in the planning stage of these schemes.

In Surinam a detailed plan was prepared for a pilot project designed to gain experience in the use of molluscicides and mass chemotherapy, and to make comparative studies of the efficacy and cost of different control procedures.

A group of specialists surveyed the problem in the Dominican Republic and drew up a proposal for a national program. It was feared that the disease might spread from the small existing focus to large areas in which susceptible snails are found.

Hycanthone, a metabolite of lucanthone, has been reported to be highly effective in a single dose against schis-



A technician in Brazil checks the results of experiments to detect schistosomiasis infection in snails.

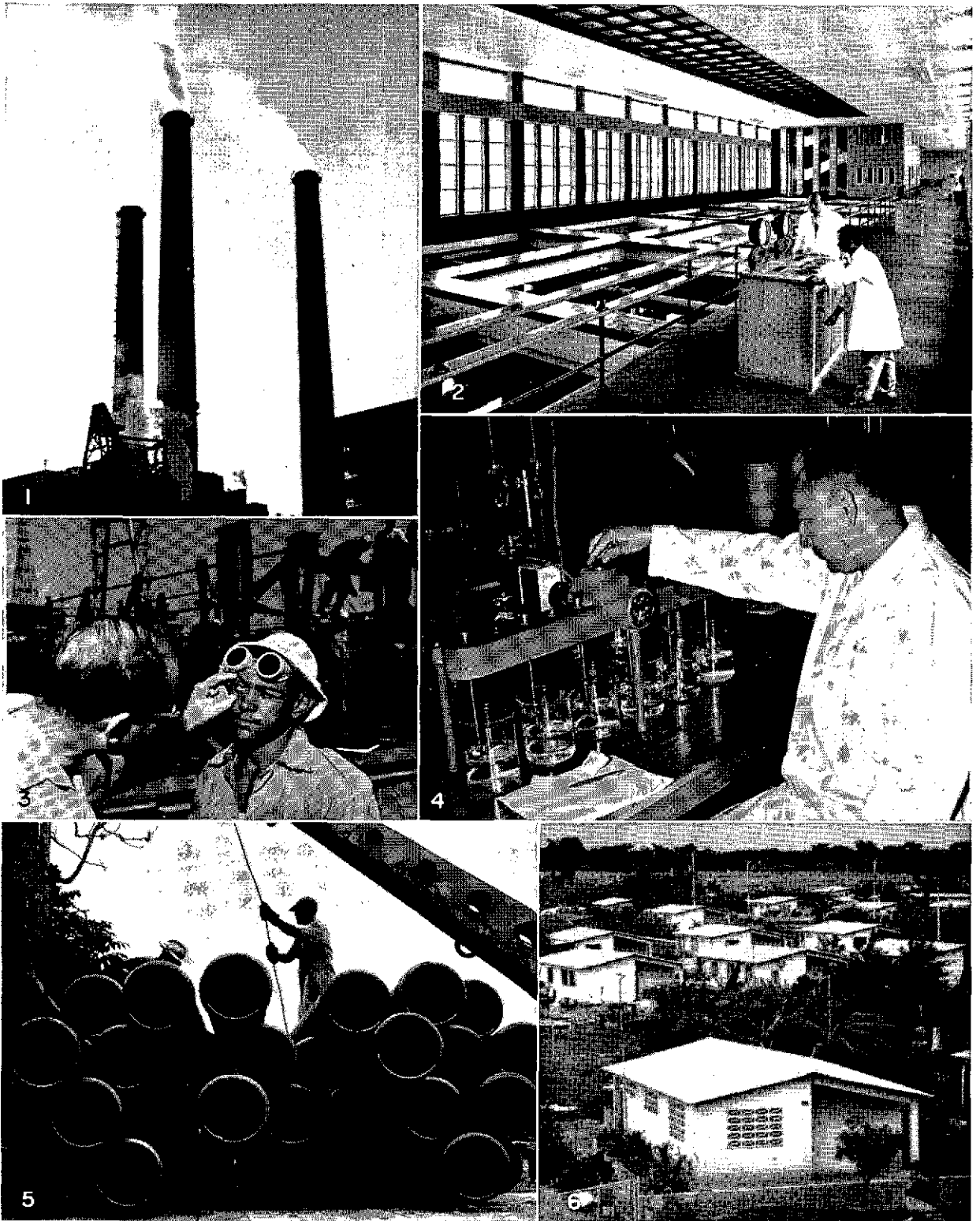
tosomiasis, and its value in control programs was being studied.

### Other Parasitic Diseases

Although the principal emphasis of the Organization's program was on schistosomiasis and Chagas' disease, as much attention as possible was given to other parasitic diseases. Amebiasis, onchocerciasis, leishmaniasis, intestinal helminthiasis, and toxoplasmosis were among the most important problems falling into that category. Each of the four first mentioned is an important health problem in a number of localities in the Americas. The over-all importance of toxoplasmosis is not as well known, but such studies as have been made indicate that it causes significant harm in many countries.

Contact was maintained with numerous specialists engaged in research on these problems in an effort to stimulate the collection of more adequate data on morbidity and explore the possibility of undertaking pilot control studies using newly developed drugs.

A consultant was sent to El Salvador to give advice in connection with the program for controlling intestinal helminths by the use of drugs.



Some aspects of the sanitary engineering and environmental sciences program: (1) air pollution control; (2) water treatment; (3) industrial hygiene; (4) laboratory control of water quality; (5) installation of water pipes; (6) adequate housing.

## B. ENGINEERING AND ENVIRONMENTAL SCIENCES

The most significant feature of the environmental picture in 1969 was the rapid growth in public concern over pollution of the air, water, and land—and over what this pollution is doing to man and to natural resources. From the viewpoint of both public health and natural resources conservation, increased emphasis will have to be given especially to chemicals in the environment. The toxicity of chemicals used singly and in combination, their persistence, and their long-term effects on life and on the biosphere as a whole are factors that urgently require elucidation. Certainly, the elucidation of their effects on human health is primarily the responsibility of the official health agencies. The vigor with which those agencies accept and carry out that responsibility will determine their leadership role in the environmental health movement.

The Organization increased its activity in regard to control of such substances during the year. Arrangements were concluded for continued support of the Institute of Occupational Health and Air Pollution Research in Santiago, Chile. Early in the year the Government took over full responsibility for the Institute, following five years of support from the Special Fund of the United Nations Development Program. Studies of such problems as manganese toxicity continued to yield valuable insight into their nature and means for their prevention. In addition, a study of the health effects of air pollution was initiated, with modest assistance from the Organization. The perplexing problem of arsenic in the very scarce water resources of northern Chile received further attention by both the Ministry of Health and the Organization.

Air and water pollution problems associated with the fish-meal industry, especially in Peru, reached almost emergency proportions. Reports of thousands of cases of eye irritation from allergenic substances produced by processing plants caused considerable concern. Deaths of workers in the holds of fishing craft brought further requests for the Organization's assistance. In this latter case, hydrogen sulfide produced by the decomposition of fish was established as the cause. In the case of the processing plants, procedures for reducing air pollution from that source were being developed.

As more intense water and air pollution problems arose

with the growth in urbanization and industrialization, more requests for assistance in these areas were being received. The Pan American Air Pollution Surveillance Network was expanded to include additional cities—a fact reflecting the heightened interest in learning more about the sources and amounts of pollutants in the urban centers. A report on the Network's first year of operation was prepared and distributed.

Pesticides continued to cause tragic and unnecessary deaths. As in past years, the Organization collaborated with the Biological Institute of São Paulo, Brazil, in defining the toxicity of these substances. Regulations for their use and specific safety measures need strengthening in many cases, and enforcement needs to be stepped up in others.

The importance of the quality of water both for human consumption and for agricultural, industrial, recreational, and other uses received increased attention. In the River Plate Basin a network of laboratories was exploring measurement methods, quality criteria, and basic data systems. There is need for methodologies which will produce data on a comparable basis to facilitate larger-scale work and intercountry studies and planning. In the Santa Lucía Basin in Uruguay, the Guayas Basin in Ecuador, and the Huallaga Basin in Peru the Organization was collaborating in the water-quality phase of broader studies and development projects. In Colombia and Mexico technical assistance was also being provided. The health problems associated with river basin development are many and varied, and with the assistance of expert consultants the Organization was endeavoring to develop methods and models for their study. It is important that these problems be identified and defined sufficiently early in the development process to enable protective measures to be incorporated in the evaluation, selection, and execution of projects.

In the urban centers, measures to cope with such needs as housing and the basic amenities of sanitation continued to lag behind the influx of population. Through the Inter-American Housing and Planning Center (CINVA) and through a number of experimental projects, the Organization was providing assistance in the health and

sanitation aspects of housing. To meet the increasing problems of solid wastes, the countries were requesting more short-term consultant assistance. As yet the problem of noise has received relatively little attention.

Manpower—adequate in quantity and quality—remains a critical need for meeting the environmental problems of the Region. Research to provide the know-how is an inseparable and parallel need. For these reasons major attention continued to be focused on education, training, and research activities. Through the Latin American network of university centers, continuing professional education was being provided. A total of 56 short technical training courses and five seminars and symposia were held during the year at more than three dozen universities in 17 countries. The number of participants was 1,939. With the growth in number of full-time faculty, the expansion of laboratories, and increased support from official and private institutions, the graduate centers at 10 universities were in a position to undertake more research and provide higher-quality instruction. In the long run, the university resources at the graduate and undergraduate levels will pay major dividends in improving the quality of the environment.

External financial assistance continued to be provided in the Region through the United Nations Development Program. Two existing projects were extended and a new project approved. In addition, bilateral assistance was given by Switzerland for sanitary engineering teaching and research at the Regional Graduate School for Sanitary Engineering of San Carlos University in Guatemala. Another application for similar assistance was under negotiation.

As societies and technology continue to undergo rapid change, it is necessary to adjust our resources to meet the changing needs. Through a series of shifts in the use of Headquarters and field staff, the Organization has sought to improve its capacity to meet emerging problems and to foresee others. Among the new resources that have been developed—largely through such adjustments—is the Sanitary Engineering and Environmental Sciences Center in Lima, Peru. This Center has now completed its first full year of operation. While rendering direct expert assistance to the countries in a number of the major specialties within the environmental field, it has begun the equally important task of developing urgently needed technical information materials for broad distribution throughout the Region. The Center will produce and distribute information and work closely with the universities in order to assist countries to cope with the broadening problems of environmental health and the resulting stresses on the well-being of peoples.

## WATER SUPPLY

In the field of public water supply, the 1960's have been a decade of striking progress throughout the Hemisphere. In this period large sums were invested in the installation and expansion of services, the principles of self-financing and sound administration and management were adopted, new autonomous agencies with flexible operating procedures were brought into being, rationally and scientifically based water-rate structures were introduced, large numbers of professionals were trained, and a methodology for applied research into this field was developed. In addition, a closer relationship was established between universities and the authorities responsible for water supply and sewerage services, with the result that the former provided the latter with technical services and collaborated in the investigation of local problems and in the search for more economical solutions within the limits of the resources available. The year 1969 saw the end of an unprecedented period of international cooperation and of participation by international lending agencies as catalysts in the successful conduct of the programs of water supply and sewerage.

Some 70 million people had benefited from the construction, improvement, or expansion of installations in urban and rural areas in all the countries of the Region. This work represented an investment of national and international funds totaling almost US\$1.69 billion (Table 18). The national funds matching the loans received, together with other national funds, amounted to some \$1.05 billion, while international lending agencies provided more than \$636 million. Of this latter sum, \$462.4 million (73 per cent) was in the form of loans from the Inter-American Development Bank, the balance representing loans from the World Bank (International Development Association), the Export-Import Bank, and the United States Agency for International Development. Funds were also provided by some European governments and by Canada, the latter in the Caribbean area (these are not shown in the tables in the *Report*).

In 1969 international lending agencies made eight loans to seven countries totaling \$66.69 million (Table 19). National matching funds amounted to \$42.25 million. These figures represent a reduction in relation to the funds available in previous years (Figures 6, 7, and 8) and point to the need for a study of the factors that have resulted in this situation.

It has been estimated that with part of these funds plus those received in other years, new water supply services have been installed serving an additional 7.6 million peo-

TABLE 18. FUNDS ALLOCATED FOR CONSTRUCTION OF WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA.  
(January 1961–December 1969)  
(U.S. dollars)

Country	International loans							Estimated national matching funds
	IDB		IBRD	AID		EXIMBANK		
	Water	Sewerage	Water	Water	Sewerage	Water	Sewerage	
Argentina.....	33,730,000	2,270,000	—	1,400,000	—	—	—	43,030,000
Bolivia.....	10,600,000	4,800,000	—	1,145,000	—	—	—	9,397,000
Brazil.....	113,060,000	14,650,000	—	21,695,000	2,500,000	—	—	186,164,000
Chile.....	26,645,000	—	—	2,000,000	840,000	187,850	—	21,104,000
Colombia.....	36,751,397	7,233,000	14,000,000	3,800,000	9,600,000	1,261,000	—	68,098,600
Costa Rica.....	1,400,000	140,000	—	4,900,000	—	4,000,000	—	2,824,000
Dominican Republic.....	4,960,000	1,090,000	—	3,000,000	—	—	—	3,300,000
Ecuador.....	17,200,000	3,568,000	—	—	—	—	—	8,423,000
El Salvador.....	7,680,000	1,520,000	—	75,000	—	—	—	4,540,000
Guatemala.....	21,717,804	2,000,000	—	1,369,000	—	—	—	13,305,200
Guyana.....	—	—	—	2,650,000	—	—	—	1,200,000
Haiti.....	2,410,000	—	—	—	—	—	—	350,000
Honduras.....	2,550,000	—	—	1,050,000	—	—	—	650,000
Jamaica.....	—	—	5,000,000	3,700,000	—	—	—	5,900,000
Mexico.....	25,974,000	550,000	—	—	—	36,000	—	18,296,000
Nicaragua.....	2,000,000	185,000	3,000,000	143,000	—	—	—	4,380,000
Panama.....	5,842,000	370,000	—	21,139,600	10,851,000	—	—	15,007,000
Paraguay.....	3,895,000	4,670,000	—	—	—	—	—	3,550,000
Peru.....	23,424,539	9,736,360	—	5,700,000	2,900,000	5,123,505	1,500,000	41,779,200
Trinidad and Tobago.....	300,000	—	—	—	—	—	9,000,000	9,313,000
Uruguay.....	12,943,000	3,300,000	—	—	—	1,900,000	—	23,768,000
Venezuela.....	46,000,000	7,200,000	21,300,000	—	—	7,500,000	—	121,131,000
Total.....	399,082,740	63,282,360	43,300,000	73,766,600	26,691,000	20,008,355	10,500,000	605,510,000

International loans.....	\$ 636,631,055
Water.....	\$536,157,695
Sewerage.....	100,473,360
National matching funds.....	605,510,000
Other national funds.....	446,520,000

Total funds.....\$1,688,661,055

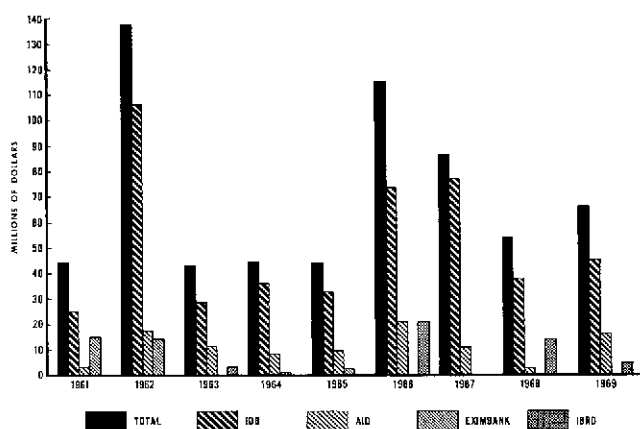


FIG. 6. INTERNATIONAL LOANS FOR THE CONSTRUCTION OF URBAN AND RURAL WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA, 1961-1969.

ple in urban and rural areas. The countries also estimated that the water supply services of 6.6 million people have been improved. It should be noted that in 1969 the increase in urban services was 7.5 per cent, whereas the growth rate of the population was only 5 per cent, indicating that the proportion of urban inhabitants with no water services is being slowly reduced. At the year's end approximately 105.9 million people in urban areas, constituting 72 per cent of the total population of those areas, were being served through house connections or public hydrants (86.7 and 19.1 million people, respectively) (Table 20 and Figure 9).

Of the 26 countries and other areas reporting, 21 had reached or passed the 70 per cent target for the supply of water to the urban population through house connections or public hydrants. On the basis of these figures, it is



I. PROTECTION OF HEALTH: ENGINEERING AND ENVIRONMENTAL SCIENCES

TABLE 19. INTERNATIONAL LOANS AND NATIONAL MATCHING FUNDS APPROVED OR SIGNED DURING 1969 FOR COMMUNITY WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA.

(U.S. Dollars)

Country	Lending agency	Purpose	International loan	National matching funds
Colombia	IDB	Third phase of improvement and extensions to Medellín water supply system	9,000,000 <sup>a</sup>	8,500,000
Guatemala	AID	Eighty-two water supply systems for small towns, also a few sewerage systems. Project includes additional financing for small town market and slaughterhouses	1,345,000	600,000
	IDB	Improvement to Guatemala City water supply system, including intake works, conduction line, treatment plant, and distribution system	15,500,000	8,500,000
Haiti	IDB	Engineering services for first six systems in rural water supply program	50,000	
Jamaica	IBRD	Extensions and improvements to Kingston water supply system	5,000,000	4,100,000
Mexico	IDB	Deep wells and improvements and extensions to Monterrey water supply and sewerage system	12,500,000 <sup>a</sup>	9,000,000
Panama	AID	Intake works, water treatment plant, and improvements to Panama City water system	15,000,000 <sup>b</sup>	8,000,000
Paraguay	IDB	Improvement of water system and construction of sewerage system and storm sewers for Asunción	8,300,000 <sup>b</sup>	3,550,000
Total			66,695,000	42,250,000

<sup>a</sup> Approved but not available until contract is signed by lending agency and Government.

<sup>b</sup> Approved in 1968, signed in 1969.

clear that the majority of countries will exceed the target fixed for urban areas by 1971 and thus realize this objective of the Punta del Este Charter.

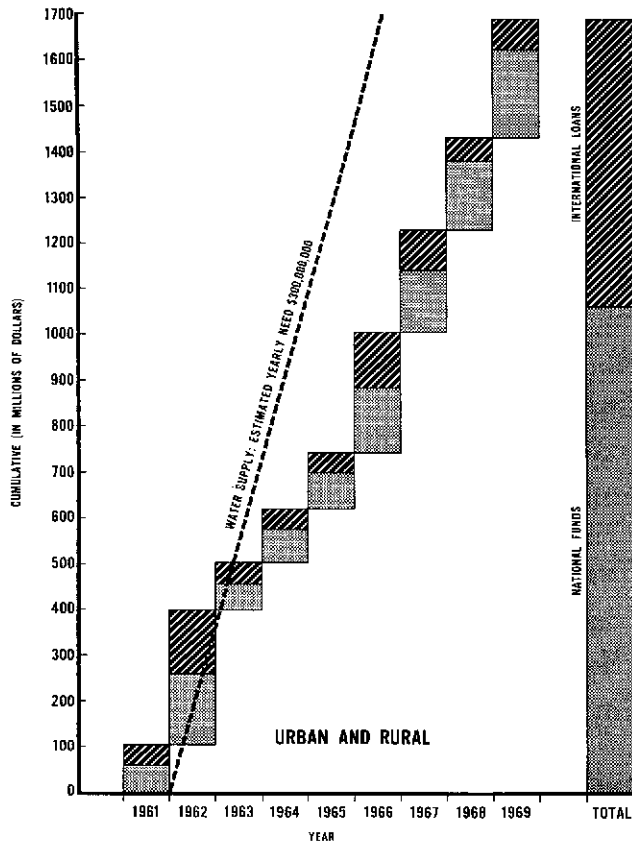
So as to be able to provide potable water and sewerage services to the largest possible number of people in the shortest time and at a cost consistent with the financial resources of the users, short-term consultants supplemented the activities of the regular staff of the Organization. To meet requests from countries, 36 short-term consultant months were used to provide advisory services on specific water and sewerage problems in urban areas (Table 21). Advice on water-rate structures was given to a number of countries—Bolivia, Brazil, Dominican Republic, Ecuador, Haiti, Trinidad and Tobago, and Uruguay—in connection with IDB loans and as part of that agency's technical assistance program. At the express request of the Metropolitan Water Company of São Paulo (COMASP), Brazil, the Organization assisted with emergency measures taken by the local authorities to deal with the exceptionally severe drought that occurred in São Paulo. In addition to the services of two expert consultants, equipment and supplies were purchased and sent to the area affected.

The Organization continued to give assistance in the gathering of basic data needed for the planning, conduct, and evaluation of water and sewerage programs. The

methodology for the collection and analysis of such data, already introduced in various countries in preceding years, was extended to Argentina, thus completing a task that has led to the establishment of systems of this kind in the majority of the countries.

An important aspect of the water supply program in 1969 was the initiation of research on new methods of water treatment that could lead to the expansion of treatment plant capacity, at a minimal cost and without new construction. This research was undertaken at the treatment plants in Cúcuta, Colombia, and Guandu, Rio de Janeiro, Brazil, with striking results so far as the future expansion of water output is concerned. Courses were held on the new technology and it was hoped that by 1972 sufficient data and practical experience would be available to make possible the systematic distribution of the knowledge acquired and results obtained. A number of cities have expressed interest in having this research work undertaken in their own treatment plants. The Organization, through its Pan American Sanitary Engineering and Environmental Sciences Center, would provide the necessary support to enable these demands to be met and would act as a center for the dissemination of these major technological advances in the field of water supply.

Training, education, and research activities in support of the water program were continued. Numerous inten-



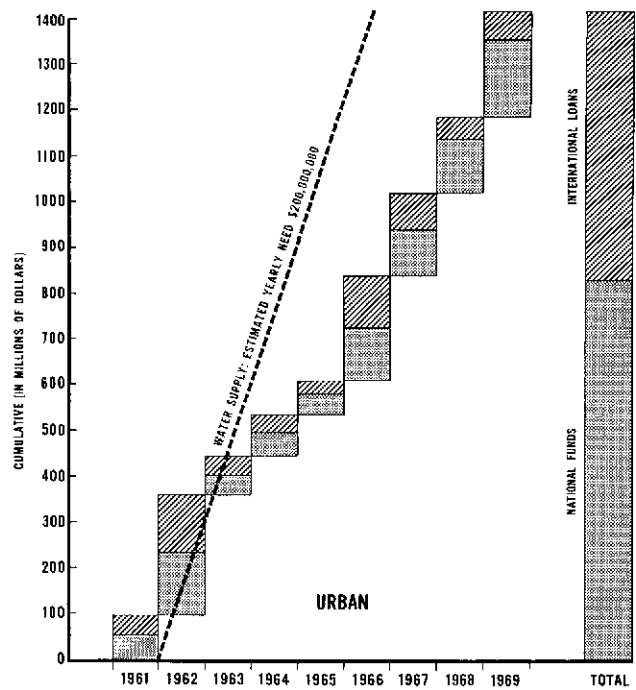
SOURCE	1961	1962	1963	1964	1965	1966	1967	1968	1969	TOTAL
INTERNATIONAL LOANS	43.14	127.74	42.87	44.56	43.91	115.66	86.62	54.44	66.69	636.63
IDB	25.65	106.30	28.55	36.25	32.34	73.49	76.86	37.65	45.35	462.37
AID	3.50	17.44	11.32	8.05	9.30	20.94	10.77	2.79	16.34	100.45
IBRD			3.00			21.30			14.00	43.30
EXIMBANK	14.99	14.00		0.76	2.27		-1.01			30.51
NATIONAL FUNDS	59.69	136.56	59.20	74.87	79.70	145.18	136.63	151.41	188.79	1,052.03
TOTAL	103.83	294.30	102.07	119.43	123.61	260.84	223.25	205.85	255.48	1,688.63

AMOUNTS IN MILLIONS OF U.S. DOLLARS

NOTE: Loans, until signed, are included in year of approval; thereafter they are listed in year of signature.

FIG. 7. NATIONAL FUNDS AND INTERNATIONAL LOANS FOR THE CONSTRUCTION OF URBAN AND RURAL WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA (JANUARY 1961 TO DECEMBER 1969).

sive short courses and seminars on various technical and administrative aspects of water supply systems were conducted for professional workers from national and municipal agencies. Twenty projects for applied research on problems of local interest were under way with the participation of universities and national agencies. In association with IDB, a project for research into the relative effectiveness of various types of water meters in use in the countries of the Region was being carried out. The details are presented in Chapters III and V of the Report.



SOURCE	1961	1962	1963	1964	1965	1966	1967	1968	1969	TOTAL
INTERNATIONAL LOANS	43.14	127.74	41.82	29.35	27.61	114.36	82.32	48.09	65.30	589.73
IDB	24.85	96.30	28.55	31.04	16.04	72.12	72.54	31.90	45.30	418.46
AID	3.50	17.44	10.27	8.05	9.30	20.94	10.77	2.19	15.00	97.44
IBRD			3.00			21.30			14.00	50.00
EXIMBANK	14.99	14.00		0.26	2.27		-1.01			30.51
NATIONAL FUNDS	51.19	136.56	43.20	59.87	43.30	114.39	101.98	116.95	167.44	827.89
TOTAL	94.33	264.30	85.07	92.22	70.91	228.74	164.30	165.04	232.74	1,417.63

AMOUNTS IN MILLIONS OF U.S. DOLLARS

NOTE: Loans, until signed, are included in year of approval; thereafter they are listed in year of signature.

FIG. 8. NATIONAL FUNDS AND INTERNATIONAL LOANS FOR THE CONSTRUCTION OF URBAN WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA (JANUARY 1961 TO DECEMBER 1969).

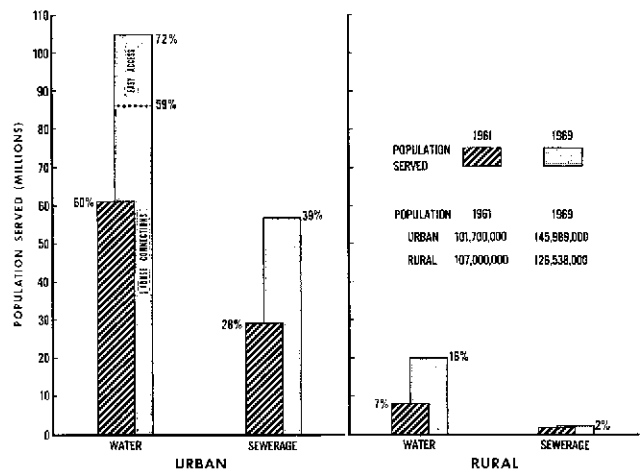


FIG. 9. POPULATION SERVED WITH WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA (1961 AND 1969).

TABLE 20. STATUS OF WATER SUPPLY AND SEWERAGE SYSTEM SERVICES IN LATIN AMERICA AT THE END OF 1969.

(Population in millions)<sup>a</sup>

Country or other political unit	Date of data	Water supply										Sewerage disposal										
		Total					Urban					Rural					Urban			Rural		
		Popu-lation	House connections	Easy access	Total	%	Popu-lation	House connections	Easy access	Total	%	Popu-lation	House connections	Easy access	Total	%	Connected or easy access	Urban	Rural	Total	%	
Argentina.....	Dec. 69	23,983	12,146	1,109	13,246	55	17,733	11,604	9,900	12,500	70	6,200	0,546	0,200	0,746	12	6,000	—	6,000	—	25	
Barbados.....	Nov. 59	0,255	0,121	0,134	0,255	100	0,117	0,089	0,018	0,117	100	0,138	0,022	0,116	0,138	100	—	—	—	—	—	
Bolivia.....	Sept. 69	4,812	0,496	0,458	0,954	20	1,532	0,478	30	2,010	33	3,230	0,018	0,013	0,031	1	0,343	—	0,343	—	7	
Brazil.....	Dec. 69	93,790	23,560	4,009	27,569	29	48,301	23,560	4,000	25,560	53	45,489	—	2,000	2,000	4	12,140	—	12,140	—	13	
Chile.....	Dec. 69	10,300	4,129	1,800	5,920	57	7,050	4,060	1,680	5,740	83	3,250	0,120	0,120	0,240	7	2,380	0,170	2,550	—	23	
Colombia.....	Dec. 69	20,619	9,300	6,500	16,300	77	12,002	7,800	65	3,900	11,700	97	8,617	1,500	2,600	4,100	48	8,600	1,800	10,400	50	
Costa Rica.....	July 69	1,699	1,097	0,201	1,298	76	0,835	0,772	0,063	0,835	100	0,864	0,325	0,138	0,463	54	0,181	—	0,181	—	21	
Cuba <sup>b</sup> .....	June 66	7,930	5,610	0,650	6,260	79	5,020	3,840	76	6,690	4,480	89	2,890	1,770	—	1,770	60	1,700	—	1,700	—	
Dominican Republic.....	July 69	4,175	0,873	0,469	1,342	32	1,447	0,783	55	3,04	1,097	92	2,728	0,080	0,165	0,245	9	0,180	—	0,180	—	
Ecuador.....	Dec. 69	5,891	1,455	0,923	2,378	40	2,233	1,344	60	710	2,054	80	3,658	0,111	0,213	0,324	9	1,194	0,110	1,304	22	
El Salvador.....	Sept. 69	3,393	1,347	0,127	1,474	43	1,152	0,784	69	0,127	0,911	80	2,251	0,563	0,016	0,345	11	0,671	—	0,671	13	
Guatemala.....	Dec. 59	5,017	0,700	1,152	1,852	37	1,724	0,684	40	0,807	1,491	86	3,333	0,016	0,345	0,361	11	0,671	—	0,671	13	
Guyana.....	July 69	0,741	0,382	0,027	0,409	55	0,231	0,216	93	0,007	0,223	96	0,510	0,166	0,020	0,186	36	0,090	—	0,090	12	
Haiti.....	July 69	4,768	0,168	0,140	0,308	6	0,405	0,122	30	0,060	0,182	45	4,363	0,046	0,080	0,126	3	0,075	—	0,075	2	
Honduras.....	Dec. 69	2,557	0,599	0,446	1,045	41	0,730	0,444	61	0,263	0,707	97	1,827	0,155	0,183	0,338	18	0,355	0,001	0,356	14	
Jamaica.....	Oct. 69	1,865	0,639	0,262	0,901	46	0,545	0,527	97	0,006	0,533	98	1,410	0,112	0,256	0,368	26	0,085	0,008	0,093	5	
Mexico.....	Nov. 59	47,830	23,110	4,000	27,110	57	27,900	18,760	67	4,000	22,760	81	19,930	4,350	—	4,350	22	13,990	—	13,990	29	
Nicaragua.....	Dec. 68	1,417	0,629	0,056	0,685	48	0,667	0,603	90	0,032	0,635	95	0,750	0,026	0,026	0,050	7	0,430	0,005	0,435	31	
Panama.....	July 69	1,304	0,142	0,207	0,349	14	0,844	0,142	17	0,120	0,262	31	1,490	—	0,087	0,087	8	0,116	—	0,116	5	
Paraguay.....	Nov. 69	2,304	2,625	1,615	4,240	35	5,300	2,570	48	1,099	3,660	69	6,900	0,055	0,525	0,580	8	3,280	0,012	3,292	27	
Peru.....	July 69	0,380	0,110	0,039	0,149	39	0,141	0,101	72	0,009	0,110	78	0,239	0,009	0,030	0,039	16	—	—	—	—	
Surinam.....	Sept. 69	1,040	0,532	0,458	0,990	96	0,350	0,282	80	0,066	0,348	98	0,660	0,250	0,392	0,642	93	0,176	0,002	0,178	17	
Trinidad and Tobago.....	Dec. 59	2,749	1,565	0,277	1,842	68	5,221	1,577	71	0,235	1,812	82	0,528	0,018	0,042	0,060	11	1,157	—	1,157	42	
Uruguay.....	July 69	10,452	7,077	1,656	8,733	83	6,582	5,273	90	1,319	6,582	100	3,360	1,804	0,337	2,141	55	3,215	0,074	3,289	31	
Venezuela.....	Dec. 68	0,419	0,098	0,163	0,261	62	0,117	0,064	55	0,033	0,097	83	0,302	0,034	0,130	0,164	54	0,005	—	0,005	1	
Eastern Caribbean countries and territories.....	Dec. 68	272,527	95,871	27,196	126,067	46	145,989	86,742	59	18,147	105,889	72	126,638	12,129	8,049	20,178	16	67,435	2,186	69,621	22	
Total.....																						

<sup>a</sup> Current estimates of population and population served as received from countries by the Department of Engineering and Environmental Sciences, PASB.

<sup>b</sup> 1966 estimate.

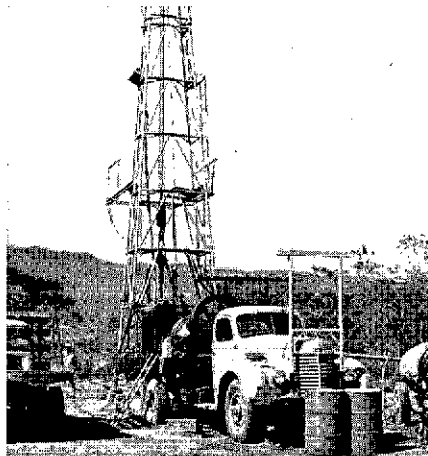
TABLE 21. COLLABORATION PROVIDED BY PAHO IN COMMUNITY WATER SUPPLY AND OTHER ENVIRONMENTAL ACTIVITIES  
(STAFF AND SHORT-TERM CONSULTANTS), 1969.

Type of services	Zone I				Zone II			Zone III					Zone IV			Zone V		Zone VI									
	Barbados	Guyana	Jamaica	Surinam	Trinidad and Tobago	West Indies	Venezuela	Cuba	Dominican Republic	Haiti	Mexico	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama	Bolivia	Colombia	Ecuador	Peru	Brazil	Argentina	Chile	Paraguay	Uruguay	
<b>COMMUNITY WATER SUPPLY</b>																											
Water authorities—Organization or improvement.....																											
Other agencies—Organization or improvement.....																											
Water supply system—design.....																											
Organization and management.....																											
Problems.....																											
Planning—National or regional.....																											
Water rates—Establish or improve.....																											
Public relations.....																											
Rural community water supply.....																											
Groundwater—Exploration, drilling.....																											
Community development, self help.....																											
Water quality control.....																											
Water resources, study.....																											
Revolving fund mechanism.....																											
Fluoridation.....																											
Laboratories—Installation, operation.....																											
Design standards, criteria—Development.....																											
UNICEF projects.....																											
Financing—Method or prepare loan request.....																											
<b>OTHER ENVIRONMENTAL SANITATION ACTIVITIES</b>																											
Ministry of health—Assistance.....																											
Sanitary engineering department—Assistance.....																											
Environmental sanitation (miscellaneous).....																											
Pollution control, sewage treatment, industrial waste.....																											
Priry program.....																											
Oxidation ponds—Design and use.....																											
Solid waste, sanitary landfill.....																											
Air pollution control.....																											
Industrial hygiene and radiation.....																											
Studies and surveys.....																											
UNDP projects—Supervise or develop.....																											
Sanitary engineering programs—Universities.....																											
Short courses—Organize or present.....																											
Courses—Sanitary inspectors.....																											
Seminars, symposia.....																											
Centers or institutes.....																											
Manuale—Preparation.....																											

**Steps in the installation of a rural community water supply system:**



**1. The engineers lay the plan.**



**2. The well is drilled.**



**4. Pipe is laid.**



**3. The trenches are dug with community help.**



**5. The tank and pumping station already installed.**



**6. A group of schoolchildren celebrate the opening of the system.**

## Rural Water Supply

At their Special Meeting in Buenos Aires (October 1968), the Ministers of Health of the Americas laid emphasis on the need to accelerate the modernization of rural life. To assist in this endeavor, the Organization has strongly supported the countries' efforts to strengthen and expand their rural water and sanitation programs, which are indispensable both for the protection and improvement of health and for socioeconomic development. It has been recognized that such programs can act as the focal point for a host of related health services and, by giving impetus to those services, can bring about the general improvement of health in the rural areas.

The Organization has provided technical and administrative assistance to the countries in the implementation of their rural programs and also in the organization of appropriate national and international financing schemes.

The driving philosophy behind this effort has been to promote and stimulate within the countries the establishment of systems for the supply of safe water—piped into the house in sufficient quantities for all personal and household uses essential for sanitation, comfort, and cleanliness—and the implementation of programs for the development of those sanitation activities (latrine construction, garbage disposal, etc.) that will assist in providing a safe and healthful environment.

The specific goals can be stated as follows:

1. Water should be continuously available, safe, acceptable for general use, and where feasible, piped into the house.
2. Community participation in the planning, financing, organizing, construction, management, and operation of the services should be encouraged to the highest degree.
3. Simplicity in design, construction, operation, and maintenance is essential and should be encouraged at all levels and in all phases of the program.
4. The development of viable long-range programs depends on sound administrative structures and financing schemes, and these aspects of the programs should be given the highest priority.
5. The most efficient use of resources calls for giving first priority to water supplies, with the remaining resources being directed toward rural sanitation.

To accomplish these goals, the Organization has promoted the development and strengthening of national institutions capable of providing administrative, technical, and financial support to long-range, locally based programs. The nature of the assistance has varied from country to country (Table 21), but the general pattern is

TABLE 22. INTERNATIONAL LOANS AND NATIONAL MATCHING FUNDS FOR RURAL COMMUNITY WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA.

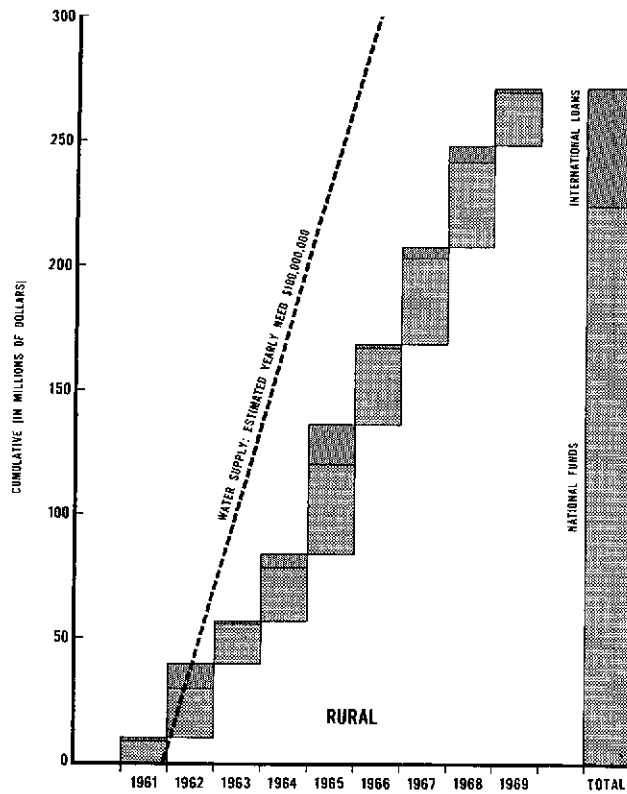
(January 1961–December 1969)  
(U.S. dollars)

Country	Lending agency	Year	Loan	National matching funds
Argentina	IDB	1965	5,000,000	5,000,000
Bolivia	IDB	1968	1,800,000	1,675,000
Chile	IDB	1964	2,500,000	2,500,000
Costa Rica	IDB	1965	1,300,000	1,000,000
Dominican Republic	IDB	1968	1,950,000	1,050,000
El Salvador	IDB	1961	1,000,000	420,000
		1964	1,060,000	480,000
Guatemala	IDB	1966	1,300,000	800,000
	AID	1969	1,345,000	620,000
Guyana	AID	1968	600,000	400,000
Haiti	IDB	1969	50,000	—
Honduras	AID	1963	1,050,000	—
Nicaragua	IDB	1968	2,000,000	1,330,000
Panama	IDB	1967	1,160,000	607,000
Peru	IDB	1964	1,650,000	1,450,000
		1967	3,135,000	4,044,000
Venezuela	IDB	1962	10,000,000	10,000,000
		1965	10,000,000	10,000,000
Total			46,900,000	41,376,000

to permanently station an engineer in the country and to supplement his services with those of short-term consultants in specific fields of work. At the same time, the active cooperation of other agencies and organizations has been promoted, in order to assist the countries to achieve the most effective utilization of the resources available. The following agencies lent their assistance during 1969: Inter-American Development Bank, UNICEF, World Food Program, Organization of American States, U.S. Agency for International Development, Canadian International Development Agency, and CARE.

At the time of the signature of the Charter of Punta del Este (1961), it was estimated that 107 million people were living in the rural areas of Latin America, and about 7 per cent of them were reported as having adequate water supplies (Figure 9). Sanitation coverage was very limited. Between 1961 and 1969 the countries of the Region have allotted to their rural programs approximately \$224 million from national sources (Figure 10), and 14 countries received 13 international loans totalling \$46.9 million (Table 22).

In 1969 the countries reported that they expended (including carryover funds from previous years) \$31.5 million for their rural water programs and \$0.5 million for their rural sewerage programs. While the rural effort has been less successful than that in the urban areas, it has enabled five countries and the eastern Caribbean area to



SOURCE	1961	1962	1963	1964	1965	1966	1967	1968	1969	TOTAL
INTERNATIONAL LOANS	1.00	30.00	1.05	5.21	16.30	1.30	4.30	4.35	1.29	46.80
IDB	1.00	30.00		5.21	16.30	1.30	4.30	5.75	0.05	43.91
AID			1.05					0.50	1.34	2.89
NATIONAL FUNDS	8.50	70.00	16.00	23.00	36.40	30.80	34.65	34.46	21.33	224.14
TOTAL	9.50	30.00	17.05	27.21	52.70	32.10	38.95	40.81	22.72	271.04

AMOUNTS IN MILLIONS OF U.S. DOLLARS

NOTE: Loans, until signed, are included in year of approval; thereafter they are listed in year of signature.

FIG. 10. NATIONAL FUNDS AND INTERNATIONAL LOANS FOR THE CONSTRUCTION OF RURAL WATER SUPPLY AND SEWERAGE SYSTEMS IN LATIN AMERICA (JANUARY 1961 TO DECEMBER 1969).

reach or surpass the Charter goal of supplying 50 per cent of the rural inhabitants with water, and it now appears that seven countries will exceed the goals by the end of the decade. In 1969 the rural population served by house connections or having easy access to an adequate system was about 20.2 million, or 16 per cent of the total (Table 20).

To assist in this effort, advisory services were rendered in such diverse fields as: preparation of supporting documents for new or revised programs (Dominican Republic, Haiti, Panama, Paraguay, and Uruguay); drafting of requests to international agencies for assistance and/or funds (11 countries and the Caribbean area); development and installation of revolving fund mechanisms (Argentina, Bolivia, Dominican Republic, Ecuador, and Haiti); promotion of the use of rural water and sanitation programs as a focal point for related health services

(Dominican Republic, Honduras, Panama, and Paraguay).

The Organization continued to provide leadership and assistance in the field of data collection and evaluation, as well as training through short courses. In the Caribbean area an environmental health manpower survey was under way. In Central America data on the status of water and sewerage programs in that area were collected, compiled, and published and the collection of information on the rural sanitation situation was begun. In Bolivia basic data were being gathered in order to undertake a diagnostic survey leading to a possible global approach to problems in the health sector. For the purpose of better coordinating and improving the design, construction, operation, and maintenance of its rural water systems, Jamaica's Ministry of Health began work on a card catalog covering the basic data on each system. In the Dominican Republic human resources data were collected, and a scheme for future planning was developed.

The short courses given by the various national programs covered community promotion, administration of rural aqueducts, and rural sanitation. Ten PAHO-sponsored courses dealt with groundwater resources, well-drilling, and oxidation ponds.

As to the strengthening of national institutions, consultants continued to assist the Dominican Republic's National Water Supply and Sewerage Institute (INAPA) in improving its administrative structure, and continuing collaboration for the same purpose was extended to Nicaragua's National Water Supply and Sewerage Department (DENECA). The Ministry of Health of Guatemala was assisted in organizing a Division of Environmental Sanitation along the general lines suggested by the Organization in a prior report; and to improve coordination among the several agencies responsible for rural projects in that country, a series of meetings were promoted. Assistance was given to Panama's rural water service in an evaluation of its highly successful community-well program and in the organization of a program of rudimentary aqueducts. In Colombia, the National Institute for Special Health Programs (INPES) continued its work of reorganizing the rural program, generally following the recommendations of the PAHO advisory group. In Ecuador a national rural sanitation program was started. In Bolivia the program of basic rural sanitation for Cochabamba and Tarija was officially inaugurated by officials of the Ministry of Health, PAHO, and UNICEF. In Argentina the Organization continued to promote the development of operating manuals for the standardization of administrative procedures. Paraguay and Uruguay were assisted in the preparation of basic documents and

TABLE 23. STATUS OF REVOLVING FUND PROGRAMS, 1969.

Country	Status of fund	Date	Fund data (U.S. dollars)			Purpose of funds
			Source of funds	National	Loan	
Argentina.....	In operation	1965	National/IDB	5,000,000	5,000,000	Financing rural water systems
Brazil.....	In operation	1965	National/AID	4,300,000	2,200,000	Financing rural water systems
Costa Rica.....	In operation	1965	National/IDB	1,300,000	1,000,000	Financing rural water systems
Dominican Republic.....	In operation	—	National/IDB	1,000,000	2,000,000	Financing rural water systems
Peru.....	In operation	1966	National	75,000	—	Financing house connections
Colombia.....	Under study	—	—	—	—	Financing rural water systems
Bolivia.....	Under consideration	—	National/PAHO	—	500	Financing rural water and sanitation programs
Dominican Republic.....	Under consideration	—	National/PAHO	200,000	100,000	Financing rural sanitation programs
Ecuador.....	Under consideration	—	National	—	—	Financing rural water and sanitation programs
Haiti.....	Under consideration	—	National/PAHO	50,000	50,000	Financing rural sanitation programs
Paraguay.....	Under consideration	—	National/IDB	—	—	Financing rural water and sanitation programs

— None.

plans for accelerated programs in the rural water and sanitation field.

Studies of the sources of financing for rural projects have shown that the bulk of the funds come from national sources. To assist the countries in developing and implementing sound financing schemes, the Organization made wide distribution of its new manual *The Establishment and Operation of Revolving Funds* (Document No. ES-1). Table 23 shows the status of revolving fund programs in 10 countries of Latin America. The Organization also started work on a document which will explore the problem of financing rural water and sanitation programs and will set forth suggestions on how PAHO can use its resources to the maximum advantage in this field.

During the year assistance was given to six countries in the preparation of loan applications to international credit agencies.

For the purpose of reducing costs of the programs and the time required for their implementation, the Organization continued to promote the adoption of the "mass approach" technique. This concept was discussed at the regional meeting of the Inter-American Association of Sanitary Engineering (AIDIS) held in Managua, Nicaragua. A paper prepared on the subject focused attention on the need to develop manuals for the design, construction, and operation of rural water projects within a program making the maximum use of standardized units and procedures. The concept was endorsed by the AIDIS meeting, which passed a resolution calling for its implementation.

## SEWERAGE AND WATER POLLUTION

At the end of 1969 the countries reported that 59.6 million persons were served by sewerage systems, representing 22 per cent of the total population of the Region (Table 20). The number with sewerage services in urban areas increased by 4.7 million, raising the total served to 39 per cent of the urban inhabitants, a figure still substantially below the target set for 1971 (Figure 9).

During the year the countries continued to construct sewerage systems with their own resources. The only substantial international loan for these programs was the one made by IDB to the city of Monterrey, Mexico, for a sum of \$4,000,000 for the improvement and expansion of its services. The city of São Paulo, Brazil, continued to negotiate with the World Bank for a loan that would enable it to expand its system. The Municipality of Guayaquil, Ecuador, applied to IDB for a loan to finance the expansion of its sewerage system.

In Uruguay the preliminary phase of a project to control the pollution of beaches in Montevideo, involving the construction of interceptor sewers and under-water discharge points, was completed. In Argentina progress was made on the building of sewage treatment plants; between 1965 and 1969, 12 plants were completed and 10 more were under construction. In Colombia the Organization continued to give its assistance to the authorities concerned with pollution control in the Bogotá River Basin. At the request of the Government of Mexico, advisory services were provided in connection with the establish-



ment of a water pollution control unit in that country and, specifically, with the activities under way in the Lerma River Basin.

Sixteen countries in all were provided with assistance on sewerage systems and control of water pollution and industrial wastes, 15 were helped with measures affecting oxidation ponds, and 12 with water quality control. Fourteen short courses were held at universities in various countries on subjects relating to sewerage and sewage treatment, treatment of industrial wastes, and oxidation ponds. Seven research projects on sewage and industrial waste treatment were in progress. In a number of countries the universities—at the instance of government or private bodies—were undertaking research on methods of controlling pollution from industrial wastes.

A start was made on the preparation of a handbook on water pollution to be used as the basic document at the first regional seminar on this topic in 1970. Work was also continued on the preparation of a document on the financing of sewerage systems and sewage treatment plants. Additional details on these educational and research activities are contained in Chapters III and V.

## ADMINISTRATION OF WATER SUPPLY AND SEWERAGE SERVICES

As the number of water supply and sewerage construction programs increased, the countries intensified their efforts to institute the organizational changes and new operating procedures required to enable the agencies to achieve their objectives within the time limits set by international lending institutions. Although in 1969 requests for technical assistance in this field were in excess of the resources available to PAHO, those applications that were regarded as most urgent and those in respect of which prior commitments had been made were met.

Seventy-eight consultant months of advisory services (including permanent staff and short-term consultants) were provided in connection with new systems and procedures; policies and practices in the fields of accounting, budgeting, organizational structure, procurement and supplies, invoicing and collections, personnel, data processing, public relations, water rates and meters, systems operation and maintenance; and in other administrative areas that would contribute to the establishment of structures to facilitate decision-taking and make for the most economical utilization of resources.

Missions were sent for a total of 34 consultant months to Bolivia, the Dominican Republic, and Uruguay in connection with loans made by IDB.

As part of the new approach, some of the funds available were used to assist the countries with the implementation of recommendations, setting up of new targets, evaluation of progress made, and programming of future activities. Additional advisory services were accordingly made available to Ecuador, El Salvador, Honduras, Jamaica, Nicaragua, Peru, and Trinidad and Tobago. In addition, the principal task of the groups assigned to the Dominican Republic and to Uruguay was the implementation of the recommendations made by teams in previous years.

Water supply and sewerage services in seven countries were also helped with the identification of their problem areas, the preparation of diagnoses, and the formulation of technical assistance programs. In Colombia a program for the improvement of services in the city of Palmira was drawn up, for which a loan application has been made to the World Bank.

Assistance was given to the School of Engineering at the Central University of Venezuela for the improvement of its administrative services, and another university was advised on the introduction of the teaching of administration in the school of engineering.

To speed up the utilization of financial resources made available to the countries through loans from international lending institutions, the Organization established closer working relations with IDB, the World Bank, AID, and the Export-Import Bank. Coordination of advisory activities, especially with IDB and the World Bank, was made more effective and a system of programming compatible with the specific needs of the agencies assisted and the contractual requirements of the lending institutions was established.

In order to achieve satisfactory results in the shortest possible time, the more dynamic approach adopted in previous years was continued. This consists in the utilization of teams of specialists who cooperate intensively with national counterparts in each specialized area of the program. By using this system it has been possible to establish a number of practical guidelines and procedures. In each case operating manuals have been prepared in which the basic lines of action and recommended procedures for the adoption of uniform administrative and management criteria have been set forth.

During the year six countries contributed \$70,552 to the PAHO Community Water Supply Fund to assist in financing the cost of the technical assistance services.

## PAN AMERICAN SANITARY ENGINEERING AND ENVIRONMENTAL SCIENCES CENTER

The principal purpose of the Pan American Sanitary Engineering and Environmental Sciences Center (CEPIS), situated in Lima, Peru, is to render expert technical and scientific assistance to the countries, especially in connection with the new environmental problems arising from increased urbanization, industrialization, and technological development. It also serves as an international information and reference agency. The preparation and distribution of technical information materials is an important activity that makes it possible to extend and multiply the effect of the services that can be provided by the limited staff of consultants. In addition to these functions, it is expected that, when the necessary resources become available, the Center will play a key role in the support of training and research activities.

CEPIS staff was providing assistance in the fields of air pollution, housing, urbanization, physical planning, industrial hygiene, and rural community development. The preparation of information materials was undertaken by the library, and equipment for reproduction and printing was installed and in use. Administrative and operational guides for the Center were issued.

During the year advisory services in the various fields of specialization were rendered to 14 countries of the Region.

Development of the Pan American Air Pollution Surveillance Network continued under the auspices of the

Center. At the year's end 22 stations situated in Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay, and Venezuela were in normal operation. The first report of the Network was distributed in March.

Evaluations of the air pollution control programs were made in Argentina, Colombia, and Cuba. Assistance in conducting courses on air pollution was rendered to Chile and Peru, and seven fellowships for studies in that specialty were awarded to professionals from four countries.

The final report of the UNDP Project on the Institute of Occupational Health and Air Pollution Research of Chile was prepared by CEPIS staff.

The Center also collaborated in a seminar on **industrial hygiene** conducted at the above-mentioned Institute for 70 professional workers of the Chilean National Health Service. Assistance in several courses related to industrial hygiene was extended to the University of Oruro, Bolivia, the University of Nuevo León, Mexico, and the National University of Colombia.

Advisory services were rendered to the Government of Cuba in connection with its program of industrial hygiene, and with the problems arising from the massive use of pesticides, which are applied to rice and sugarcane fields by airplane. Assistance in planning a short course in industrial hygiene, to be presented in 1970, was also provided.

The programs in occupational health in Argentina and Colombia were reviewed at the request of those countries, and El Salvador was assisted with a study of its current legislation in that field.



A technician changes the filter on a device which is used for one of the measurements taken in the air pollution control program.

The general **housing situation** in Latin America has tended to worsen in spite of all the efforts made by the countries to overcome the existing deficiencies. It is apparent that the designs, systems, and procedures currently employed are not properly adjusted to the social and economic conditions prevailing in most of the areas. Low-cost housing development schemes in Latin America, both official and private, cover less than 10 per cent of the needs. Most of the population continues to build traditionally by self-help. However, lacking the necessary programming, technical assistance, or orientation through adequate minimum standards, this tremendous effort often culminates in precarious dwellings like those which form the notorious shantytowns of the big cities.

One illustration of the effect of housing on the health and welfare of the whole population is the case of Chagas' disease, which occurs in many parts of the Region and whose transmission is closely associated with the structural design of dwellings.

The establishment of CEPIS has enabled the Organization to intensify its work in regard to the residential environment and has led to higher efficiency in the programs related to this field.

PAHO's participation in housing programs, originally limited to the purely sanitation aspects, has been extended in recent years to cover a wider range of related problems, such as urban development, community facilities, and physical planning, all of which have become of vital interest to health authorities. This has been accompanied by an increased demand for specialized advisory services from the Organization.

Activities in which CEPIS was participating included the pilot projects in rural housing organized by the Inter-Agency Committee on Housing and Urban Development and to be carried out in Colombia, Ecuador, and Venezuela; the publishing of minimum standards of urbanization in collaboration with the Inter-American Housing and Planning Center (CINVA); and the experimental housing project (PREVI) in Lima, Peru. Advisory services in rural housing and physical planning were also given to the FAO/UNDP project for the development of the Huallaga River Basin in Peru.

Among the **other activities**, mention should be made of the three meetings held at CEPIS in 1969: one of the Executive Board of the Inter-American Association of Sanitary Engineering (AIDIS); a meeting of PAHO staff to discuss housing policy; and a meeting of PAHO Zone engineers.

Assistance was given to Zone and Country Offices on matters related to fellowships and training programs for professionals working in the specialized fields.

The Center was designated as a WHO Reference Center for waste disposal. This will enable it to participate in a world-wide network of collaborating institutions which exchange information and consider solutions to technical problems in this field. As the Center develops, it is expected that it will become an increasingly important source of expert assistance to the Governments in the development of better methods both for meeting traditional problems and for coping with the new and complex problems accompanying urbanization and industrialization.

## RIVER BASIN DEVELOPMENT

The planning of area development projects in a river basin framework has a great many important advantages. Not surprisingly, therefore, there is a rapidly increasing tendency to use the river basin—or sub-basin—as a basic geographic unit for certain kinds of planning. As an example, agricultural development frequently is planned on this basis. Also transportation, trade, and services of one kind or another are often similarly planned.

Perhaps the most logical studies and plans to be made on such a scale are those directed to the maximum beneficial use of the hydraulic resources of the river basin. Here such factors as the total amount of surface water and groundwater available and its distribution among competing uses—such as public water supply, water for agriculture, for power, for industry, navigation, conservation, and recreation—must be considered. The quality of water required for each major use must also be taken into account; water treatment, waste treatment, and water pollution are important considerations.

The manner in which the water resources are used may have important health implications. The safety and adequacy of water for human consumption; the manner in which reservoirs and irrigation systems are developed and operated; the way in which wastes are treated and disposed of; the drainage or reclamation of swampy areas—all have obvious effects on health. The schemes for the settlement or resettlement of populations will have other health implications. It is important that all such factors be taken into account in the earliest stages of the projects, and that the health agency be an early partner in river-basin development planning. The Organization has sought to give assistance to the national health and other agencies concerned in joint endeavors to prevent any increase in health hazards and to ensure that the necessary health services will be provided. A draft guide

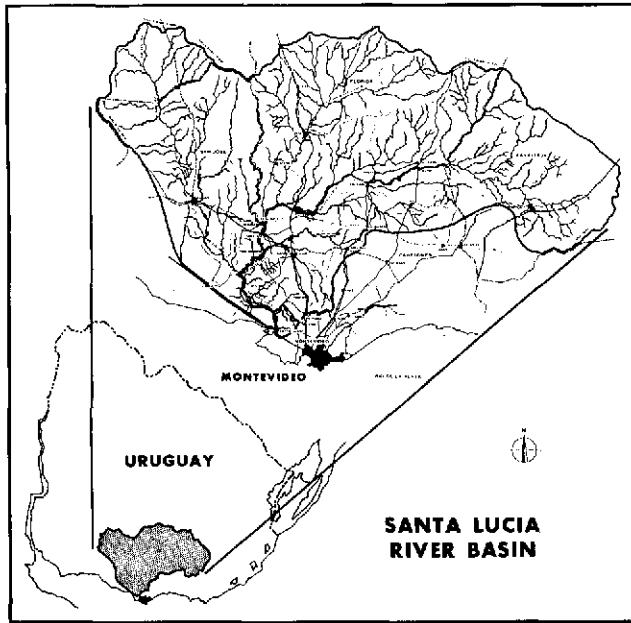


FIG. 11. AN AGREEMENT FOR THE UNDERTAKING OF PREINVESTMENT STUDIES ON THE POSSIBILITIES OF DEVELOPING THE WATER RESOURCES OF THE SANTA LUCIA RIVER BASIN WAS SIGNED IN APRIL BETWEEN THE OAS, THE GOVERNMENT OF URUGUAY, AND THE ORGANIZATION.

covering proposed action by the Organization in the development of hydraulic resources was prepared and distributed.

The Organization participated in a number of projects during the year. Among the most important of these were the River Plate Development Project; the Santa Lucía River Basin Study in Uruguay; the Guayas River Basin Development Project in Ecuador; the Bogotá River Basin Project in Colombia; the Huallaga, Chiriyacu, and Nieva Rivers Development Project in Peru; and the Lerma River pollution control project in Mexico.

*River Plate Development Project.* The five countries concerned have formed an intercountry commission to consider problems and projects in the Basin; each country, in turn, has a national commission made up of representatives of agencies of the national government. Also, for the past several years the Ministers of Health of the Basin countries have met to study health problems of mutual interest. Their conclusions serve as the guide for the activities of the Organization. During the year studies of water quality in the Basin were continued. Through the network of laboratories established the previous year, basic data were being assembled by the respective countries; mutually agreed upon analytical methods were being employed to measure quality and to determine acceptability.

*Santa Lucía River Basin Study.* Following the signing

in April of an agreement between the Government of Uruguay, the Organization of American States, and the Organization, detailed plans were drawn up for the execution of this study, which is designed to develop proposals for the maximum beneficial use of the hydraulic resources of the Basin. Professional staff were recruited and the project operations were begun. Responsibilities of the Organization include engineering studies related to future demands for municipal and industrial water supply, waste treatment and water pollution, and water quality requirements; and studies dealing with the health effects of the hydraulic changes in the Basin.

*Guayas River Basin Development Project.* At the request of the Ecuadorian authorities, the Organization was collaborating in the health and water-quality aspects of this project. The services of short-term consultants were provided, and a plan of operations was formulated.

*Lerma River pollution control, Mexico.* Plans were initiated for a program for control of pollution in this Basin.

## OTHER ACTIVITIES

### UNDP Activities in Environmental Health

The United Nations Development Program, both the Special Fund and Technical Assistance sectors, continued to be an important source of assistance for environmental health programs. In the Special Fund sector, the Regional Office is interested both in health programs administered by the World Health Organization as Executing Agency, and those administered by other specialized agencies of the United Nations which have significant health aspects. In the latter case the Regional Office may carry out responsibilities as a participating agency in the project, or may assist in collaborative arrangements between the national health agency and the Executing Agency. The objective in either case is to be sure that the health aspects of projects receive appropriate consideration.

**Projects in operation.** Three Special Fund environmental health projects were in operation during the year:

1. *Institute of Sanitary Engineering, Rio de Janeiro, Brazil.* A two-year extension of this project (to mid-1971) was negotiated with UNDP. The Institute was engaged in activities of considerable importance to the State of Guanabara, among them the applied research on water treatment which was being conducted with the help of outside consultants. On the basis of the studies

made of the hydraulic characteristics and the performance of the large water treatment plant serving the Rio de Janeiro metropolitan area, it appeared that modifications to the existing plant, at a relatively low cost compared to that of constructing new facilities, could increase the plant capacity by 50 per cent or more. The results of these studies were significant because of the potentially large savings not only in capital costs but also in operational costs, especially those for chemicals.

In view of the significance of the new water treatment technology which was being developed through these studies, two training courses in this field were held at the Institute and a third course was scheduled for January 1970.

Other activities of the Institute during the year included expansion of the air pollution surveillance network; studies of air pollution sources and control measures in Guanabara State; expansion of the radiation protection activities; studies of pollution in fresh and marine waters; a study of the Guandu River, the principal source of water supply for the Rio de Janeiro area; and the provision of training in various fields of specialization.

2. *Sanitary engineering teaching and research, Venezuela.* A new three-year project, prepared with the Organization's assistance, was submitted by the Government to the UNDP. It will emphasize research in sanitary engineering problems in tropical areas, and represents the second phase of the original teaching project, which was extended by the UNDP to the end of 1969.

The objectives of the original project were considered to have been more than met. The Government far exceeded its counterpart commitments and a durable sanitary engineering teaching structure was built. During 1969 the second graduate class in sanitary engineering completed the program at the Central University in Caracas. At the undergraduate level sanitary engineering subjects, especially water and sewerage, formed a mandatory part of the civil engineering curricula in the other three universities participating in the project. The new laboratory buildings at these three universities were in full operation and some investigative work was under way. At the Central University a new sanitary engineering building and the pilot water and waste treatment plant facilities were under construction.

The first water resources planning seminar was held in Venezuela under the auspices of the project and with the assistance of international experts recruited by PAHO. An international consultant and staff of the project were participating in research at a water treatment plant in the country. The project staff continued to participate in both air and water pollution studies.

In preparation for the research phase of the project, professors at the Central University were receiving special training outside the country. A laboratory-scale water treatment plant, designed for experimental work, was fabricated for each of the four universities. Special training courses for waterworks operators were conducted, and a textbook-length manual on water treatment was prepared by international staff assigned to the project.

3. *Water supply and sewerage, Surinam.* A preparatory assistance mission was constituted by the Organization and dispatched to Surinam for on-site observations in connection with the proposal for a new national water supply and sewerage program, which was submitted to the UNDP. Advance operating funds were granted, a project manager entered on duty in September, one short-term international consultant was assigned to assist in legislative and management aspects, and three other international experts were being recruited.

Exploratory well-drilling operations and the collection of hydrological data in the lower Surinam River Basin were begun. Government counterpart staff and equipment were provided, fully on schedule.

This project is the only one of its kind supported by the UNDP in the Region. It embraces some unique and very practical features for providing water supplies and sewerage facilities to communities in the areas where the most important national development activities are expected to take place.

**Air and water pollution, São Paulo, Brazil.** With the assistance of Organization staff assigned to the Inter-Municipal Commission for Air and Water Pollution Control in São Paulo, a proposal was drawn up for joining the recently established water pollution program with the air pollution program currently being prepared. UNDP support for the joint project was being sought.

**Bilateral assistance.** On the basis of a study and report prepared by the Organization in connection with a proposed request for UNDP assistance, the Government of Switzerland offered bilateral assistance for the development of teaching and research in sanitary engineering and water resources at the University of San Carlos in Guatemala and also at the engineering universities currently participating in the regional sanitary engineering program involving the six countries of the Central American Isthmus.

A proposed plan of operations and agreement between WHO and the Governments of Switzerland and Guatemala were being reviewed by the appropriate authorities. The bilateral assistance would include funds for laboratory equipment, fellowships, and international teaching staff.

## Solid Wastes

The Organization continued to collaborate with a number of countries in the study of possible solutions to the problems created by inadequate facilities for the collection and disposal of solid wastes in urban areas. The objective has been to focus the attention of the countries and their municipalities on the need to approach this problem from a pre-eminently technical standpoint. It is noted, however, that the problem continues to be regarded empirically and without making use of the technical resources available, and this results in the development of situations affecting not only the well-being of the inhabitants but also the appearance and cleanliness of the cities themselves.

The financing of these services still represents one of the most difficult aspects of the problem. Provision for the collection of the cost from those benefiting from such services is erratic and often non-existent. Preliminary discussions were held with officials of international lending agencies with a view to determining the feasibility of obtaining external financing for projects of this kind. In Chile negotiations on the financing of the purchase of equipment for a group of municipalities in the metropolitan area were continued. It is hoped in the near future to develop a number of projects that can be used to ascertain the feasibility of self-financing in the case of such services.

In 1969, 13 countries were advised on various matters connected with this program.

The authorities at Tegucigalpa, Honduras, were assisted with the study of certain phases of the collection and disposal of solid wastes and with the formulation of specifications for the purchase of collection equipment. In Caracas, Venezuela, further technical assistance was given in connection with the construction of two incinerators.

Three research projects were being undertaken at universities in Argentina, Brazil, and Chile, respectively, and three short courses on various aspects of solid-wastes collection and disposal, held at universities in Bolivia, Brazil, and Chile, were attended by 100 professionals.

Close contacts were maintained with the U.S. Public Health Service, and with the Institute of Solid Wastes which operates in association with the American Public Works Association, large numbers of books and publications of both agencies having been obtained and distributed to the countries.

## Cooperation with ECLA

The Organization continued to collaborate with the Economic Commission for Latin America (ECLA) through the services of a sanitary engineer assigned to the program for the investigation of water resources in the countries of the Region. By the end of the year, assistance with activities on a large or limited scale had been given to 16 countries. The collection of data on the countries of Central America and Panama was completed and reports on Paraguay and Uruguay and one on the Puerto Bush and Santa Cruz area in Bolivia were in course of preparation. These reports examine, in the general context of economic and social development, the extent of the knowledge available on surface and ground water resources, the present utilization of such resources, and the projections of demand for a period of 10 years or more.

One consequence of these reports is that the institutions responsible for water resources in the countries have undertaken studies recommended in them, adopting a similar approach. A large number of the projects recommended are at the construction, planning, or design stages, financed from national funds or with the aid of international loans.

## Inter-American Association of Sanitary Engineering (AIDIS)

At the meeting of the Executive Board of AIDIS held at the Pan American Sanitary Engineering and Environmental Sciences Center in May, a number of important decisions were adopted, among which was the one to establish an Executive Secretariat for the Association with headquarters in Caracas, Venezuela. The Organization assisted in the planning and organization of the XII Congress of AIDIS, which will be held in August 1970 in Caracas, and whose central theme will be urban sanitation.

In November the VII Seminar on Sanitary Engineering for Central America and Panama, which was also a regional meeting of AIDIS for these countries, took place at Managua, Nicaragua. The Organization assisted with the planning and conduct of the seminar and two of its officials presented working documents.

## II. PROMOTION OF HEALTH

### A. GENERAL SERVICES

#### HEALTH SERVICES

This section describes the action taken by the countries with the Organization's assistance in the form of projects for the development and expansion of general health services, with special emphasis on those concerned with the improvement and modernization of administration.

During 1969, 48 projects of this kind were actively under way: 46 were located in 26 countries and 11 territories, and two encompassed several countries. Twenty-six of the country projects were national in scope, 18 covered only part of a country, and two were designed to furnish short-term advisory services in connection with specific problems.

The variety and number of measures, activities, and achievements of the countries in this field is such that it is impossible to report on them in detail in the limited space available; comments will therefore be confined to some examples of the more significant activities. Information on specific programs will be found in the appropriate chapters and a report on each of the projects is included in Chapter VIII.

Some of the changes that have occurred and the progress made in the organization of systems of administration of health services will be mentioned. Comments will also be made on the coordination of health agencies and services. Attention will then be drawn to experiments in the integration of services, changes in health legislation, and progress in administrative practices and methods, in information systems, and in the formulation of guidelines. Finally, examples will be given of joint action by countries and multinational agencies in financing and expanding programs and services.

Various national and some state Governments carried out major reforms in their ministries of health which strengthened their decision-making, advisory and regulatory powers, and in certain cases their executive authority, with respect to national health policies. As a general

rule, the structural patterns adopted seek to centralize the regulatory and advisory functions—both in the case of the ministries' own services and in that of other institutions in the sector—in councils, boards, or commissions with full institutional representation and in specialized technical units that directly serve the ministries and through which the implementation of programs is decentralized.

In Argentina a decree was promulgated under which the Secretariat of State for Public Health increased its national departments from four to six and which also conferred on the Secretariat responsibility for the execution of national health policies.

In Brazil the administrative reorganization of the Ministry of Health was authorized by decree. Colombia continued the reorganization of its Ministry of Public Health and formed a Central Health Council on which various institutions in the sector were represented. Costa Rica initiated the reorganization of its Ministry of Public Health at the level of its Director General, with the establishment of four regulatory divisions and one executive division, consolidating 23 technical departments previously directly responsible to the Director General of Public Health. In Ecuador an organic law was promulgated placing health and social welfare activities under the Ministry of Public Health. Guatemala reorganized its Ministry of Public Health and Social Welfare by means of a legislative decree establishing a National Department of Health Services. In Panama the organic statute of the Ministry of Health was formulated. Paraguay initiated a plan for reorganizing the Ministry of Public Health and Social Welfare, principally affecting its administrative department. In Peru a new organic law defined the scope and structure of the health sector, the functions and organization of the Ministry of Health, the basic responsibilities of decentralized public agencies, and relations with institutions connected with the health sector. The new structure brings the basic services of public sector institutions (hospitals, clinics, etc.) under the direct

administration of the Ministry, without, however, making them part of that Ministry. A country-wide network of basic health establishments has thus been brought into being. These institutions lose neither their identity nor their sectoral responsibility and in conducting their health services they are subject to the directing and coordinating role in national policy performed by the Ministry.

Varying degrees of progress was made in decentralizing authority for the execution of programs through the organization of health regions. Some countries had already completed the process, while others were at the stage of initiating preliminary studies.

Argentina divided its territory into eight health regions which coincided with its socioeconomic development regions. In Guatemala there were five such regions based, among other criteria, on intersectoral relationships in national development. In Ecuador the reorganization of the Ministry provided for the gradual regionalization of the country's health services; one of the regions had already been formed. In Trinidad and Tobago the cabinet approved the establishment of several regional units. Costa Rica established 19 health districts and made provision for their integration into a regional system under the Ministry of Public Health.

The emphasis laid on socioeconomic development programs in some regions also contributed to the development of regional health systems as, for instance, in northeastern Brazil, in the multi-institutional program of rural medical services in Ecuador, and in the land settlement program in the Coronel Oviedo district of Paraguay, which led to the formation of the Sixth Health Region. To carry out such programs, a number of complementary regional supervisory and service institutions have been established, such as the Regional Health Statistics Center for the Northeast (CRESNE) in Brazil.

The primary concern of the countries continued to be the provision and expansion of local services. Notwithstanding budgetary limitations, funds were made available for the improvement or creation of facilities and for the provision of resources for their operation. Priority was given to the appointment of new personnel and to personnel training. Further information on training activities is given in Chapter III, as well as in Chapter VIII under the individual projects.

Progress was made in the administration and organization of establishments at the local level. The measures generally included the assignment of responsibility for a specific geographic area or population group to each establishment, a definition of the scope of its activities, the range of its duties and the nature of its installations, the number and types of staff in its service, and other

similar guidelines that would bring its operations into line with those of other establishments in the regional framework. In Colombia, for example, one rural and two local levels were defined, in addition to two regional levels and one university level, the definitions being based on one or more of the above considerations. In Peru 60 hospital areas were established at the local level in addition to the 12 health zones and five integrated development regions. In Nicaragua the first model local organization unit was formed in one of the three sectors of the city of Managua. In Ecuador, as part of the Manabí project, three local areas were formed with a health center in each of the 13 cantonal capitals, together with 46 rural health posts in each parochial center, following guidelines similar to those described above.

This structural systemization of health services increased the need for both intra- and extra-ministerial coordination, which was effected by institutionalized measures in some countries and in others by working groups formed to advise Governments on specific problems and situations. The increasing desire of the countries to draw up national health plans and to prepare forecasts for socioeconomic development was one of the factors that contributed from the outset to a more effective coordination of the activities of decentralized health institutions.

In Nicaragua a health service plan for the city of Managua was approved, based on the coordinated deployment of the resources of the Ministry and of the Local Social Welfare Board. In Guatemala a program of health services was established in Chimaltenango, coordinating the service facilities of the Ministry with those of the academic staffs of the Schools of Medicine and Dentistry and of the School of Nutritionists; the program has the cooperation of the University of San Carlos and of the Institute of Nutrition of Central America and Panama (INCAP). In Bolivia a land settlement plan for the eastern region was drawn up, coordinating the activities of the National Council for Agrarian Reform, the Institute of Land Settlement, and the Ministry of Public Health, and a further plan for food assistance was being prepared in association with the Bolivian Mining Corporation. In Ecuador the formulation of the rural medical services plan, as part of a plan for modernizing rural life, provided the framework for coordination of the Ministry's health activities with action being taken in the fields of agricultural development, medium and small-scale industries and crafts, communal works and building projects, rural education, social service, and special projects.

In Colombia, the Dominican Republic, Ecuador, Guatemala, and Panama, health boards and councils were formed to act as coordinating agencies for the sector, and



especially to seek feasible areas and methods for joint programs and action. The authorities were invariably interested in coordinated studies of resources and their utilization at different levels. Where planning units already existed, these units undertook such studies. In other cases, programming units were established in the health ministries to facilitate the execution of these activities, as was the case in Guyana, Haiti, and Trinidad and Tobago.

The coordination of health institutions stimulated the undertaking of pilot projects for integrated services, practically always limited to rural and less accessible areas and to programs of decentralized action by the ministries themselves or by other health institutions. Experiments of this type were carried out in Trinidad and Tobago (Point Fortin area), in Costa Rica (Puriscal health district), in Nicaragua (a sector of Managua), in Guatemala (Chimaltenango), in Colombia (Cauca Valley, Antioquia, and Caldas), in Bolivia (Santa Cruz), and in Peru (Loreto and San Martín health areas). The agencies responsible for water supply and sewerage also participated in these programs.

Current legislation, especially that dealing with health codes, was revised in a number of countries including Barbados, Colombia, Ecuador, Guatemala, and Panama.

The existence in some health ministries of administrative management units, generally closely linked with those concerned with planning, was the result of an increasing recognition of the need to improve systems of logistical support for the administration of programs.

One such unit was formed in El Salvador in the Ministry of Public Health and Social Welfare and with its support the changes contemplated in the national plan for administrative reform were initiated. In Argentina a similar unit was given the status of a national department. In other countries, the function of these advisory units was performed by study groups. In the Dominican Republic a preliminary draft of the administrative regulations for the Ministry of Health was prepared, as were regulations for the operation of the central warehouse, staff regulations for the civil service, and a costs manual for use in nine hospitals. In Colombia, as part of the new organization of the Ministry of Public Health, a start was made on the simplification of procedures and the issue of revised regulations.

The fields receiving special attention were supplies, transportation, per diem, and personnel. The rationalization of administrative methods and procedures also paved the way for improvements in information systems, including statistics, designed to facilitate assessment of the impact of the action taken by the health services on prevailing health conditions and vital and health data. Ex-

amples of such improvements are to be found in Argentina, British Honduras, Chile, Guyana, Haiti, and Panama.

The action taken to improve the general administration of services involved the participation of experts representing a wide range of disciplines in the fields of health and environmental sanitation, who were engaged in the study, preparation, and evaluation of guidelines for the formulation and implementation of each specific program. Information on these activities will be found in the chapters relating to each program; they are only mentioned here to emphasize their important bearing on the modernization of health administration.

In parallel with these activities, whose primary objective was to develop and expand the health services and raise their productivity, the majority of the Governments increased their budgets to finance additions to their basic and supplementary services. These investment plans were sometimes programmed with national funds and sometimes with funds from lending or external aid agencies. In many instances, the expansion of the sectors' facilities formed part of projects for the integrated development of the national, regional, local, and even international infrastructure. The studies undertaken in Uruguay on the development of the St. Lucía River Basin were part of a larger project for the development of the River Plate Basin and provide an example of the expansion of national services in the framework of the establishment of a multi-national infrastructure. Examples of the joint expansion of health services with those of other sectors of national, regional, or local development have been given previously. Various international agencies participated in many of these programs, such as the United Nations Development Program, UNICEF, FAO, UNESCO, ILO, and PAHO/WHO. Participation in this form in projects for the modernization of rural life continued in Bolivia, Ecuador, and Peru. Similar projects were prepared in the highlands of Guatemala, in Honduras, and in Veraguas, Panama. At both national and international levels, the multidisciplinary and multisectoral approach to the establishment or consolidation of the infrastructure with a view to the integrated development of communities provided an opportunity to gain experience with methods and techniques for motivating and enlisting the support of the users of the services themselves.

The evaluation reports furnished by each country provide the best indication of the immediate achievements of all these activities in relation to the program objectives. The majority of these showed undoubted progress in the strengthening and systematization of the services. The coverage provided by the services also increased, although it still fell short of the desired goal.

## NURSING

The primary objective of the projects for the development of nursing services conducted with the Organization's assistance is to improve the quality and increase the amount of nursing care through the progressive expansion of nursing manpower, its rational deployment and effective utilization in health programs, and the inservice training of existing personnel. This section will be confined to an account of the general activities carried out to achieve this objective, specific measures in the various nursing fields being described in the individual projects.

During 1969 the Organization assisted the countries by providing 31 nursing advisers (24 in country projects and seven in intercountry projects) and 10 short-term consultants, in addition to furnishing grants for seminars, fellowships for training, and publications.

Some countries of the Region have already made a diagnosis of the nursing situation and others have taken the preliminary steps. On the basis of the data compiled, various alternative approaches to the problem of providing better and wider coverage for health programs are being studied in order to arrive at a definition of a nursing system best suited to meet current socioeconomic and cultural needs of the countries concerned.

In the countries which already have or are formulating a national health plan, nursing has been in varying degrees

incorporated in the planning process. The Organization has encouraged the preparation of nurses for activities in this field and has participated actively in these undertakings. In October an international seminar on the planning of nursing was held in Mexico City and was attended by 27 nurses from 10 countries. In Colombia a short course on planning was conducted for 20 instructors from schools of nursing.

The improvement of the central administrative structure for nursing is receiving special attention from health authorities, and during the year was the subject of analyses and pilot studies in a number of countries. Four countries adopted new organizational structures at the national level and others, mainly those in Central America, drew up more precise definitions of the functions of departments and strengthened their regulatory and advisory roles.

In the assistance given to health institutions, emphasis was laid on improvements in the administration of services directed toward the better utilization of existing manpower.

Programs of continuing education in the administration of services were conducted in the Dominican Republic, El Salvador, and Guatemala and were attended by 149 nurses from some 66 health establishments. As part of these programs, numerous projects were being carried out in these establishments. In Guyana, 44 nurses participated in a working group on nursing service administration.

Assistance was also given with the organization and operation of intensive care units in Brazil, Chile, Colombia, El Salvador, and Venezuela: professional and auxiliary nursing personnel were trained, advisory services were furnished, and guidelines and procedures for the use of the units were drawn up.

The Organization cooperated in numerous inservice education programs, seminars, refresher courses, and courses on nursing care for professional and auxiliary staff.

In Bolivia the first national seminar on nursing was held, with 85 participants, and a refresher course on public health nursing was conducted for 60 nurses in the health services.

In Ecuador and Peru assistance was given in the organization of surgical centers and in the development of operating room techniques, through the conduct of courses and seminars for nursing personnel. As part of these activities, auxiliaries are being trained as "instrument technicians" in order to release the nurse for more complicated duties.

For both nursing auxiliaries and empirical personnel,



Hospital nursing care is given to a young child under the supervision of the head nurse.

formal courses as well as inservice training were provided.

In Brazil, 165 auxiliaries attended refresher courses. In Honduras, 48 per cent of the auxiliaries received inservice training and 200 aides were prepared for work in hospitals and health posts. In the Dominican Republic, 126 auxiliaries, 145 aides, and 147 traditional birth attendants received inservice training.

In the nursing services as a whole, there was a gradual increase in the number of professional personnel and a marked reduction in the number of empirical personnel and untrained auxiliaries.

The following publications on nursing were prepared and appeared in 1969: *Recopilación de trabajos de enfermería, No. 3*, a compilation of articles on nursing (Scientific Publication PAHO 176); *Technical Advisory Committee on Nursing—First Report* (Scientific Publication 180); *Guía de orientación y supervisión de parteras empíricas*, a guide for the orientation and supervision of empirical midwives (Reports on Nursing No. 12); *Seminar on Training and Utilization of Nursing Auxiliary Personnel* (Reports on Nursing No. 13), *Directory of Schools of Nursing in Latin America* and *Guide to Nursing-Midwifery Courses and Schools of Midwifery in Latin America and the Caribbean Area*.

Details on nursing education activities appear in Chapter III.

## VETERINARY PUBLIC HEALTH

It has been estimated that in the rural areas of Latin America, where more than 100 million persons reside, there are some 328 million head of cattle in addition to the millions of animals of other species which are in close association with the human population. The Governments have recognized that the health status of these animal populations is of great importance to socioeconomic and agricultural development. Certain animal diseases cause large losses of animal protein essential for man's health and a drain on national income derived from the exportation of animal products. There is an evident need to increase the production of foodstuffs to meet the requirements of the growing number of inhabitants, and one of the factors contributing to the present insufficiency is the large number of animal diseases, most of them zoonoses, for which effective methods of control do exist and whose incidence can be greatly reduced through the implementation of suitable measures. According to conservative estimates, more than 35 per cent of the potentially available animal protein is either not produced or is destroyed

because of such diseases. The Governments have begun to strengthen their veterinary medical services in order to develop programs for the control of these diseases and prevent their transmission to man. This endeavor is being assisted by international financing through such agencies as the Inter-American Development Bank, and by this means it is hoped to establish the programs on a self-financing basis in the future.

These activities have placed larger demands upon the Pan American Foot-and-Mouth Disease Center and the Pan American Zoonoses Center for the provision of advisory services, training, and research, and also on the veterinary public health consultants in the Zone Offices who coordinate the programs with the Governments and the Organization. These consultants collaborate with all of the schools of veterinary medicine to improve the quality of instruction for specialists in this field; during 1969 they gave assistance in courses on applied epidemiology for zoonoses control in the schools in Santiago, Chile, Havana, Cuba, and Lima, Peru. Consultants from Zone IV as well as from Headquarters and the Pan American Foot-and-Mouth Disease and Zoonoses Centers, participated in the teaching program at the University of Antioquia in Colombia. In Ecuador, assistance was given to the Government in mobilizing the combined forces of the health and agriculture services in the campaigns to control the outbreak of Venezuelan equine encephalitis; in coordinating the work of epidemiologists, virologists, and veterinarians in the field with that of laboratory and hospital medical services; and in strengthening the veterinary health services and educational programs at the national level.

Financial assistance and consultation were given to the health and agriculture authorities of Peru in launching a program for the control of goat brucellosis through vaccination and serologic detection of carrier-animals; the control methods developed and utilized will be of great benefit for the preparation of similar programs in other countries.

The Zone V veterinarian gave assistance to the Epidemiological Information Center of the Ministry of Health of Brazil in the development of a surveillance system for rabies, and also to the health authorities of the city of São Paulo in the design of a canine rabies control program.

The rabies control program in 12 cities along the United States-Mexico border achieved outstanding results; cases of canine rabies were 54 per cent less than in 1967 and 15 per cent less than in 1968. Since the initiation of the program there have been no human cases, and the percentage of persons bitten who received antirabies treatment has notably decreased. Assistance was rendered to

the Mexican authorities in the surveillance of goat brucellosis in the border area, and to the universities of the northern states in the improvement of veterinary medical education.

Consultants advised the Government of Grenada on the canine and mongoose rabies control program. The number of rabies cases in animals was reduced by 50 per cent from 1968 to 1969.

The veterinary public health services of Central America, Cuba, Mexico, and Panama, with the cooperation of Zone Advisers, continued to strengthen their programs for the control of rabies, brucellosis, and bovine tuberculosis.

Staff of the Organization and of the Pan American Zoonoses Center cooperated with Argentina, Brazil, Chile, Peru, and Uruguay in studies and programs on food hygiene and in the training of personnel in this field.

Headquarters staff participated in several international and national meetings, where they presented papers dealing with veterinary public health administration, zoonoses research and control, veterinary education, and organization and planning of animal disease control campaigns.

Details of education and training activities are given in Chapter III.

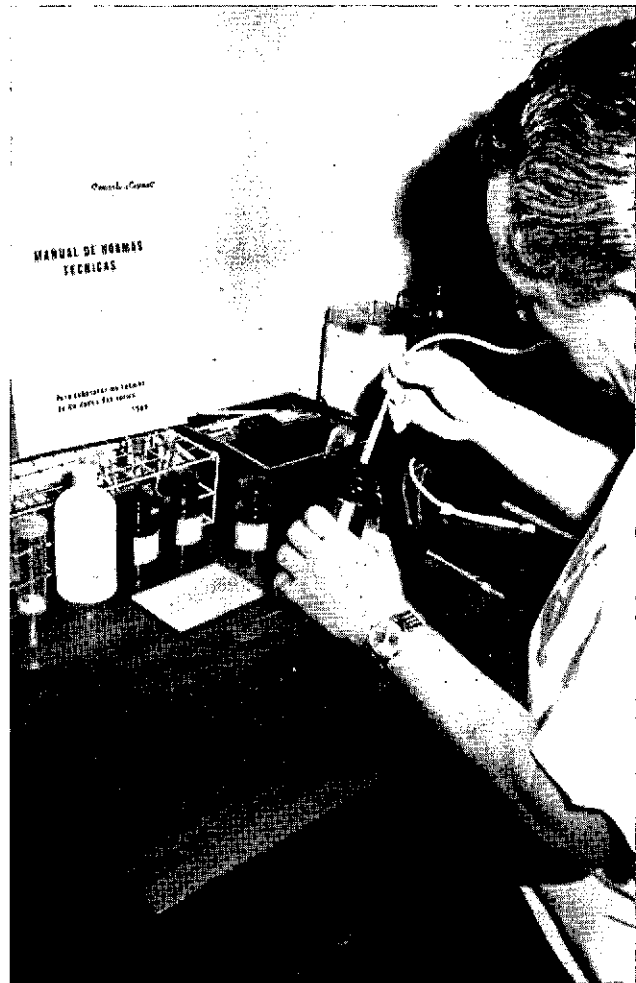
## LABORATORY SERVICES

Although the need for good health laboratory services is well recognized, their development has not kept pace with the extension of medical services in Latin America, particularly in rural areas. One of the chief drawbacks has been the shortage of trained laboratory technicians and also of experienced staff capable of organizing and administering the laboratory services. Among the basic resources essential for satisfying these needs is a strong national laboratory equipped to provide reference services, consultation, and training and to undertake the supervision and coordination of the various laboratory services within the country.

The Organization has assisted the countries in improving these services by providing short-term consultants, supplies and equipment, assistance in personnel training, and other services, among them the provision of standards for the quality control of biologicals, facilities for the testing of biologicals produced by the national laboratories, and biological reagents and strains of bacteria, viruses, and tissue culture needed for diagnosis and research.

In 1969 a total of 684 items were furnished in response to 47 requests from nine countries for standards and reagents. The fact that only nine countries requested these indicated the need for the extension and improvement of laboratory services in many countries.

Short-term consultants were provided to Argentina, Barbados, British Honduras, Cuba, Dominica, Dominican Republic, Jamaica, and Mexico. Fellowships in laboratory disciplines were awarded to Brazil, Costa Rica, Cuba, Dominica, Grenada, Guatemala, Mexico, Trinidad and Tobago, United States of America, Uruguay, and Venezuela. PAHO/WHO advisers gave assistance to Cuba in the preparation of a proposal for submission to the UNDP for the strengthening of the National Institute of Health; and to Peru in the drafting of an application to UNICEF for equipment to produce DPT vaccine.



Through the development and use of manuals of standardized techniques, the quality and comparability of laboratory results can be improved.

Advisory services were rendered to Trinidad and Tobago in the planning and organization of a public health laboratory, and to Colombia in the reorganization of the National Institute of Health, including plans for a new building and for improving the production of biologicals.

A number of countries made efforts during the year to improve their health laboratory networks as well as the central laboratories. Venezuela, with PAHO assistance, organized two regional laboratories, for the States of Sucre and Lara. Supervision of three regional laboratories reorganized the previous year was continued. Two physician-microbiologists were trained and six others were being trained to provide the needed supervision of regional laboratories.

In Central America the national services emphasized (a) the preparation of plans for organizing their health laboratory systems and for installing or remodeling the central, regional, and local laboratories; (b) the training of personnel; and (c) better utilization of trained staff. All countries of the area prepared technical manuals for use in the laboratories, except Honduras and Nicaragua, where such manuals were still in preparation. The Health Center Laboratory in Managua, Nicaragua, was expanded and new equipment was installed. New equipment was also furnished to the Health Center Laboratory in San Pedro Sula, Honduras, and to the Central Laboratory of Panama. UNICEF provided funds to equip five district laboratories in British Honduras and to train technicians.

An important service that may be required of a national laboratory when other facilities are not available is the production of biologicals for the prevention and cure of infectious diseases. While many national laboratories perform this service, a significant number do not. In spite of the need for biologicals for immunization programs, in many countries the demand is insufficient to permit production on an economical basis. For many years the Organization has recognized this problem and has attempted to assist in finding a solution. As a step in that direction, it has collaborated with Brazil and Colombia in the production of vaccine 17D needed for control of yellow fever throughout Latin America. During 1969 Colombia produced 1,269,300 doses of this vaccine, of which 481,750 doses were distributed to other countries. Brazil, in addition to producing 1,200,000 doses of the vaccine needed for its own use, maintained a stock of nearly 5,000,000 doses which are available for shipment to any country when needed.

Although vaccination has proved effective in controlling poliomyelitis, the incidence of the disease in Latin America has remained significantly high. Concerned over the situation, the Organization was sponsoring the organi-

zation of a continent-wide vaccination program and was collaborating with Mexico with the aim of producing vaccine in sufficient amounts for such a program.

Under the guidance of a PAHO/WHO adviser, further progress was made in planning the project, sponsored by the Guatemalan Government, for the production of biologicals for all of Central America. The feasibility study for the project was in the final stages of preparation.

## Food Hygiene

Mass migration of populations during the last decade from rural to metropolitan areas has given rise in the Hemisphere to rapidly increasing problems related to food hygiene. Among the effects of these population movements has been the development in certain urban centers of food-handling conditions which are often far less sanitary than those in the rural areas themselves, as the result of such factors as over-crowding and deficient sanitation.

In these as well as in other areas, the Governments have been devoting greater attention to the health aspects of the production, processing, refrigeration, transportation, and distribution of foodstuffs. The Organization has assisted them through collaborative activities at the national as well as the international and regional levels. One of the significant events in 1969 was the WHO-sponsored Inter-regional Seminar on Food-Borne Diseases and Intoxications and Food Hygiene Practice, held in Copenhagen, Denmark, in August, which was attended by eight professional workers from Argentina, Brazil, Colombia, Costa Rica, Mexico, Peru, and Venezuela. The participants discussed the major food-related problems in both the Americas and the European Region.

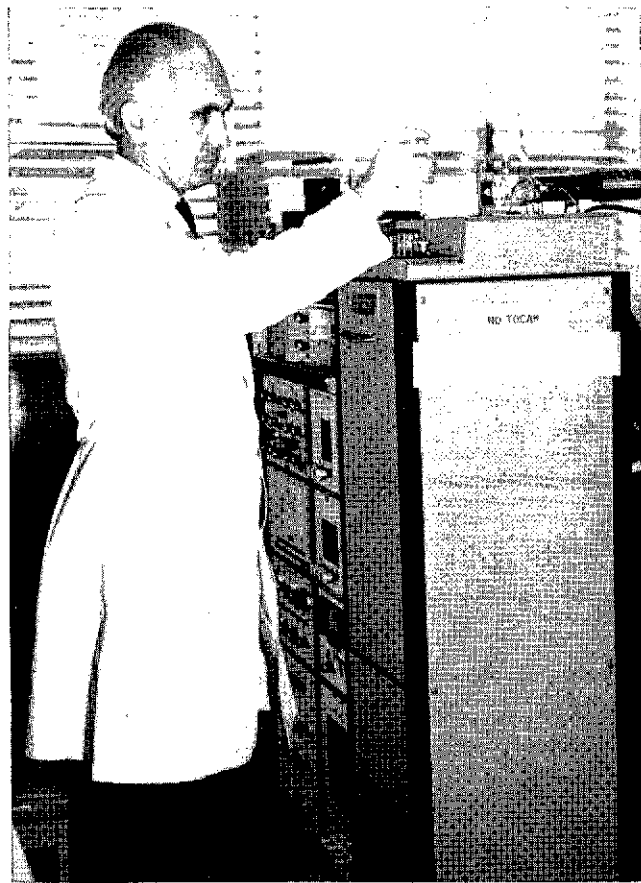
The Fifth Seminar on Food and Drug Control for Central America and Panama was held in May in Managua, Nicaragua, under the Organization's sponsorship and with the collaboration of the Nicaraguan Ministry of Health. It was attended by 13 officers from the national food and drug control services and by representatives of the Central American Institute for Industrial Research and Technology (ICAITI), the Institute of Nutrition of Central America and Panama (INCAP), and the U.S. Food and Drug Administration. Advisory services were provided by PAHO staff from Headquarters and from the Zone III Office. Special attention was given to food intoxication, use of gas chromatography in food analysis, drug standards, use of plastic containers, and standardization of food colors.

Assistance was rendered to Guatemala and Honduras in the preparation of food control regulations based on the

national health codes. Additional steps were taken for the establishment at INCAP, in Guatemala, of the Food Reference Laboratory for the countries of Zone III, its purpose being to assist them in instituting a uniform system to govern the registration and processing of foodstuffs and in strengthening their national food control laboratories. A preliminary approach was made to the United Nations Development Program for assistance in financing the Laboratory.

A Gas Chromatography Section was installed at INCAP during the year. This Section has been conducting analyses of pesticide residues in foods and also analyses of edible fats and oils, amino acids, and other substances. Assistance to the countries in the training of personnel continued to be provided through the courses on food technology and hygiene organized by INCAP.

Staff of the Organization collaborated with Colombia in the design and preparation of a meat hygiene program to be conducted through the planned network of regional slaughterhouses, and in initiating studies for the development of a sanitary food code for the country.



In the food analysis section at INCAP, a gas chromatography unit is used for analyses of pesticide residues in foods.

Uruguay received advice on the utilization of the latest techniques of microbiological sampling of foods, especially those of animal origin.

Through the Zone veterinary public health consultants, assistance was rendered to several countries in different aspects of food hygiene, especially those related to inspection and preservation of foods of animal origin.

Technical and scientific information on food hygiene continued to be furnished to health and agricultural agencies throughout Latin America.

Information on training activities is presented in Chapter III.

## Drug Control

The manufacturing of good drugs is a very demanding process. In addition to the problems involved in proving that a new drug is safe and effective, there are difficult technical problems to be overcome in producing the drug on a commercial scale. The development of the dosage form, the selection of diluents and excipients, the testing of the components, the assay of the finished product, and the building-in of a satisfactory degree of stability of the finished product—all require great skill and care on the part of the manufacturer.

The nations of the world, and particularly the developing countries, have expressed increasing concern over the drug quality problem. The latest indication of this concern was the adoption by the Twenty-Second World Health Assembly (July 1969) of Resolution WHA22.50, entitled "Quality Control of Drugs." This resolution endorsed the list of "Good Practices in the Manufacture and Quality Control of Drugs" presented by the WHO Director-General, and recommended that Member States adopt and apply this WHO code, which provides drug producers with a useful set of manufacturing principles and at the same time provides the national drug agencies with standards by which to check the operations of commercial drug manufacturers.

During 1969 the Organization made comprehensive studies of the drug control situation in Brazil and Costa Rica (the study in Costa Rica also covered food control needs) and of the government drug testing laboratories in Mexico, Peru, and Venezuela. The studies revealed that the national agencies suffered from one or more of the following deficiencies: shortage of personnel and need for better preparation of technical staff, insufficiency of the number of modern testing devices and of the quantity of laboratory reagents and other supplies, unsatisfactory library facilities, poor coordination between the



First National Symposium on Food and Drug Control, Buenos Aires, Argentina, 2-7 November 1969.

inspection unit and the laboratory testing unit, and failure to test a sufficient number of samples taken from commercial distribution channels.

The basic problem of most of the agencies was lack of money. The importance of adequate financing is well illustrated by the case of Argentina, which in 1967 enacted a law requiring drug manufacturers and importers to turn over to the Government 1 per cent of their gross sales. Of the money so obtained, one-fourth is used by the Government for supporting basic medical research and the remainder for drug control purposes. The ample funds obtained by means of this law have enabled Argentina's drug control agency to develop excellent laboratory facilities for assuring high-quality drug production in the country.

The Organization participated in Argentina's First National Symposium on Food and Drug Control, held in Buenos Aires in November.

A rapid survey was made of the drug control situation in Jamaica, Guyana, and Trinidad and Tobago, and on the basis of the partial information so obtained recommendations concerning the possibility of intergovernmental action to deal with drug control problems were presented to the First Conference of the Health Ministers of the Caribbean, held in Trinidad in February. The PAHO report pointed out that, because of technical limitations, an individual small country may not be in position to establish its own national drug testing laboratory, and

that the prospects for a satisfactory quality control program for the Caribbean countries and territories would be greatly enhanced if all of them acted together to create a regional drug testing laboratory. This would be in keeping with the recommendations made by the Ministers of Health of the Americas at their Special Meeting in 1968, to the effect that when a country was unable to establish its own testing laboratory, it should arrange to have its samples tested by a recognized agency or form an association with other countries and establish a regional laboratory.

With regard to the Organization's project for establishing a Pan American Drug Quality Institute in Uruguay, a Government architect prepared detailed plans for the building to house the Institute, but no further progress was made toward obtaining financing for the project.

The Organization responded to an increasing number of requests from the Governments for information relating to drug control, and also assisted many of the countries in their manpower training efforts by providing fellowships.

At the Fifth Seminar on Food and Drug Control for Central America and Panama, the participants discussed some aspects of drug control and requested the Organization to give special guidance in regard to drug control during the Seminar planned for 1970.

## HEALTH EDUCATION

In the past two decades there have been marked changes in the theory and practice of health education as a result of the increasing application of the knowledge and techniques contributed by the behavioral sciences, the rapid advances made in public health, and the emergence of new health problems, many of which require modifications in personal habits and the active cooperation of the individuals concerned. Simple acquiescence is no longer enough; individuals must learn to recognize their health problems, understand how these affect them, and be prepared to contribute to their solution.

In view of the need to give a new direction to health education in the countries of the Region—to develop a true educational theory and policy that takes into account the social and cultural realities of the Latin American environment as a basis for the diagnosis of problems concerning health, which is viewed as an integral part of economic and social development programs—the efforts of the Organization were directed primarily to convening and organizing a series of meetings designed to achieve

these ends. The Latin American Seminar on Health Education in relation to Health Planning (Paracas, Peru, 20-26 April) discussed the most feasible means of strengthening and integrating the social and educational components in the health planning process and sought to define those areas in which research was most urgently needed to facilitate this process. It also defined the role of educators as members of the health team. Thirty-eight senior officials from the health agencies of 19 Latin American countries attended the meeting.

In Quito, Ecuador, a working group which met in November drew up the bases for a project to evaluate the educational component in several of the health programs in which the Organization is collaborating.

The Organization participated in the VII International Conference on Health and Health Education (Buenos Aires, 6-13 September), held under the auspices of the International Union for Health Education. More than 2,000 persons attended and the discussions centered on the topic Communication and Behavioral Changes.

At San Juan, the XVIII Annual Convention of the Association of Health Educators of Puerto Rico (11-12 December) examined the prospects for health education in Puerto Rico in the 1970's. It was attended by some 60 educators employed by government and private institutions and by universities.

Health education was made part of over-all family guid-

ance in the regular activities of maternal and child health services, with a view to impressing on parents their responsibility in regard to the health care of their children, so as to enable them to lead healthy and productive lives. An adviser assisted the Government of Colombia with the planning and development of educational activities in the program for the expansion of maternal and child care and family welfare services. In Trinidad and Tobago advisory services were rendered to the Ministry of Health in the development of the educational component of the family planning program within the framework of the National Health Plan.

In Brazil an adviser continued to participate in the study of the country's resources in health education, which is to be used as the basis for a new approach to activities in this field.

The Government of Peru was assisted with the preparation of plans for including health education among the subjects taught in the school system, so as to give health its rightful place among the other educational goals.

Advice was given in connection with plans to revise the teaching of health education in primary and secondary schools and to train teachers of this subject in Bolivia, Brazil, Ecuador, Jamaica, and Panama.

The Organization continued to encourage the expansion of community promotion work in the water supply programs in rural areas of Central and South America. As a



Villagers in the Andean highlands of Peru join in the construction work on a rural water supply system.



result of such efforts, in five Central American countries the benefited communities contributed between 10 and 20 per cent of the construction costs of the systems. There was also a marked increase in the utilization of water services, the number of applications for household connections averaging 80 per cent of the available capacity.

Continuing assistance was given in the planning and execution of educational activities within the malaria eradication programs in the Central American Isthmus and in Surinam.

In the Caribbean area, health education activities have been oriented from the outset toward the training of nurses, public health inspectors, and teachers. More recently, in addition to the preparation of paramedical and teaching personnel, emphasis has been laid on the development of pilot projects demonstrating the value of the educational component. This approach was producing the positive results that had been expected.

Health educators were appointed for the first time by Barbados and Dominica and a new post in this specialty was established by Grenada. The health education component was included in the *Aedes aegypti* eradication programs in Barbados, Montserrat, and St. Lucia and the rabies control program in Grenada was receiving full support from the community. To strengthen the impact of these educational activities, filmstrips were used to highlight the program operations and the community's participation. In the case of rabies, these efforts succeeded in overcoming in part the objections raised by the public to the trapping and poisoning of mongooses because of the threat these measures posed to domestic animals.

In St. Vincent, assistance was given in strengthening organized community action in the health field. Since gastroenteritis constitutes one of the most serious health problems resulting from deficient environmental conditions, 19 groups were organized for community action throughout the island in an effort to improve basic sanitation.

During the year a health education guide on rabies, for use by teachers, was published (*Scientific Publication PAHO 188*).

Information on training activities is provided in Chapter III.

## HEALTH STATISTICS

The growing recognition of the usefulness of health statistics and of the need for improving their quality was evident in the efforts that were being made by the coun-

tries to establish standard forms and procedures for the collection of data, to give emphasis to the role of local statistical personnel and their training and supervision, and to coordinate the activities of institutions engaged in compiling and processing health data. The great contribution of research in identifying problem areas in statistics and in stimulating improvements was made clear by the impact in the Region of the Inter-American Investigation of Mortality in Childhood, which was under way in 15 areas. The practical application of health statistics data—whether in planning, programming, evaluation, or research—is the most effective way to bring about improvement in both the quality and the quantity of such data.

The impetus being given by computer science to the production of health statistics was also evident. In several countries the national health services had already installed or were planning to set up computer units. The establishment of the Computer Center in Health in Buenos Aires, under the Argentine Ministry of Health, and of a Computer Science Section in the PAHO Headquarters Office, afforded new opportunities for the training of personnel throughout the Region. The coordination of activities and interchange of information and advisory services in this field should result in savings to individual countries.

In preparation for the Ninth Revision (1975) of the *International Classification of Diseases*, meetings were held at WHO Headquarters in Geneva, and plans were being made for the Regional Office and the various countries to formulate recommendations of particular significance for the Region.

Through its program for the collection and analysis of data for the countries of the Americas, and through its field advisory services, the Organization continued to fulfill its role of international coordinating agency in the field of health statistics.

### Collection, Publication, and Analysis of Statistical Data

In the *Weekly Epidemiological Report*, current information was published on the occurrence of quarantinable diseases (Table 24) and other selected infective and parasitic diseases, together with epidemiological notes on outbreaks of special interest.

In the series entitled *Reported Cases of Notifiable Diseases in the Americas* the volume covering 1966 was issued; the volume for 1967 was prepared for publication, use being made for the first time of the Organization's

TABLE 24. REPORTED CASES OF QUARANTINABLE DISEASES IN THE AMERICAS, BY COUNTRY, 1969.<sup>a</sup>

Country or other political unit	Plague	Smallpox	Jungle yellow fever	Louse-borne typhus
Bolivia .....	95	—	8	23
Brazil .....	293	7,377	4	—
Colombia .....	—	—	7	—
Ecuador .....	23	—	—	27
Mexico .....	—	—	—	8
Peru .....	8	—	28	28
United States of America .....	5	—	—	—
Uruguay .....	—	2 <sup>b</sup>	—	—
Surinam .....	—	—	1	—
Total .....	424	7,379	48	86

— None.

<sup>a</sup> Based on official reports received at PASB through 5 May 1970.<sup>b</sup> Imported cases.

computer facilities for this purpose. Annual questionnaires were circulated to all countries of the Region to obtain data for 1968 on mortality, morbidity from notifiable diseases, hospital resources, and health manpower. Replies to the questionnaires for the Fourth Report on the World Health Situation were received from most areas of the Americas. These data, together with those from annual questionnaires, will be used both for that Fourth Report, to be presented to the World Health Assembly in 1970, and for the preparation of the PAHO publication *Health Conditions in the Americas, 1965-1968*. Mortality and morbidity data from annual questionnaires for the decade of the 1960's have been put on magnetic tape for computer processing as needed.

Two papers based on the findings of the Inter-American Investigation of Mortality were prepared, one on heart disease mortality in cities included in the Investigation and the other on social class and arteriosclerotic heart disease. A document on mortality from cancer, by site and age, in countries of the Americas, was prepared for the Latin American Seminar on Cancer Registries.

The Report of the Fifth Meeting of the Regional Advisory Committee on Health Statistics, held in November 1968, was published and distributed (*Scientific Publication PAHO 177*). The recommendations concerning multinational training centers in medical statistics, the Latin American Center for Classification of Diseases, and the regional program in computer science were of special relevance to recent activities in the Region.

The data processing unit at Headquarters was reorganized during the year as the Computer Science Section. A computer scientist and a systems analyst were added to

its staff and the first activities were directed to the fields of administration (budget, finance, and personnel), fellowships, and health statistics. The services will gradually be extended to other departments.

### Latin American Center for Classification of Diseases

Training courses in the use of *International Classification of Diseases* were conducted by staff of the Latin American Center and the Organization for 116 students, in five countries, bringing to 455 the number trained since the introduction of the Eighth Revision in 1968. In addition, faculty members of schools of public health who had received previous training on the *Classification* gave instruction in its use during courses on health statistics in their respective schools.

The Spanish text of the Alphabetical Index (Volume II) was completed and was being printed. Copies of the English text were made available to English-speaking areas in the Region. The translation and printing of the Portuguese edition of Volume I, Tabular List, was completed in accordance with an agreement between the Organization and the School of Medicine of Ribeirão Preto, Brazil; the Ministry of Health purchased a large number of copies for use in health institutions. A new agreement was concluded with the School for the translation of Volume II in 1970.

The Latin American Center continued to develop training material in Spanish for courses on the *Classification*, including a Manual for Coding Mortality, and completed the translation of the draft of the WHO *International Classification for Surgical Procedures* and also the *Nosology Guidelines* published in English by the National Center for Health Statistics of the U.S. Public Health Service. It also initiated a study on the current status of medical certification and the use of the *International Classification* in Latin America.

Staff members of both the Latin American Center and of PAHO attended two meetings at WHO Headquarters: one of a working group on analysis of multiple causes of death, for which a paper was prepared using data collected during the Inter-American Investigation of Mortality in 1962-1964 and during the current study on mortality in childhood; and an expert committee meeting on the Ninth Revision of the *International Classification*, for which documents on the role of the Regional Office in the preparations for the Revision and on activities of the Latin American Center were prepared.

## Field Services

Statistical consultants stationed in five of the six Zones Offices of PASB gave assistance in the development and improvement of health statistics systems and in training programs. In addition, consultants were assigned to six country projects (Bolivia, northeast Brazil, Dominican Republic, Haiti, Paraguay, and Uruguay) and to two Zone projects on smallpox. Four medical records librarians (three assigned to Zones and one to Headquarters) rendered advisory services on the organization of hospital records systems and on personnel training. Six short-term consultants (three on teaching of medical and health statistics and three on medical records) also provided services during the year.

In the national programs efforts were centered on the coordination of health statistics activities, the standardization of methods of data collection, and the training and supervision of statistical personnel.

In Argentina, the Fourth National Meeting on Health Statistics, held in Córdoba, focused attention on the development of new areas of information; on standards for clinical records systems, statistical publications, and personnel training; on coding of causes of death; and on underregistration of vital events. Papers were presented on the evaluation of the national health statistics program, computer systems in health, the national population and housing census of 1970, the Inter-American Investigation of Mortality in Childhood, and the national health and medical education study.

The Ministry of Health of Brazil appointed a commission to study the status of health statistics in the country. A document was prepared defining minimum needs in terms of statistical data and the responsibilities of the National Ministry, the states, and the municipalities. Means of coordination were discussed, and the formation of a national committee of vital and health statistics was recommended.

Representatives and observers from 12 states of Brazil attended the second annual meeting of the Regional Health Statistics Center for the Northeast (CRESNE), held in November, which was organized by the Superintendency of Development of the Northeast (SUDENE) and the Special Public Health Service Foundation (FSESP). The participants discussed the results of using the statistical forms approved for the northeast region at the previous meeting, as well as publications and the plan of activities for 1970.

In Colombia a joint committee of the Ministry of Health, the National Statistical Office, and the Institute of Social Security was established to review the national

health statistics program, and in Ecuador a working group of statisticians from the Health Ministry, the National Health Service, and the National Planning Commission was formed to develop a mechanism for coordination. A national committee for development of statistics in Haiti was established and held six sessions. In Mexico the statistical committee of the Joint Coordination Commission on Public Health, Social Security, and Social Welfare Activities continued to meet periodically. Peru created a permanent committee on statistics within the Ministry of Health.

The second annual meeting of the Permanent Central American Commission for Health Statistics was held in Tegucigalpa, Honduras. Recommendations were made in regard to statistics on nutrition, environmental sanitation, and health education and on civil registration of births and deaths.

*Vital statistics.* In Argentina efforts were directed to the prompt transmittal of vital statistics from provinces to the national level, and the early publication of material. Life tables were prepared for provinces.

In Rio Grande do Sul, Brazil, a system was designed and tested for obtaining data for Pôrto Alegre and 20 municipalities, and mortality data for nine months of 1968 were collected and tabulated. This work is intended to serve as a model for activities in two other states of the southern region (Santa Catarina and Paraná).

Legislation on civil registration was under study in Colombia, and in Ecuador auxiliary offices for civil registration were installed in all 46 health posts in Manabí Province.

Regulations for medical certification of deaths were formulated and approved in Honduras. Forms for births, deaths, marriages, and divorces were prepared, to be put in use in January 1970 in selected departments. A consultant from the United Nations organized seminars to give instruction on their use.

Slight increases were observed in the completeness of registration of births and deaths in Paraguay, where civil registration offices were recently established in hospitals. The School of Public Health of Peru assumed responsibility for training civil registrars and prepared a two-week course for this purpose.

*Statistical systems.* The systems in many countries were reviewed, and in some of them modifications were made in regard to forms in use, supervisory activities, or decentralization of activities. In Argentina a manual covering supervision and advisory services as well as the forms in use throughout the country was prepared. In Bolivia an evaluation was started of the statistical services in the Health Unit of Cochabamba. In Colombia a

system for providing supervision in health units was established; technical personnel were assigned in all but one regional statistical service; and a supervision guide was prepared. In Ecuador statistical forms were being standardized, and in Mexico health statistics departments were created in each state.

*Hospital records and statistics.* Increasing attention was being given to both the training of personnel in this field and the reorganization of hospital records systems.

In the Caribbean area demonstration centers for medical records training were being developed in the University College Hospital and Spanish Town Hospital in Jamaica, in the Port-of-Spain General Hospital in Trinidad, and in the Central Hospital in Surinam. In Jamaica 16 hospitals were visited to assess medical records offices and to promote the use of a case-abstract and also the introduction of a record for the newborn. Advisory services on medical records were also provided in the Bahamas, Grenada, Guyana, and St. Kitts. The reorganization initiated in 1968 at the Central Hospital in Surinam was continued; 20,000 hospital records were consolidated and centralized; unit records as well as a patients' index were put into use; filing was being done by terminal digit.

Hospital records and statistics received considerable attention in all the countries of Zone II. In Cuba a draft manual was prepared and then adopted and evaluated in three hospitals; census and discharge forms were introduced; and the statistics system will be extended to all hospitals in 1970. In the Dominican Republic the hospital statistics system covered 75 per cent of beds in the country; information was being obtained on 150,000 discharges annually and a 20 per cent sample was processed. In Mexico the hospital statistics system was designed and was tested in Hidalgo State; a manual was prepared and the system will be introduced in January 1970 in all hospitals of the country attached to the Coordinated

Health Services of the States and Territories. Training in new procedures for statisticians, chiefs of medical care, and nurses in the state health services was given in December. A consultant gave advisory services to two hospitals in Mexico City and to one in Monterrey on the organization of their medical records systems. In British Honduras a short-term consultant surveyed the medical records systems in both hospitals and health centers and recommended changes designed to improve the use of records for patient care; plans were made for a short training course in 1970.

In Argentina almost all hospitals of the Ministry of Health were using a standard individual discharge form. Training centers for statistical auxiliaries were established in the Federal Capital and in La Plata, San Juan, Tucumán, Santa Fe, Córdoba, and Río Negro.

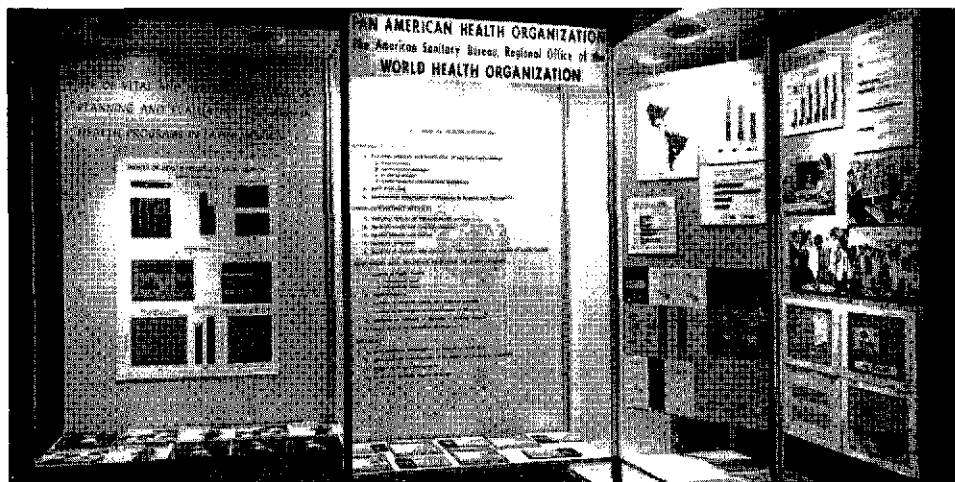
The Brazilian Association of Medical Schools initiated a study of 10 university hospitals, which included evaluation of medical records and hospital statistics. During the year major attention was given to the improvement of the systems in this group of hospitals. Medical records were also being strengthened in 13 hospitals in the area of Ribeirão Preto, through the efforts of the School of Medicine.

In Colombia a questionnaire on the operation of medical records departments and the training of personnel was sent to all hospitals with 20 beds or more. Of 472 hospitals queried, 377 (80 per cent) sent in their replies, which were being analyzed.

In Uruguay the new hospital statistics system was placed in operation in January, and field visits were made to hospitals to ensure its proper functioning.

*Computer science.* The Computer Center in Health was established during the year in Buenos Aires, Argentina, under the Ministry of Health. Plans were under way for further developing the Center so as to provide train-

Exhibit covering health statistics activities of PAHO.



ing and research facilities for other countries of the Region. An application for support of this project was submitted by the Government of Argentina to the United Nations Development Program.

During the year 35 staff members of the Center were trained, and computer programs were initiated in the area of hospital information systems, in the analysis of electrocardiograms and hospital charts, and in administrative areas (personnel, budget, and finance). The Center conducted orientation courses for 48 executives and physicians; basic training courses for 180 persons; and advanced courses on medical information systems for five persons.

In Peru a consultant evaluated the computer needs of the Ministry of Health, and plans were made for the acquisition of computer equipment.

## ADMINISTRATIVE METHODS AND PRACTICES

The growth in concept of administration in health in the Americas is captured in the following quotation from the Director's message to the Fourth Seminar on Organization and Administration of Health Services:

We believe there is now in the Americas a consciousness of the possibilities for more productive utilization of resources, by organizing and administering them in a more effective manner. It is necessary to establish a better balance in universities and training institutions with respect to the role of administrative methods and procedures. Even more, the graduates, especially those in positions of responsibility, should complement their knowledge of administrative disciplines.

Of those programs which I have had the honor to initiate in the Organization in the last 10 years, few have the far-reaching importance of the one directed toward giving administration in health the level of importance it deserves, including the necessary modernization of its techniques and the recognition of a status for administrators befitting their functions.

In the program of advisory services to Governments and promotion of training in administration, there was growing recognition among national health services, as well as international staff, of the need for a more integrated approach in administration. Experience has shown the limited effectiveness of isolated or piecemeal improvements in administrative services, and the consequent need for an interdisciplinary approach directed toward the inculcation and application of modern principles of administration at the highest level of responsibility, in both the structural organization and in planning, decision-making, direction, coordination, and evaluation.

In 1969 restructuring of health services and their administrative components was begun or was continued from the previous year in at least 10 countries. In two countries, seminars on modern administration were held for high-level staff. Regional training courses for intermediate-level administrative staff were held in Guyana for English-speaking areas, and at the University of Chile's Institute of Organization and Administration (INSORA) for Spanish- and Portuguese-speaking areas. National inservice training courses were held in the majority of the countries. Advisory services were provided by the Organization through 16 full-time advisers or through short-term consultants to 22 countries.

The Fourth Seminar on Organization and Administration of Health Services, held in Maracay, Venezuela, for all South American countries, dealt with the theme "Training in Administration for Health Services Personnel." This meeting was unique in that it brought together for the first time medical administrators, specialists in planning and in administration, as well as educators from schools of medicine, of public health, and of administration. Among the conclusions was a recognition of the need for training in administration for all health services personnel, regardless of level or function, and of the need for modernization of teaching in this subject, especially in schools of public health.

## EVALUATION

Efforts to strengthen and improve the process of systematic evaluation of the projects undertaken by the Organization in collaboration with the Governments were continued. Increasing emphasis was laid on three aspects: the application of the evaluation procedure to all projects, the utilization of the results obtained at all working levels, and the incorporation of the evaluation procedure in the methodology adopted by the Organization for the preparation of the Quadrennial Projections of its activities.

At the meeting of Zone Chiefs and Headquarters professional staff held in March, a document entitled "Project Evaluation" was presented in which an analysis was made of the work carried out in 1968 and plans for future activities were outlined. The document was also distributed to all field staff responsible for projects.

During the year, after study and discussion of the results obtained through the application of the evaluation procedure in 1968, meetings were held with Headquarters, Zone, and country staff with a view to solving the problems encountered, improving the utilization of the

evaluation process as a working tool at all operational levels, determining and selecting the best technical criteria for the evaluation of projects in the various fields of activities, preparing "models" of basic documents for each of the various special fields, promoting and securing the timely establishment of the annual targets for activities, and encouraging the joint participation of national and international officials in this process.

A document which was prepared for consideration by the XIX Meeting of the Directing Council (September) outlined the history of evaluation activities in the Organization, identified the aspects of interest to the health administrator, described the requirements governing the evaluation of projects undertaken by the Governments with the Organization's cooperation, and offered some observations on the results of the evaluation made in 1968. After referring to steps taken by the Economic and Social Council of the United Nations and by the WHO Executive Board and the World Health Assembly to improve and strengthen evaluation procedures, the document pointed to the lack of adequate methodologies and made certain suggestions for improving the procedure adopted by PAHO, laying special emphasis on the need for all officials, both national and international, to participate actively.

After examining the document, the Directing Council adopted Resolution XXVI requesting the Director to continue his efforts to improve the evaluation procedure and ensure its application to all projects and programs, paying special attention to projects of long duration as well as to those about to terminate but whose extension is contemplated. It also called upon the Governments to participate to the fullest extent in the strengthening of the evaluation process introduced by the Organization.

The evaluation procedure which was incorporated in the methodology used for the preparation of the Quadrennial Projections is the same as that employed for periodically evaluating the projects. The effect of this is to

convert the evaluation of projects carried out by Governments with the Organization's assistance into a continuing process that will determine the nature of the modifications to be made in programs and budgets, thus complying with the directives of the Governing Bodies.

At the end of the period, an analysis was made of the evaluation documents prepared in 1969. The criteria adopted for this study—which were the same as those used to assess the work accomplished in 1968—took into account the diagnosis of the situation at the start of the project; the relationship between problem, purpose, objectives, activities, and indicators; the definition of objectives; the proper selection of indicators; the setting of annual targets for activities in relation to the duration of objectives; and lastly, the estimated impact of the project in its own field, on public health, and in the socio-economic sphere.

The 1969 analysis showed that significant progress had been made in applying this procedure, 81 per cent of the projects having been covered as compared with 65 per cent in 1968. Of the projects from which reports were received, the procedure was effectively applied in 64 per cent (43 per cent in 1968). The study also revealed the principal defects in the application of the procedure and provided a basis for programming the Organization's efforts in the following period.

As in prior years, no reference will be made in this section to important activities connected with evaluation that are dealt with in other chapters of the *Report*—such as, for example, the specific evaluations in the fields of malaria, smallpox, nutrition, fellowships, and others. Equally important to the strengthening of the evaluation process was the assistance the Organization continued to give to Governments in the development and strengthening of national health plans and of epidemiological and statistical services, which is described in the corresponding chapters of the *Report*.

## B. SPECIFIC PROGRAMS

### MEDICAL CARE ADMINISTRATION

**Medical care policy.** The analysis of systems for the provision of health care continued to be one of the major interests of the Organization in this field, in response to the concern expressed by many countries over the need

to make these services available and accessible to the large mass of the population.

The problem lies in the difficulty the Governments have in establishing a unified system that will make the fullest use of the scarce resources available in order to supply health service coverage to the largest possible number of

people, while at the same time providing services of good quality at a cost compatible with the financial capacity of the countries. There is concern because the existing resources are insufficient to provide universal coverage and because the services are not accessible to large groups who are thus deprived of the benefits of medical care. Even in countries in which the relative numbers of physicians and hospital beds appear to be sufficient to furnish minimal services for all inhabitants, the numbers of deaths not certificated by physicians are high, indicating that a large proportion of the population has no access to medical services even when these exist. This has led to the desire to find more effective means of making optimum use of resources while maintaining high-quality services and making these accessible to the entire population, without legal discrimination or financial barriers.

The Organization's medical care policy has therefore been directed toward rationalization of the input of resources, promotion of interinstitutional coordination within the health sector, and the development of mechanisms of joint action and structures through which, with the existing resources, coverage can be increased without prejudice to the quality of services.

Coordination within the health sector is one element in such a system that should take the form of interinstitutional coordination in the formulation of health policy; regional coordination for the consolidation of programs and health resources; and coordination of health activities at local levels, with a view to providing integrated services of health protection, promotion, and restoration for all members of the community.

Another approach to the organization of services is what has been called "progressive patient care," which classifies and regroups medical care services according to the seriousness of the patient's illness in place of the traditional separation by specialist fields. In this connection, the Organization has begun to sponsor, with the financial assistance of the W. K. Kellogg Foundation, the establishment of intensive care units in a number of university hospitals in Latin America with the aim of extending the activities successively to the stages of intermediate care, self-care, outpatient care, and home care, which together constitute progressive patient care.

The training of the professional and technical staff who must work within these new frameworks is the surest means of effecting change and laying a firm foundation for the system of health care services a country may choose. Without prejudice to the preparation of specialists, teaching personnel and researchers, which must meet all scientific requirements essential to services of high quality, countries are faced with an overriding need—amounting

to something close to an emergency—to provide rapid and concentrated training for the many professionals and technicians already in service, who need up-to-date and adequate knowledge in order to discharge their responsibilities efficiently in new contexts and as an integral part of a national system.

Such large-scale training of hospital administrators, nursing service administrators, chiefs of dietetics and nutrition departments, maintenance engineers, and the many other professionals and technicians who make up the interdisciplinary directing teams of hospitals, will probably represent the major preoccupation of international agencies in the field of medical care in the forthcoming period.

In addition to mechanisms for joint action, communication, and human resources, the system requires physical resources (buildings, installations, and equipment), whose maintenance and preservation constitute a further essential factor, to which the Organization, with the collaboration of the United Nations Development Program, has attached special importance. During the year it promoted the establishment of the Hospital Maintenance and Engineering Center in Caracas, Venezuela, under the administration of the Ministry of Health and Social Welfare of that country.

**Coordination of medical care services.** The Organization continued the work it began in 1965, in association with the Organization of American States, to foster coordination of the medical services of ministries of health with those of social security agencies. More recently the universities have been included in this program, in particular the schools of medicine, as these are responsible for training the basic manpower—the physicians—and frequently they are also administrators of hospitals and other health establishments whose services must be mobilized together with those of other institutions to constitute the coordinated national system of health care. It is important that the medical schools be included in such a national system, for only thus will they be in a position to assemble, within the community, the basic data required to design suitable, practical models for use in the teaching-learning process in medical education.

As part of its continuing effort to promote the dissemination of these concepts in the Latin American countries, the Organization took part in the following meetings in the course of the year:

1. First American Congress on Social Security Medicine (Mexico City, 19-25 January), convened by the Permanent Inter-American Social Security Committee, where a document was presented on "Social security medicine and national health programs."

2. World Round-Table Conference on the Contribution of Social Security Systems to Public Health Programs (Oaxte-

pec, Morelos, Mexico, 27-29 January), convened by the International Social Security Association and the Permanent Inter-American Social Security Committee.

3. Greater Colombian Seminar on Social Security and Medical Education (Quito, Ecuador, 13-15 November).

In addition, PAHO, in cooperation with the OAS, convened a Study Group on the Coordination of Medical Care Services (Washington, D.C., 4-8 August), which was attended by experts from Argentina, Brazil, Canada, Colombia, Dominican Republic, Mexico, Peru, Puerto Rico, United States of America, and Venezuela, representing the ministries of health, social security agencies, and medical schools. The XIX Meeting of the PAHO Directing Council discussed the group's final report and adopted Resolution XVIII on the subject.

In response to their requests, several countries received technical assistance in 1969. Peru was assisted with the revision of a document entitled "Organic Integration of the Health Sector" and of the preliminary draft charter for the Institute of Social Security; Uruguay with the preparation of the basic information for the institution of a national health insurance system; Venezuela with the establishment of a unified national health service; Trinidad and Tobago with improvements in departments responsible to the Ministry of Health to meet the increasing demand for services that would follow the introduction of a social security program; Cuba, Guatemala, Guyana, and Panama with the coordination and regionalization of their health services; and Argentina with the design of two studies that it wishes to make, one on the quality of medical care in Buenos Aires and the other on the financing of health services in the country.

**Planning and administration of hospitals and other health establishments.** In order to meet the growing demand for services in the complex field of medical care, three immediate tasks must be faced in the Americas: a better yield must be obtained from available resources; the quality of care must be improved; and, as a result of

these measures, coverage must be extended to the largest possible proportion of the population. The hospital system performs the central role in medical care and must therefore assume responsibility for these tasks. With this end in view, the Organization continued to assist the countries, recommending and implementing operational procedures and methods to increase the efficiency of hospitals and proposing plans and new approaches to improve the quality and raise the effectiveness of services.

In the course of the year, basic programs of advisory services to general hospitals were continued, priority being given to those connected with the teaching of health sciences and others of greatest national importance. Advice was given to the Ignacio Morones Prieto Central Hospital, affiliated with the School of Medicine of the San Luis Potosí University in Mexico, and to the Santo Tomás Hospital in Panama City, the leading medical center in that country. Assistance was also provided for two planning projects for teaching hospitals: the Teaching Hospital in Tegucigalpa, Honduras, and the University Hospital of the University of Guayaquil, Ecuador.

Action to implement the project for progressive patient care (AMRO-4816) was continued; it is hoped to introduce this approach, as a basic principle, in the organization of services in six teaching hospitals in Latin America. Intensive care units, representing the first stage in progressive care, began to operate in the following institutions: San Juan de Dios Hospital, affiliated with the National University of Colombia, Bogotá; Clinical Hospital of the Federal University of Minas Gerais, Belo Horizonte, Brazil; José Joaquín Aguirre Hospital of the University of Chile, Santiago; and the University Hospital affiliated with Zulia University, Venezuela. The two remaining units will be installed in the San Juan de Dios Hospital in Callao, Peru, and in the Clinical Hospital in Montevideo, Uruguay. It is hoped that by mid-1970 all the units would be in service. This project is receiving financial support from the Kellogg Foundation.

Study Group on the Coordination of Medical Care Services of Ministries of Health, Social Security Institutes, and Universities, Washington, D.C., 4-8 August 1969.





A meeting of experts on safe power centers for intensive care units was held in Washington to review the problems created by the use of electronic equipment in the care of patients.

The establishment of the Hospital Maintenance and Engineering Center in Caracas, Venezuela, was made possible as a result of the joint efforts of the Venezuelan Government and PAHO, with very substantial assistance from the UNDP. The purpose of the Center will be to prepare and train personnel in the field of hospital engineering and maintenance and also to provide services for a group of hospitals belonging to the Ministry of Health and Social Welfare. In addition to its teaching programs, the Center began the preparation of manuals on various aspects of hospital maintenance.

The Organization also collaborated in the establishment of maintenance programs at the San Juan de Dios Hospital in Bogotá, Colombia, and at the Hospital for Insured Workers in Lima, Peru; in addition, a pilot course was held at the Latin American Center for Medical Administration (CLAM) in Buenos Aires, Argentina.

**Physical medicine and rehabilitation.** Interest in the provision of rehabilitation services in the countries of Latin America continued to grow. One of the most important activities of the year was the meeting of a Study Group on the Training of Specialists in Physical Medicine and Rehabilitation, held in October in Santiago, Chile, and attended by experts from Argentina, Canada, Chile, Colombia, Guatemala, Mexico, United States of America,



Paraplegics receive training in the new Physical Therapy Service at the Rísquez Hospital in Caracas, Venezuela.

Uruguay, and Venezuela. The Group studied the status of the problem in the Region and its final report contained recommendations which it was hoped would serve as a guide to more uniform standards of training. The report was subsequently accepted by the participants at the Third Latin American Congress on Medical Rehabilitation, held in December in Uruguay.

The following countries continued to receive technical assistance: Argentina (School of Prosthetics and Orthotics); Brazil (final plans for the establishment of a prosthetics center for the National Institute of Social Assistance in Rio de Janeiro); Cuba (assistance with the training of physiotherapists, survey of prosthetic methods, and plans for the training of occupational therapists); Chile (training of instructors in methods of rehabilitation of deafmute children); Venezuela (training courses for physiotherapists and occupational therapists).

In Mexico City a nine-month course on teaching methods was held for a group of Latin American physiotherapy teachers.

The Organization participated in the First Meeting of the Central American Committee for the Rehabilitation of the Disabled in El Salvador, at which plans were proposed for the integration of rehabilitation activities on a regional basis in Central America. It was also represented at the International Conference for Research in Prosthetics and Orthotics, held in West Virginia, U.S.A.

Cooperation was continued with the United Nations Department of Social Affairs, the International Society for Rehabilitation of the Disabled, and the World Rehabilitation Fund.

**Information and Reference Center.** "Noticias de administración de servicios médicos," a series of reprints from the *Boletín de la Oficina Sanitaria Panamericana*, continued to be distributed on a quarterly basis to more than 500 specialists in medical care and hospital administration. The Organization also sent to these professionals and to other interested persons and agencies some 11,000 copies of handbooks in Spanish on hospital administration donated by the American Hospital Association. The distribution of other articles and publications of interest in this field was continued throughout the year.

Detailed information on training in medical care administration and rehabilitation will be found in Chapter III.

## MATERNAL AND CHILD HEALTH

In accordance with the recommendations of the Special Meeting of Ministers of Health of the Americas (Buenos

## NUTRITION



The community-oriented approach has been increasingly emphasized in pediatrics education.

Aires, October 1968), the Governments have given increasing attention to improvement of the planning of maternal and child care and, to varying extents, have been progressively formulating their activities in this field in the context of national health plans. The Organization has assisted the countries in the realization of these objectives, especially through the advisory services provided by Zone III and VI personnel and by the assignment of consultants to Colombia and Panama. This approach has led to some measure of progress in coordinating activities in the maternal and child health field with related activities in nutrition and family planning (see the corresponding sections later in this chapter).

Undoubtedly, the entire field of child care in the Americas will soon be enriched by the data—so far of a preliminary nature—arising out of the Inter-American Investigation of Mortality in Childhood, which is clearly revealing the major epidemiological bearing of malnutrition and the communicable and preventable diseases on the risk of death at an early age (see Chapter V).

Continuing the efforts made in the education and training fields in previous years, further action was taken to carry into effect the cooperative agreements signed between the Organization and educational and health authorities in Argentina, Chile, Colombia, and Uruguay. Information on these activities will be found in Chapter III, and the specific projects in the maternal and child health field in which PAHO cooperates are described in Chapter VIII.

The Organization's priorities in the field of human nutrition were the same as in the previous year, special attention being given to the need for national food and nutrition policies, the development of national centers for training nutrition personnel, and the application of research findings through local health services.

Three technical groups were convened to prepare guidelines on specific subject areas. The first group met in February to consider the needs for textbooks and reference materials in nutrition. The report of the group (*Scientific Publication PAHO 192*), which was widely circulated, will serve as a guide to institutions responsible for teaching nutrition at the professional level, in the selection of suitable texts according to a specified set of criteria. It also recommended for translation into Spanish textbooks which are urgently needed by schools of nutrition and dietetics, medicine, public health, and nursing, and singled out the need for new textbooks in certain subjects, especially those related to public health.

In May a multidisciplinary group was convened in Washington, in collaboration with FAO, to formulate guidelines for development of national food and nutrition policies. The report prepared on the basis of the group's findings (*Scientific Publication PAHO 194*) will be of practical value to national planning units in their efforts to improve the nutritional status of the population.

A technical group on maternal nutrition and family planning in the Americas was convened in Washington in October. One of the most important factors influencing maternal nutrition in many of the developing areas of the Hemisphere is the close spacing of births. In areas where income and food supply are limited, the mother is not usually able to obtain the improved diet necessary to meet the increased demands of pregnancy and lactation, and there is a consequent progressive deterioration in her nutritional status, with potential adverse effects on the fetus and the newborn. The report of this meeting recognizes the substantial gaps in the existing knowledge of the interrelationships of family planning and maternal nutrition, and suggests points for future research. At the same time, it provides useful guidance on the coordination of these two important fields of public health activity.

Special efforts were made to incorporate human nutrition in the health planning course given in Santiago, Chile. Owing to the multidisciplinary character of public health nutrition and the difficulty of quantifying its many aspects, this activity has received comparatively low priority in the preparation of national health plans. Technical discussions were undertaken on the manner in which



**Improvement of the nutritional status of preschool children is a long-term investment.**

nutrition could be quantified for the purposes of health planning, and during the health planning course a seminar was held on public health nutrition and the need for national food and nutrition policies. This new element is to be a permanent feature of the course.

An extensive evaluation of the multidisciplinary, inter-agency (PAHO/WHO, FAO, UNICEF) applied nutrition programs was completed during the year. In these studies, conducted progressively in collaboration with the interested Governments over the past three years, the technical bases of the programs and the reasons for their successes

and failures were analyzed and recommendations were drawn up for consideration by all groups participating in these programs in the future. After review by the international agencies and the Governments, the evaluation report will be published in 1970.

In September a joint PAHO/FAO consultant mission assisted the Government of Argentina in preparing a preliminary description of the proposed Nutrition Data Retrieval and Analysis Center for Latin America, which will be situated in Buenos Aires. This description will form the basis for a request by that Government to the

United Nations Development Program, Special Fund, in 1970.

A monograph entitled *Endemic Goiter*, containing 34 articles from collaborating investigators on various aspects of this public health problem, was published and distributed (*Scientific Publication PAHO 193*).

Advisory services to schools of nutrition and dietetics were expanded during the year as more schools developed their programs. Details are given in Chapter III of this Report.

Information on nutrition research is presented elsewhere in this section, as well as in Chapter V.

## Institute of Nutrition of Central America and Panama

### Advisory Services

*Nutrition surveys.* With the support of the Office of International Research (OIR) of the U.S. National Institutes of Health and in cooperation with the Governments of the area, INCAP completed the nutrition surveys in each of its six member countries in 1967, and in 1968 completed the analysis of the data obtained and prepared the corresponding reports which were submitted to the Governments. By means of these surveys, it has been possible to make a current diagnosis of the nutritional status of the population of the area and to determine the major factors contributing to that status. They are thus serving as a valuable tool for the planning and evaluation of food and nutrition programs.

On the basis of the survey reports, by the end of 1969 several of the INCAP member countries were taking the necessary action to define national nutrition policies and draw up operational plans.

Moreover, in the light of the survey findings, much of INCAP's research work was being directed toward the solution of those problems that were clearly identified as being of special importance.

*Commercial distribution of Incaparina.* In Colombia and Guatemala, where this low-cost vegetable mixture had been distributed commercially for a number of years, sales of Incaparina continued to rise at an encouraging pace. The Colombian manufacturer introduced a new line called "White Incaparina," a modified formula whose principal ingredient is rice but which retains the same concentration of proteins and additives as the original corn-based product. In Guatemala sales of Incaparina exceeded 2,000,000 pounds in 1969.

In El Salvador, Honduras, Nicaragua, and Panama, market studies and other activities for the regular distribution of Incaparina were continued.

*Commercial distribution of Ternerina.* With the approval and on the advice of INCAP, a Costa Rican manufacturer began in 1969 the commercial distribution of this product, processed from raw materials available in the area and used as a substitute for milk in the feeding of calves. Experience showed, in the course of the first few months of marketing Ternerina, that it would be necessary to make certain changes in the formulas and systems of feeding originally recommended.

### Education

A total of 135 students from 15 countries of the world participated in INCAP's educational activities in 1969. Of these, 97 were from its member countries, five from five other Latin American areas, 29 from the United States of America, and four from other Regions (Table 25). The programs were limited to four subject areas: regular courses at the School of Nutrition and Dietetics for the training of nutritionists; postgraduate courses in nutrition and pediatrics (two years), for physicians, given by INCAP in cooperation with the School of Medical Sciences of San Carlos University in Guatemala; a summer course (eight weeks) for physicians with basic

TABLE 25. NUMBER OF PARTICIPANTS IN INCAP TRAINING PROGRAMS, BY COUNTRY OF ORIGIN AND TYPE OF STUDY, 1969.

Country	Short-term courses or tutorial instruction	Post-graduate courses	School of Nutrition and Dietetics	Total students
Argentina.....	—	—	1	1
Brazil.....	—	1	—	1
Costa Rica.....	—	1	8	9
Dominican Republic.....	1	—	—	1
El Salvador.....	1	1	10	12
Guatemala.....	22	3	21	46
Honduras.....	1	1	6	8
India.....	—	2	—	2
Indonesia.....	—	1	—	1
Nicaragua.....	1	—	8	9
Panama.....	—	—	13	13
Peru.....	1	—	—	1
United States of America.....	24 <sup>a</sup>	6	—	30
Yugoslavia.....	—	1	—	1
Total.....	51	17	67	135

— None.

<sup>a</sup> Of these, 1 is from Puerto Rico.



Degrees are conferred on six physicians who completed the first postgraduate course in pediatrics and public health nutrition given by INCAP and the School of Medical Sciences of San Carlos University, Guatemala.

training in nutrition, and various short courses and training programs of a tutorial nature.

Three events were of special significance during the year. In December the School of Chemical Sciences and Pharmacy of San Carlos University and INCAP awarded a University degree in nutrition to the first class of the School of Nutrition and Dietetics to qualify, composed of 16 graduate students from the Central American area. They will help to relieve the shortage of manpower in this field, which has been one of the factors limiting the further expansion of work in applied nutrition.

Also in December, the School of Medical Sciences of San Carlos University and INCAP conferred the medical degree of Specialist in Pediatrics and Public Health Nutrition on the six physicians who attended the first postgraduate course.

The third important event was the initiation of field activities in the rural health program called PROSA, a cooperative project organized by the Guatemalan Ministry of Public Health and Social Welfare, San Carlos University, and INCAP. This program has three main objectives: (a) provision of public health services, with emphasis on maternal and child health and nutrition, to a population group of 160,000; (b) training for students in their final years in the Schools of Medical Sciences and Dentistry of San Carlos University, of students in academic courses conducted by INCAP, and of staff of the Guatemalan Ministry of Health; and (c) operations research to evaluate the feasibility and efficiency of measures to be introduced in the regular health programs.

## Research

Many of INCAP's research activities were reoriented as a result of the above-mentioned nutrition surveys made in the six countries.

As it became clear that vitamin A deficiency continued to be one of the serious problems affecting the people of Central America, and that the solution of this problem was made all the more difficult by the scarcity and high cost of foods containing this vitamin, it was thought that use might be made of synthetic hydrosoluble vitamin A, which is relatively low in cost. Research was begun to determine whether it would be possible to enrich with vitamin A a food that could serve as a vehicle for this nutrient. Preliminary laboratory and acceptance tests appeared to indicate that sugar could act as such a vehicle. Industrial feasibility and other associated studies were at an initial stage, but it was hoped that, on the basis of this research, firm recommendations could be made in the course of 1970.

Joint research work was undertaken with a Japanese industrial company with a view to developing synthetic rice grains that could be used to enrich this cereal and correct its deficiencies in essential amino acids, vitamins, and minerals. By this means it would be possible to raise nutrition levels of population groups whose staple food is rice. Laboratory tests appeared very encouraging and economic and manufacturing studies were going forward.

For population groups whose basic food is corn, work was continued along two lines. Agricultural agencies

were being encouraged, through the provision of the necessary information, to promote the introduction of genetically improved varieties of corn, such as Opaco-2. The advantages this variety possesses on account of its high protein quality and content were confirmed with experimental animals and with children; its suitability for use in traditional food preparations, especially tortillas, was also demonstrated. In addition, studies of the feasibility and effectiveness of the enrichment of corn products with the amino acids lysine and tryptophan were continued.

Progress was also made with studies on nutrition and infection, with special reference to the phenomenon of intestinal colonization and its relation to diet, nutritional status, and diarrheal diseases. It was confirmed that breast feeding is one of the important factors in the child's resistance to infections in general and to intestinal infections in particular. Studies were therefore undertaken to determine the mechanisms of this protective action of the mother's milk. It was possible to establish that both colostrum and mother's milk contain significant levels of immune globulins and that these contain antibodies against enteroviruses (polio and Coxsackie) and enteropathogenic bacteria (*Escherichia coli* and *Shigella*).

Another possible protective mechanism that was being investigated is the action of mother's milk as a determinant of the type of intestinal flora in the child. This information is essential to an understanding of the relative role of diet and environmental sanitation as determining factors in the nutrition problems of the infant and to deciding to what extent, if at all, a supplementary diet at an early age is desirable.

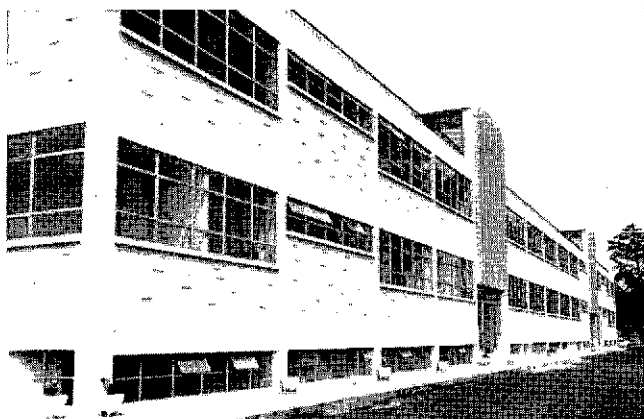
Among the continuing studies to find reliable methods

for characterizing the nutritional status of population groups and for defining chronic subclinical nutritional deficiency conditions, were those made to evaluate the "creatinine/height index" (CHI) proposed by INCAP as a parameter for measuring individual status of protein nutrition. It was possible to show that in children with different protein nutrition status, this index can be correlated with the consumption of  $O_2$  and with muscle mass as determined by an estimate of total potassium using  $K^{42}$ . This study was carried out in cooperation with the Tropical Unit for Metabolic Research of Kingston, Jamaica. It was further shown that there is also a very good correlation between this index, the consumption of  $O_2$  and the total mass of hemoglobin in circulation in children with different protein nutrition status. It is believed that this research will lead to the design of more effective methods for the treatment and prevention of the so-called "anemias" that are frequently observed in under-nourished children.

Finally, in regard to the wide-ranging research project being conducted by INCAP to throw light on the relationship between nutritional deficiencies and the mental development of the child, the process of developing and evaluating a methodology was completed. In 1969 the longitudinal study was begun in four rural villages, in two of which efforts will be made to improve the nutritional status of children through a supplementary diet. It is hoped to be able to separate the nutritional variable from the other factors of a sociocultural nature that may affect the children's mental development or the methods by which it is evaluated. In addition to the basic data that this study seeks to obtain, it will also provide experi-



As part of the applied nutrition programs, school gardens offer an excellent opportunity for imparting health education, and help also in supplying the needs of school lunchrooms.



New building constructed by the Government of Guatemala to house the additional installations of INCAP.

ence and data of value to rural health programs in general and nutrition programs in particular. By way of an example, a system of medical care for small rural communities, based on the services of nursing auxiliaries, trained and under supervision, was in course of evaluation.

### Publications

The various activities of INCAP were described in a total of 86 scientific publications (47 in Spanish and 39 in English). In addition, a 124-page monograph and six miscellaneous publications were issued in Spanish, as well as four joint papers in English. The majority of the papers were published in periodicals with substantial circulations to ensure the widest possible readership. In addition to purely scientific articles, other works of great practical value were published, including the following: (1) Composition Table for Fodders, Forages, and Other Animal Feeds of Central America and Panama; (2) Recommended Daily Dietary Allowances; (3) Adequate Minimum-Cost Diet for Guatemala; (4) Spanish translation of *Present Knowledge in Nutrition* (3rd ed.), published by the Nutrition Foundation Inc., in 1967.

The quarterly bulletin *INCAP informa* was published regularly, more than 1,000 copies of each of the four issues for 1969 having been distributed.

A total of 19 students prepared theses during the year.

### Caribbean Food and Nutrition Institute

The activities of the Caribbean Food and Nutrition Institute (CFNI) continued to develop in accordance with the established objectives, namely, personnel training in community nutrition, dissemination of food and nutrition

information to the countries and territories being served in the area, field investigations, and coordination activities.

The first nine-month interdisciplinary course leading to the Diploma in Community Nutrition of the University of the West Indies, begun in January 1969, was completed. It is designed primarily for key middle-level personnel from ministries of agriculture, health, education, and community development in the area. In the first part of the course students complete three months of training in Jamaica, six weeks of field experience in selected Caribbean countries, and six weeks' experience in Trinidad; in the second part they carry out three months of supervised field investigations in their home countries and prepare a detailed analytical report on the project. Twenty-nine students from the English-speaking Caribbean area completed the course. In addition, two public health physicians from the Philippines were awarded WHO fellowships.

Training in community nutrition was offered within the existing curricula of a wide range of established training programs, including those for undergraduate students of agriculture and medicine and postgraduate programs for home economists, public health inspectors, and various cadres of nurses.

In Barbados a national food and nutrition survey was carried out by personnel of the Ministries of Health, Agriculture, and Education with the assistance of CFNI staff and students and PAHO and FAO consultants.

In Trinidad a national food consumption survey was undertaken jointly by the National Nutrition Unit, the Ministries concerned with nutrition, and CFNI. Data collection was scheduled to be completed in early 1970.

Collaborative investigations of current methods of young-child feeding in the Caribbean area were continued by CFNI staff and students, and by other international and national personnel in the area. It was expected that results would be available from Antigua, Barbados, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Kitts-Nevis, Anguilla, St. Lucia, St. Vincent, and Trinidad for a CFNI technical group meeting to be held in 1970.

A joint FAO/WHO-PAHO/CFNI team undertook a two-month survey (October-November) to assess the feasibility of producing and marketing, within the Caribbean area, a protein-base processed food, derived mostly from locally grown ingredients, for use by families, and especially young children.

The dissemination of technical information among the 15 countries and territories of the area was continued. The pressrun of the bimonthly CFNI newsletter *Cajanus* was increased to 2,000 copies. The proceedings of the

Conference on Protein Foods in the Caribbean (1968) were published in book form.

## World Food Program

Although information on the problem is still incomplete, the high prevalence of nutritional deficiencies in substantial sectors of the population of Latin America is well known. Until such time as a definitive solution to the problem of scant availability and low consumption of food can be found, within the framework of the normal development process, all possible forms of diet supplementation, especially for the most vulnerable groups such as mothers and children, should be tried. In 1969 the Organization made an intensive study of the utilization of the resources of the World Food Program (FAO/UN) in the health sector and collaborated in various forms with programs that led to the approval of six projects in different countries of the Americas: Colombia, Dominican Republic, Ecuador, El Salvador, Honduras, and Peru. Furthermore, it participated in 19 projects that were at different stages of preparation at the year's end: three were extensions of existing projects and the rest were new programs originating with the health sector.

The utilization in that sector of food obtained from the World Food Program is closely bound up with the principle that such food should be regarded as an input in development programs, particularly those for the conservation and development of human resources. The principal fields of activity in which this food was being used were the following: supplementary diet for mothers and children; food assistance in hospital services; food aid for special groups such as the indigenous population of the Andean highlands; school meals; food assistance for community development workers, especially those engaged in building and rural water supply; and the rehabilitation of devastated areas in emergency programs.

Preliminary reports on these activities were submitted to the 61st Meeting of the Executive Committee (June-July) and to the XIX Meeting of the Directing Council of PAHO (September-October). At the latter meeting, it was recommended (Resolution X) that the Organization continue to promote the use of the World Food Program resources and collaborate with Governments in the study and preparation of plans for their effective utilization.

## CHRONIC DISEASES

A most significant contribution to understanding the impact of the chronic diseases in the Americas was the

publication by PAHO of *Patterns of Urban Mortality—Report of the Inter-American Investigation of Mortality (Scientific Publication 151)*. This study facilitated analysis of the causes of death in various major metropolitan areas of the Hemisphere. The data indicated that cardiovascular diseases, diabetes mellitus, vascular diseases affecting the central nervous system, bronchitis, cirrhosis of the liver, nephritis and nephroses, and motor vehicle accidents were major killers in such areas. The chronic diseases, a characteristic of urban industrial society in the twentieth century, were clearly emerging as major health problems in the Americas.

A full-time Regional Adviser for Chronic Diseases was appointed to the Headquarters Office in 1969 to enable the Organization to assist the countries in developing programs to meet these disease problems.

The initial phase of a well-planned control program is diagnostic. Therefore, it was considered prudent to examine the magnitude of the chronic disease problems in several selected countries of the Hemisphere, assessing the impact as seen by the health workers of those countries, and thereafter to prepare guidelines for the planning of programs of control.

Visits were made to a number of countries in Latin America and the Caribbean area during the year. Problems, requirements, and resources were discussed and measures were suggested for undertaking an assessment of the problems in terms of mortality, morbidity, and economic impact. The countries were encouraged to develop administrative mechanisms at the central level to provide for this assessment as well as for the programming of control activities and their supervision. For example, rheumatic heart disease is readily amenable to the methods of primary and secondary prevention, and steps for the institution of programs to control this disease were recommended.

Of particular importance is the need to develop epidemiological competence in the chronic diseases. This is essential both for adequate community diagnosis, upon which program planning must rest, and for the continuing evaluation of the activities.

An epidemiological study of arthritic disease in the Americas was undertaken by the Regional Adviser on behalf of the Panamerican League against Rheumatism; the results are to be presented to the League Congress in 1970.

Meetings were held with professors of schools of medicine and public health for the purpose of stimulating interest in, and opportunities for, epidemiological research on chronic diseases. In all cases, the multidisciplinary



nature of control programs and the importance of the health team approach were emphasized.

A short-term consultant made an extended visit to a number of countries to assess the nutritional component of chronic disease control programs, a factor which is of special importance in regard to coronary artery disease, hypertension, and diabetes.

In November the Organization participated in a meeting on Chagas' myocardiopathy convened by WHO in Salvador, Bahia, Brazil.

## CANCER

The prerequisites for cancer control are threefold: (a) recognition of the differences between the various sites and the various types of neoplasms as regards their epidemiology, possibilities of detection, diagnostic techniques, therapeutic methods, and prognosis; (b) planning of activities in the light of the true priorities and the availability of resources in each country; and (c) organization of specific programs for primary and secondary prevention within existing patterns of health administration and medical care.

Bearing in mind these principles, together with the constant increase in mortality from malignant neoplasms, the availability of proven techniques for primary prevention of cancer in women and in the respiratory tract, and the shortage of human resources, the Organization has promoted control of cancer of the cervix uteri through systematic detection of preneoplastic and incipient lesions by cytology, encouraged campaigns against cigarette smoking, supported the training of specialist professionals and technicians, and promoted epidemiological studies.

The expansion of programs for the control of cervical cancer was limited by the shortage of cytological technicians; however, the continued support given to the Cytology Center of the University of Chile made it possible to alleviate this shortage to some extent. Special attention was also given to the formation of other cytology centers in the Region; in every case the object is to supplement detection activities with diagnostic, treatment, and follow-up services. Stress was also laid on coordination between all the sectors involved in control of cancer of this type, including government health administrations, pathology and tocogynecology services, health insurance systems, programs aimed at maternal and child health and family planning and welfare, cancer institutes, and public welfare organizations of a community nature (leagues against cancer). Deserving of special mention here is the progress

made with this comprehensive approach by the Municipalities of Campinas, Brazil, and Cali, Colombia.

A meeting of experts convened by WHO, the International Atomic Energy Agency, and PAHO completed work in June on a manual of clinical radiation dosimetry, adapted to the specific requirements of Latin America and other developing areas. This manual, together with the establishment of the first laboratory of secondary standards in radiation dosimetry in the Region—located in Buenos Aires and sponsored by WHO—will make a significant contribution to improved radiotherapy practices.

A Seminar on Cancer Registries, attended by representatives of 20 countries, was held in Cali, Colombia, in September. This seminar discussed the objectives and uses of all the various methods of statistical information in cancer control, recommended guidelines and criteria for the organization of registries and incidence surveys, defined the human and material resources required to implement these systems, and drew attention to the advantages inherent in other methods of epidemiological research. Advisory services were rendered to several countries of the Region in connection with the organization of registries and incidence surveys, and considerable operational progress was made in a number of centers, especially those in Cartagena, Colombia, Lima, Peru, and São Paulo, Salvador, and Recife, Brazil.

At the request of the editors of a "Textbook on Public Health" (teaching staff at the National University of Buenos Aires), PAHO staff drafted the chapter on cancer control, including the standards recommended for the organization and administration of programs.

The Organization was actively involved in the World Conference on Uterine Cancer, the National Conference on Breast Cancer (United States), the Seminar on Computerized Registries of Tumors, the Joint Congresses of Cancerology (Brazil), and the VII Latin American Congress on Pathology (Argentina), at which an introductory course on the epidemiology of cancer was presented.

The end of the year saw the start of a survey regarding education for health in the control of cancer in Latin America, and also the beginning of a study into the reasons for and the frequency of smoking in the Region.

## MENTAL HEALTH

One of the general principles underlying the Organization's programs is that psychic balance is a necessary and essential part of health. This is reflected in practice in the

inclusion of mental health in general health programs. This approach represents a radical departure from the traditional idea, which has prevailed up to now, that mental health is synonymous with care of the mentally ill in asylums. The Organization's policy has been very clear on this point, and its actions have been guided by a broader concept fostering active community participation in mental health programs and the establishment of services for treatment and prevention, not only within psychiatric hospitals but also in all establishments providing health services. The countries of the Americas have also, to a greater or lesser extent, changed their views on the importance of mental health and the responsibility of the State in this respect. This has resulted, in some cases, in an increase in investment and a growing demand for technical assistance in this field.

Finding a solution to the problems of mental health is made difficult by the enormous gulf between resources and needs and by the gaps in our knowledge of the pathogenesis of mental illnesses, together with the limitations of therapy.

At the meeting of a Working Group in Viña del Mar, Chile, in April, which was attended by 44 administrators and psychiatrists from 22 countries of the Region, stress was laid on the difficulties inherent in defining the problem and ascertaining its true magnitude. Agreement was nonetheless reached on a definition of basic objectives and identification of major priorities. There was unanimous agreement on the need to change current systems for the care of mental patients, to modernize psychiatric hospitals and convert them into therapeutic communities, to seek alternative forms of treatment that would allow the patient to remain in his own surroundings and retain his individuality, and to promote in every way possible the early rehabilitation of mental patients with the active participation of the community.

Two major difficulties stand in the way of achievement of these objectives: shortage of skilled staff and lack of

knowledge of many aspects of the natural history of mental illnesses. For the administrator, this means that—in addition to modernizing the few existing services—funds will have to be devoted to training more effective staff and promoting research, particularly into epidemiological aspects. Account will also have to be taken of the scarcity of financial resources, the sometimes negative attitude of the public, and the existence of anachronistic laws.

None of these obstacles is insurmountable, and several countries have in fact started to take steps to remove them. There has been an increase in the number of institutions offering the opportunity to specialize in psychiatry and mental health. The public's attitude to the mentally ill has become steadily more positive. The number of applications for fellowships to study mental health received by the Organization has risen. Assistance has been given to several countries of the Region in planning mental health services, and in each of these countries the spread of new ideas on the administration of mental health has been encouraged.

The long-term projects which the Organization is supporting in Argentina, Chile, Jamaica, and Venezuela continued during the year. These projects are focused on the development of community psychiatric services, the training of psychiatric nurses, the demonstration of modern techniques and methods of hospital care, and the continuation of epidemiological studies.

During the year short-term consultants were sent to assist the Governments concerned in planning psychiatric services for the State of Bahia, Brazil, the sectorization of services in Panama, the training in mental health of health inspectors and nursing auxiliaries in St. Vincent, and the reorganization of the Psychiatric Hospital in Caracas, Venezuela.

In Bahia discussions were started with the authorities with a view to training rural physicians in community

Working Group on the Administration of Psychiatric and Mental Health Services, Viña del Mar, Chile, 14-19 April 1969.



psychiatry, in an effort to extend mental health services outside the confines of urban areas.

Advisory services were again rendered to the Inter-American Council of Psychiatric Associations, and assistance was given to the World Federation for Mental Health in connection with its annual meeting.

Details on activities in the field of psychiatric nursing are given in the section on nursing (Chapter III).

Training and research in mental health are discussed in Chapters III and V, respectively.

## DENTAL HEALTH

In the field of dental health, the Organization cooperates with the Governments in the development of systems of dental care, within the framework of national health plans, which will provide better coverage to the population. In the educational context, it assists with the inclusion of the teaching of dentistry in schools of health sciences, and with the trial of new educational approaches to the training of manpower of various types in accordance with the duties they are called upon to perform in the local environment.

In 1969 emphasis was laid on the development of simplified methods of dental care for the large mass of the population, and on the design of simplified equipment that could be made in the schools themselves or by the

ministries of health. Two models of such equipment were designed by the Organization and tried out in Colombia and Venezuela. In both countries, two consultants conducted courses for national personnel on the manufacture of simple dental equipment of low cost. In addition, a consultant assisted staff at the Universities of Antioquia, in Medellín, and Zulia, in Maracaibo, with projects for experimental trials of simplified techniques and materials for dental care services in rural areas.

In Argentina assistance was furnished in the establishment, in the Province of Buenos Aires, of a center for training professional and auxiliary personnel in techniques for increasing the work output of dental clinics. Two consultants participated in the training of instructors for the center and in the preparation of educational materials.

In Colombia and Venezuela, the collection of data to be used as a basis for the preparation of each country's dental health plans, as part of the national health plans, was continued.

The continental water fluoridation program, which is supported by the W. K. Kellogg Foundation, went forward according to plan. Courses on fluoridation techniques were held in Rio de Janeiro, Brazil; Santiago, Chile; Cali and Medellín, Colombia; and Maracaibo, Venezuela, and were attended by a total of 168 persons. Two manuals on the subjects discussed at these courses were published, and a draft manual on the application of specific fluorides for operators of water treatment plants



Proper dental care should not only start in the preschool period but should be continued throughout school life.

was prepared. The report on the first survey of water fluoridation in Latin America, made by the Organization in 1968, was being printed.

An up-dated Spanish edition of the *Manual of Water Fluoridation Practice* has been prepared for publication and will be distributed to water services, engineers, dentists, sanitation specialists, students and professors of sanitary engineering, and also the libraries of schools of dentistry, sanitary engineering, chemistry, and medicine.

Six engineers from Costa Rica, Colombia, and Venezuela took part in the Traveling Seminar on Fluoridation Techniques, which visited a number of cities in the United States of America in order to observe various aspects of the promotion, design, and development of fluoridation programs.

At the School of Dentistry of Antioquia University, a paper was prepared on the training of dental nurses. As this represents an experiment of great importance to dental health in the Hemisphere, 1,000 copies of the paper were being reproduced for distribution in 1970. It will also be published in the *Boletín de la Oficina Sanitaria Panamericana*.

On the basis of a survey made by PAHO in 1968, a report on the training and utilization of auxiliary personnel in Latin America was prepared and will be published subsequently. A monograph written by a short-term consultant on guidelines for the development of dental curricula was being prepared for publication (in Spanish and English).

Training and research activities in dentistry are described in detail in Chapters III and V.

## HEALTH AND RADIATION

Continuing its cooperation with the Governments in their programs of radiation protection and radiological medicine, in 1969 the Organization furnished technical assistance to Argentina, Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Jamaica, Panama, Peru, and Venezuela.

From 24 to 28 November, under the auspices of the Organization and the Government of Ecuador, a Working Group on Radiation Protection met in Guayaquil. The participants included senior executives of nine ministries of health and experts responsible for national radiation protection programs, together with representatives of national nuclear energy commissions and of the International Atomic Energy Agency (IAEA). The Group stressed the need to coordinate the activities of institu-



Meeting of the Working Group on Radiation Protection, Guayaquil, Ecuador, 24-28 November 1969.

tions undertaking radiation protection programs, defined the components of such programs—such as adequate information media, trained personnel, and appropriate legislation—and recommended the establishment of multinational centers or programs in the Region.

Assistance was given to the countries which were participating in the studies on identification of sources of radiation and risks of exposure; instruction in survey techniques was provided and a form was prepared to standardize nomenclature for the presentation of comparable data at the regional level.

Surveillance of levels of radioactivity in the air, water, and food was continued in order to detect possible risks to health from radioactive fallout produced by the detonation of nuclear devices. This study is being undertaken in cooperation with the USPHS National Center for Radiological Health. To the 11 air sampling stations already in operation in 10 countries (Argentina, Bolivia, Chile, Colombia, Ecuador, Guyana, Jamaica, Peru, Trinidad and Tobago, and Venezuela), a further station was added at Cuenca in Ecuador. The analysis of milk samples was continued at six stations (Chile, Colombia, Ecuador, Jamaica, Peru, and Venezuela). The Organization collaborated in the installation of film dosimetry laboratories to measure exposure levels in persons exposed to radiation by reason of their work. Bolivia and Ecuador initiated action on these lines during the year and equipment for these purposes was supplied to Colombia and Peru.

With respect to legislative measures and regulations on radiation protection, the Organization prepared a general model of legislation, for use by countries on request. In 1969 Argentina and Bolivia adopted legislation in this field, while Colombia, Ecuador, Jamaica, and Peru undertook preliminary studies with this in view.

Special efforts were made to promote the coordination of related programs being undertaken by national and international agencies in order to make better use of available manpower and materials and avoid overlaps in the channeling of the resources of international technical assistance. In Bolivia and Chile agreements were signed between health and atomic energy agencies and in Colombia and Peru similar agreements were being negotiated.

There was close cooperation with WHO Headquarters in Geneva and with the IAEA with respect to related programs being undertaken in the Region. One of the major joint achievements was the preparation of a manual of clinical radiation dosimetry, based on the recommendations of a meeting of experts convened by WHO, IAEA, and PAHO in Caracas in 1968, which will be distributed by the Organization in all countries of the Americas.

The Inter-American Nuclear Energy Commission invited the Organization to report on its health and radiation programs during its seventh meeting, at which a resolution relating to cooperation with the Organization in the conduct of these programs was approved.

## HEALTH LEGISLATION

In compliance with the recommendations of its Governing Bodies on health legislation, the Organization proceeded to make an examination of the current legislation of the countries, bringing out its salient characteristics, its development, and the subjects covered by it, in order to evaluate future trends and prospects.

The first phase of the study covered the information available from 1948 to 1966 for 20 Latin American countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela. The legal systems of these countries are comparable since they have, in general, a common origin.

Three types of legislation were studied: constitutions, special legislation, and penal codes. Most of the constitutions were reviewed in order to identify the provisions relating to health; special legislation affecting health, including health codes, was analyzed and an examination was made of those sections of penal codes relating to health. In the case of countries with federal constitutions, only federal legislation was examined. A descriptive analysis was made of each subject area, together with pertinent observations.

The second phase of the study, which will be conducted in 1970, will include an analysis of similar fields in the English-speaking countries of the Americas.

After a general review has been made of the status of health legislation in all countries of the Hemisphere, an analysis will be made of the Pan American Sanitary Code in the light of advances in science and technology, current problems, and the projections of economic and social development. Such an analysis should make it possible to decide whether or not to modify or replace the Code to provide a dynamic and flexible instrument which can periodically be brought up to date and thus brought into accord with the legal instruments of each country.

As a result of these studies, it will also be possible to prepare, in due course, a compendium of health legislation in the Hemisphere.

## HEALTH AND POPULATION DYNAMICS

The goal of the Organization in its population and family planning activities is to assist countries in achieving, through the application of health principles, a positive balance between health, population growth, and production of essential goods and services to meet the demands of a rising population in each country.

Advisory services were provided to 15 countries during the year. Detailed programs were completed for Ecuador and Haiti and a preliminary plan of operations for a family planning program was drawn up in Panama.

In Colombia an integrated maternal and child health-family welfare program began operations in April, and by the year's end it had begun to provide services in 360 clinics.

In Trinidad and Tobago the national family planning program, in which the Organization gave assistance, was progressing smoothly. Clinical services were being provided in 18 clinics. Advisory services were also rendered to the authorities of Barbados, Guyana, Jamaica, St. Lucia, and St. Vincent.

In addition to giving direct assistance to Governments, the Organization provided technical expertise in the field of population dynamics to intergovernmental organizations. Staff members assisted in an in-depth review of the family planning program in Jamaica which was supported by the World Bank. They also participated in a joint United Nations/PAHO Mission which reviewed training programs and needs in the Caribbean area and Central America.

A PAHO Technical Group Meeting on Maternal Nutri-

tion and Family Planning in the Americas (Washington, D.C., 20-24 October) brought together 14 international experts who surveyed current knowledge and practice regarding maternal nutrition and examined the role of health services, in particular those concerned with family planning, in programs designed to improve maternal health.

The program of education and training activities in this field is described in Chapter III of this *Report*, and research activities are presented in Chapter V.

The PAHO professional staff was increased to meet the increasing workload in population activities. A second medical officer was appointed at Headquarters, and an additional medical officer was recruited for assignment to Central America. A specialist in educational materials was also added to the Headquarters staff. Zone advisers are located in Zones I and VI and a full-time adviser is assigned to the Colombia project. A special grant from the U.S. Agency for International Development enabled the Organization to carry out this expanded program.

### III. DEVELOPMENT OF HUMAN RESOURCES

During 1969 the structural organization of the Human Resources Development Department at Headquarters was completed and progress was made in the coordination of its activities with those of the other Technical Departments responsible for education and training programs.

The Organization continued to collaborate with the Governments in the strengthening of teaching institutions and in personnel training programs, through both direct assistance and its fellowship program.

Among the activities of a general nature, the Organization's participation in the First Conference of Caribbean Health Ministers (English-speaking countries), held in Trinidad and Tobago from 11 to 14 February, is deserving of special mention. The meeting resolved that the participating countries should make a regional effort to solve the main health problems in the area, and that priority should be given to the implementation of the human resources development program and to the definition of the basic educational requirements for training at different levels. An Ad-hoc Committee was appointed, which was later made into a Permanent Committee and which met three times to offer suggestions as to how the recommendations of the Conference could be implemented.

In view of this concern displayed by the English-speaking countries and territories of the Caribbean area and in order to collaborate with them, the Organization decided to initiate, with the cooperation of the Milbank Memorial Fund, an extensive human resources development program covering those countries and territories to begin with and subsequently including the Dominican Republic, Haiti, and the French and Netherlands territories and departments.

Staff of the Organization took part in a conference sponsored by the Josiah Macy, Jr. Foundation held in Lima, Peru (23-25 January) on the subject "The Doctor's Assistant in Latin America." They also attended the IV Venezuelan Seminar on Medical Education, held jointly with the II Conference of the Venezuelan Association of Schools of Medicine, and the International Conference on

Evaluation of Medical Education held at Edmonton, Alberta, Canada (16-18 June).

The policy of close cooperation with associations of schools of medicine, dentistry, and nursing in the Region was expanded. Two meetings were arranged with the President of the Pan American Federation of Associations of Medical Schools, and a meeting attended by officers of PAHO and of the Federation was held in September to review the activities which the two institutions were carrying out in this field and to strengthen coordination and communication between them, so as to promote the improvement of medical education in Latin America.

PAHO participated in the II Pan American Conference on Medical Education sponsored jointly by the Mexican Association of Medical Schools and the Pan American Federation, and held in Mexico City (22-24 September). It was also represented at the Assembly of Deans held in Tucumán, Argentina (6-8 November).

The I Meeting of the Health Sciences Education Information Center (HSEIC), held at Headquarters (8-9 December), was attended by 43 representatives of 26 private, governmental, and international institutions which provide technical and financial assistance to health sciences education in Latin America. The HSEIC was formerly known as the Medical Education Information Center and its change of name reflects the new approach to the problem of human resources development, covering all types of personnel who take part in health programs.

The Organization continued to maintain close relations with private bodies which support health personnel training in Latin America. On 6 May it took part in a meeting with officers of the W. K. Kellogg Foundation, in Battle Creek, Michigan, to exchange views on PAHO's current programs and future plans in this field.

Increased emphasis was placed on special studies on human resources during the year. The studies on health, resources for health, and medical education in Argentina were continued, as were the survey on human resources in the U.S.-Mexico border area, the studies on physical resources and manpower in dentistry in Colom-

bia and Venezuela, and those on nursing personnel needs and resources in Bolivia, Brazil, Costa Rica, Ecuador, Guatemala, Guyana, and Montserrat.

The activities designed to strengthen teaching institutions in the Hemisphere were reflected in the number of consultants providing advisory services to such institutions and in the frequent visits by PAHO staff to schools of medicine, dentistry, engineering, nursing, veterinary medicine, and nutrition. Their purpose was to review and give advice on the programs under way, to discuss the implementation of new projects, and to cooperate in specific aspects of the organization and operation of the institutions visited.

An important activity designed directly to increase the effectiveness of the teaching was the Organization's textbook program, which developed most satisfactorily in the course of 1969 and is described in greater detail later in this chapter.

The Organization continued to directly conduct numerous programs for the training of personnel, and in addition collaborated with the Governments and institutions of the countries in developing courses, seminars, and short training programs for the solution of specific problems.

The fellowship program was further expanded, a total of 1,051 awards having been made during the year to personnel in a wide range of specialties, as reported in greater detail later in this chapter.

## SPECIAL STUDIES

The activities in this field continued to increase in 1969, according to the stage reached in the different projects.

The study on *health, resources for health, and medical education in Argentina* was carried forward. The objectives of each of the subprojects were coordinated and a scheme was drawn up integrating them one with the other and with other activities in the health field. The collection of field data for the International Cooperative Investigation on the Utilization of Medical Care Resources was completed; a start was made on the recording of available resources throughout the country and on the basic list of human resources, including physicians, dentists, and nurses.

Preliminary steps were taken to implement a project for the study and development of *human resources in the Caribbean area*. Efforts were centered on the initial planning of the study in the English-speaking countries.

A temporary adviser was appointed to assist with the meeting on the second phase of the survey on *human resources in the U.S.-Mexico border area*, held in El Paso, Texas, from 22 to 24 May.

The Organization is cooperating in the studies on *physical resources and manpower in dentistry in Colombia and Venezuela*. These studies will make it possible to develop methodology for similar studies in the Hemisphere.

Studies on *nursing personnel needs and resources* are being carried out in Bolivia, Costa Rica, and Ecuador with the Organization's collaboration. In Guatemala further advice was given on the development and analysis of the findings of the study on nursing staff functions and activities; similar studies were under way in Brazil, Guyana, and Montserrat. In Argentina the study of 155 teaching programs (116 in schools of nursing and 39 courses for auxiliary staff) was completed with PAHO assistance. The purpose was to arrive at a better definition of the educational programs for nurses and ensure better utilization of manpower.

Progress was made with the experimental study on *health services and the functions and training of auxiliary personnel* in Colombia, which is being conducted with the active participation of the Colombian Association of Medical Schools and the Ministry of Public Health and with the assistance of the U.S. Agency for International Development and PAHO. Trials will be made, in three previously selected rural areas, of a new system of health care based on the delegation to auxiliary personnel of certain functions currently performed by professional staff, and the effects in regard to both health services coverage and personnel training will be assessed.

The study on *schools of medicine in Latin America* was completed. This was designed to provide a descriptive analysis of the administrative structure, organization, teaching staff, graduates, curricula, and budget of all such schools. An in-depth study of the institutions in Argentina, Brazil, and Mexico was being made with the assistance of short-term consultants. All the objectives laid down were met in full. The general analysis and tabulation of data obtained from the Latin American schools were completed; the data were published in the PAHO quarterly journal *Educación médica y salud* (Vol. 3, No. 4).

The collection and coding of data for the study on the *teaching of preventive and social medicine*—encompassing preventive and social aspects of medicine, epidemiology, behavioral sciences, integrated medicine, and administration and organization of services—was completed.

Work was continued on the study of the *attitudes of*



*medical students*, its purpose being to identify the factors conducive to or impeding the acquisition of knowledge and of favorable attitudes by students, with special reference to preventive and social medicine.

The study on *schools of public health in Latin America*, similar to that on medical schools, was completed and the corresponding report was published in *Educación médica y salud* (Vol. 3, No. 3). It was also presented as a working document at the VI Conference of Directors of Schools of Public Health held in Medellín, Colombia (30 November-5 December).

The Organization made an analysis of the results of the survey on *sanitary engineering education in Latin America*. The corresponding report, which will be distributed in the countries of the Region, will be available for the universities to consult and will help them to add to the effectiveness of their teaching programs in this field.

*Veterinary medical education* was strengthened at the international, national, and local levels during the year. Emphasis at the regional level was placed on the evaluation of the academic level of veterinary medical education in several countries of South America. Investigations and site visits were conducted to determine which localities possess the academic personnel, facilities, and opportunities for developing graduate education in this field. In Mexico, an evaluation of the eight schools of veterinary medicine was carried out.

A working group was convened to consider the findings of the survey of existing training programs in *health and population dynamics*, which the Organization sponsored in late 1968. The group met in March and made recommendations covering teaching, research, clinical services, and program administration.

With a view to obtaining background information as a basis for establishing procedures for the program of "institutional fellowships," currently in preparation, a study was undertaken to evaluate the fellowship program of the Milbank Memorial Fund in the past five years.

## STRENGTHENING OF TEACHING INSTITUTIONS AND PROGRAMS

### Schools of Medicine

To give assistance in strengthening teaching institutions, the Organization carried forward the programs

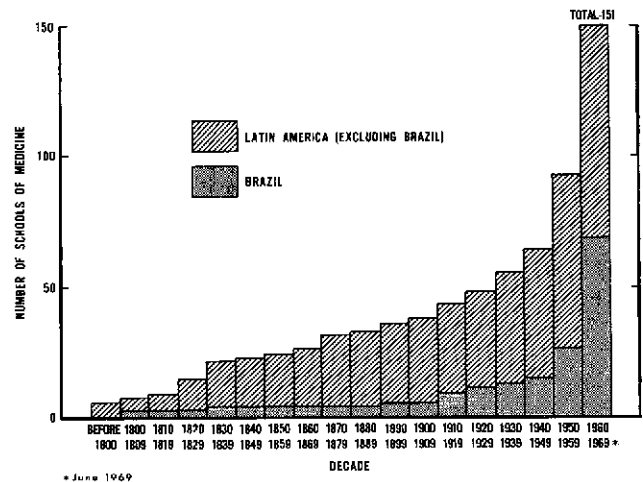


FIG. 12. NUMBER OF SCHOOLS OF MEDICINE IN LATIN AMERICA, BY DECADE.

already under way and took steps to implement a number of new activities.

In Argentina a consultant was appointed to advise the pharmacology department of the School of Medicine of Northeast University and to assist with curriculum planning and with a program of scientific research.

Two consultants were assigned to Brazil to assist in carrying out the basic study of the Pedro Ernesto University Hospital, at the Guanabara School of Medical Sciences.

Assistance was furnished to the School of Medical Sciences of Santa Casa, in São Paulo, in the preparation of an introductory program for teaching behavioral and health sciences to medical students.

The School of Medicine of the University of Chile was preparing a training program for teaching staff, while the Catholic University in Chile drew up a project for the establishment of a school of health sciences.

In Medellín, Colombia, the School of Medicine of Antioquia University was visited in order to study its post-graduate programs, as well as arrangements concerning the acceptance of fellowship students in these programs.

The pathology department of the University of Valle in Cali, Colombia, was also visited to discuss the operation of the Latin American Program for Training in Pathology, with the program coordinator.

At the request of the Ecuadorian Association of Medical Schools two short-term consultants took part in a study of the teaching of physiological sciences in the country's schools of medicine, and an adviser was appointed to formulate recommendations on the teaching of morphology.

Assistance with projects for the construction of new

buildings was rendered to the schools of medicine in Guayaquil, Ecuador, San Luis Potosí, Mexico, and Honduras.

Two consultants provided advice to the anatomy departments of the schools in Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

At the request of Mexico's National Institute of Nutrition a preliminary evaluation was made of the possibility of founding a medical school using existing resources.

A short-term consultant in medical education and another in university architecture cooperated with the School of Medicine and Pharmacy of the University of Haiti in the preparation of a project for constructing a building with loan funds from the Inter-American Development Bank.

Advice was given to the University of Nicaragua on the organization and functioning of its pathology department, and to the Medical School of Panama on the revision of its general regulations.

With a view to the incorporation of instruction on health-service and hospital administration into the curricula of medical schools, cooperation was extended to 10 schools in Argentina, Brazil, Chile, and Peru.

Two advisers took part in the seminar on the teaching of statistics in medical schools held in Rio de Janeiro, Brazil (19 to 22 August), under the auspices of the Brazilian Association of Medical Schools, and two consultants participated in the Central American Congress and Seminar on Anatomy held in Guatemala (20 to 23 July).

A short-term consultant conducted a seminar on immunopathology held in Lima, Peru; another gave a series of lectures on clinical and social pediatrics at the School of Medicine of the National University in Asunción, Paraguay; and an adviser assisted with the course in clinical genetics given in Montevideo, Uruguay.

## Schools of Public Health

The VI Conference of Directors of Schools of Public Health of Latin America was held in Medellín, Colombia, from 30 November to 5 December, under the auspices of the Organization. The main theme of this conference, which was attended by 37 participants from nine countries and by PAHO staff, was "The Role of Schools of Public Health under Changing Socioeconomic Conditions in Latin America."

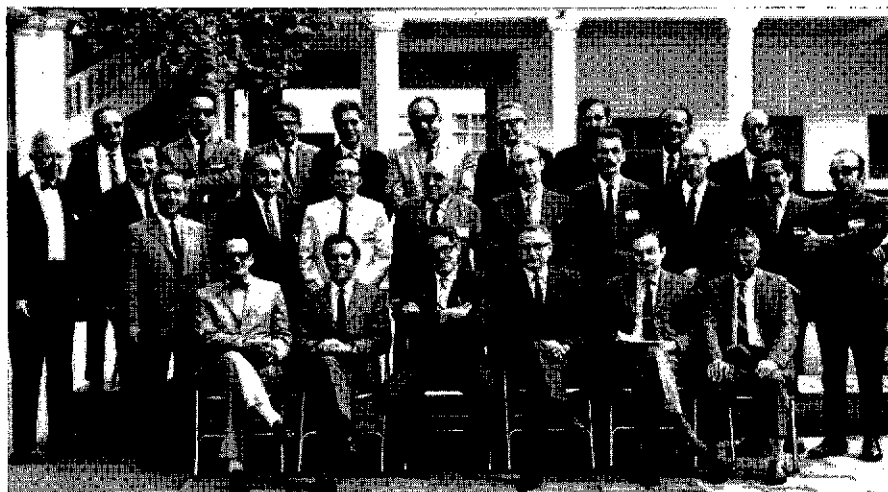
Assistance was given in defining the purposes, objectives, content, teaching methods, and evaluation procedures of 12 of the 17 medical and hospital care programs of Latin America.

The Organization helped with the preparation of a preliminary project for the exchange of teaching staff and interdisciplinary research in health education between the School of Hygiene and Public Health of São Paulo, Brazil, and the Schools of Public Health of Chile and Puerto Rico.

The National School of Public Health in Rio de Janeiro was assisted with reorienting its instruction in health education and behavioral sciences in the course leading to the Master's degree in public health. Discussions were held concerning the possibility of initiating in 1970 a project for interdisciplinary research into the sociopsychological, cultural, and educational variables involved in health planning in Brazil.

The School of Public Health of Antioquia University in Colombia received technical assistance in connection with the regular courses for public health dentists.

In Brazil a study on the conditions and requirements of the schools in Pôrto Alegre, Curitiba, Belo Horizonte, and Salvador was conducted, and arrangements were made for



VI Conference of Directors of Schools of Public Health of Latin America, Medellín, Colombia, 30 November-5 December 1969.



Building (under construction) for the School of Dental Nurses in Jamaica.

a meeting of school directors in 1970 with a view toward the coordination of their programs and the definition of a public health training policy at the national level.

### Schools of Dentistry

At the Schools of Medicine of the University of Valle in Cali, Colombia, and the University of Brasilia, Brazil, the Organization furnished advisory services in connection with the work being done to include dentistry as a regular part of the proposed divisions of health sciences.

In Jamaica, the building of the School of Dental Nurses of the Ministry of Health was near completion. This will be one of the first schools of its kind in the Hemisphere and it is expected that it will serve as a model for similar schools elsewhere.

Technical advisory services were furnished to 18 schools of dentistry in La Paz and Cochabamba, Bolivia; Pôrto Alegre, Brazil (2); Medellín and Bogotá, Colombia; Concepción, Chile; Quito, Guayaquil, and Cuenca, Ecuador; San Salvador, El Salvador; Guatemala City, Guatemala; Lima, Peru; Asunción, Paraguay; Santo Domingo, Dominican Republic; and Caracas, Mérida, and Maracaibo, Venezuela.

Special importance was attached to the assistance that was being provided in Venezuela for the School of Dentistry of the University of Zulia in Maracaibo, as this School is engaged in experimental work (curriculum and administration) on the training of human resources for dentistry.

### Schools of Engineering

The Organization intensified its program of technical assistance and support to schools of engineering in the

Americas in order to help them to strengthen their structures and programs. By the end of 1969, agreements had been signed with 37 universities in 22 countries. These agreements cover the services of consultants who assist with the review or implementation of teaching programs; advisory services with a view to improving the school installations and preparing applications for assistance from lending agencies; the award of fellowships to teaching personnel; the promotion of continuing education through short courses; and the fostering of research.

Technical assistance was rendered to the School of Engineering of the Central University of Venezuela by two short-term consultants who studied its administrative structure and made appropriate recommendations. This was the start of an important program designed to improve administrative systems and study programs in engineering schools.

The final draft of a tripartite agreement between the University of San Carlos in Guatemala, the Government of Switzerland, and WHO, covering a program to improve sanitary engineering teaching in the Regional School of Sanitary Engineering for Central America and Panama, was prepared. This draft was submitted for consideration to the University. The program would begin in 1970 and PAHO would act as executing agency for it.

The second stage of the agreement between the Government of Venezuela and the United Nations Development Program, on the continuation of the program for improving sanitary engineering teaching in four Venezuelan universities, was awaiting UNDP approval. The emphasis in this second stage, which would begin in July 1970, would be on research activities.

A short-term consultant reviewed the program of studies of the National University of Engineering of Peru and his recommendations were being taken into consideration.



Engineering students practicing water sampling techniques.

The Organization provided grants to all engineering schools in universities with which it had signed agreements, principally for the improvement of laboratories and libraries.

Discussions were held with the University of El Salvador on the form of the technical assistance to be provided by PAHO in connection with the design of a hydraulics laboratory for sanitary engineering teaching purposes and selection of the necessary equipment.

### Schools of Veterinary Medicine

The First Meeting of Directors of the Schools of Veterinary Medicine of Brazil, which met in Belo Horizonte under PAHO sponsorship, made a study of the new law affecting all universities; discussed the current teaching programs in veterinary medicine; and made recommendations in regard to curriculum planning, department structure, teaching resources, and research. An important outcome of this meeting was the establishment of the Brazilian Association of Veterinary Medical Education, which has the objective of adjusting the teaching programs to the needs of socioeconomic development in the country and of achieving over-all improvement of human resources for the university activities.

In Mendoza, Argentina, officials of the University of Cuyo were assisted in conducting a feasibility study for the establishment of a new School of Veterinary Medicine, and in drawing up the development plan, administrative structure, and study programs for the new School. The Pan American Zoonoses Center assigned specialists to assist the Schools of Veterinary Medicine in Buenos Aires, La Plata, and Corrientes with their teaching programs, and also provided them with teaching materials, audiovisual aids, laboratory animals, and biological reagents.

Short-term consultants gave advice to the School of Veterinary Medicine of the University of Santa Cruz in Bolivia, on the teaching programs in public health, preventive medicine, biostatistics, and clinical medicine. PAHO fellowships were awarded to one professor of the School to attend the Seminar on Rabies in Lima, Peru, and to another for the two-week course on *Brucella* vaccines and antigens at the Pan American Zoonoses Center.

Consultants in food hygiene and biomedical communications conducted an evaluation of the teaching programs in those fields at the Schools of Veterinary Medicine in Santiago and Valdivia, Chile, and also assisted with the teaching. Three veterinarians of the National Health Service received travel grants to attend the Seminar on Rabies in Peru and the course on *Brucella* vaccines and antigens at the Zoonoses Center.

In Colombia the Schools of Public Health and of Veterinary Medicine at Antioquia University received advice on their veterinary public health teaching programs, and 10 students were awarded travel grants to attend the Rabies Seminar in Peru.

In Cuba the School of Veterinary Medicine was given assistance in the review and planning of its curriculum in harmony with the national health and agricultural development plans, and in reorganizing the teaching program in public health, preventive medicine, and epidemiology.

The School of Veterinary Medicine of the University of San Carlos, Guatemala, received advisory services on the teaching of infectious disease control and of clinical medicine, as well as assistance in conducting a program of continuing education for veterinarians from Costa Rica, Guatemala, Honduras, Nicaragua, and Panama.

The Zone II consultant, in addition to conducting an evaluation of the eight veterinary medical schools in Mexico, compiled the basic data for an appraisal of the status of veterinary medical education, and helped to outline the areas in which the Organization could best provide assistance. The National School of Veterinary Medicine in Mexico City, with PAHO assistance, sponsored a laboratory course on brucellosis which was attended by 26 persons from the Ministry of Agriculture and the veterinary medical schools of the country.

For the postgraduate course on applied epidemiology for the control of the zoonoses, conducted at the School of Veterinary Medicine of San Marcos University in Lima, Peru, the Organization provided a grant and the assistance of consultants. Twenty-eight veterinarians from the agricultural and health services, armed forces, and universities of the country attended the course.

Visits were made to the Schools of Veterinary Medicine in Maracay and Maracaibo, Venezuela, where evaluations of the teaching programs were made. The Veteri-



The Organization gives continuing assistance to schools of veterinary medicine in the Americas. Here a consultant conducts a class in general pathology.

nary Research Center in Maracay was given assistance in preparing their new facilities for laboratory animal production.

Useful guidelines for curriculum planning were set forth in the proceedings of the Symposium on Education in Veterinary Public Health and Preventive Medicine, held in St. Paul, Minnesota, in March 1968 (*Scientific Publication PAHO 189*). A number of schools in the United States of America were undergoing curriculum review and many requests for the proceedings were received. During the Annual Meeting of the American Veterinary Medical Association, the Association of Teachers of Veterinary Public Health and Preventive Medicine of the United States and Canada held a special session to make preparations for fulfilling the recommendations of the Symposium and of the three previous PAHO-sponsored Seminars on Veterinary Public Health Education. Plans were made to convene a meeting of the PAHO Advisory Group on Veterinary Medical Education at one of the schools in the United States to discuss future activities in this field.

Members of the Headquarters staff gave assistance as visiting scholars in the program of preventive medicine and public health at four universities in the United States (California, Minnesota, North Carolina, and Pennsylvania), and at the University of Chile, the University of Antioquia in Colombia, the University of San Carlos in Guatemala, and the University of San Marcos in Peru.

### Schools of Nursing

Of approximately 316 schools of nursing in Latin America and the Caribbean area, 97 (or 30 per cent) are institutions of higher education and 30 of them award a Bachelor's degree in nursing. The other 219 schools (70 per cent of the total) are at the intermediate level and produce about 80 per cent of the nurses in the Region.

Training courses for "nursing technicians" are being conducted in Brazil and Mexico. Brazil has eight such courses with an enrollment of 306 students, and Mexico has 11 with 260 students.

In 1969 the Organization continued to collaborate with the schools of nursing and a total of 11 full-time and 24 short-term consultants were assisting with current projects. In addition to technical advisory services, PAHO provided grants for local seminars, fellowships, teaching equipment, and publications. In all, assistance was given to 103 schools, 11 technical courses, and 10 postbasic courses.

In view of the importance attached by many countries to developing a methodology for the study of teaching institutions, this subject was discussed at the seminar on



"Nursing technicians" were trained in eleven one-year courses in Mexico during 1969. Here two students undergo clinical practice in care of the newborn in the University Hospital of Nuevo León, in Monterrey.

planning in nursing held in Mexico. The meeting was attended by 27 nurses from 10 countries.

Special attention was devoted to those aspects of nursing education in which the need for training was most evident. Assistance was given with the improvement of basic and postbasic courses for the preparation of nurse-midwives. In Cali, Colombia, an International Conference on Nursing-Midwifery Education in Latin America was held to study the guidelines to be used as a basis for teaching programs. The seminar was attended by 11 midwives and 26 nurses from 11 countries, and a guide for the training of such personnel was prepared.

In the field of psychiatric nursing, the Organization cooperated with Mexico in two postbasic courses and in the teaching programs of two schools of nursing. In Venezuela assistance was given with the integration of mental health and psychiatry into the curricula of university schools, with one intermediate-level training program, and with four postbasic courses of the Ministry of Health and Social Welfare. At the University of the Andes a

seminar on the inclusion of mental health in nursing school curricula was conducted for 34 senior nurse educators.

### Schools of Nutrition and Dietetics

At the time of the Caracas Conference (1966) on the training of nutritionists-dietitians, there were 20 schools of dietetics in Latin America and the Caribbean area offering courses of one to three years' duration. By 1969, 15 schools were offering university degree programs for nutritionists-dietitians in accordance with the Caracas recommendations. Most of these schools graduated their first class in 1969.

The major emphasis during the year was on (a) the revision of curricula in regard to both course content and sequence of courses; (b) initiation of concurrent field observations during the second and third year of the course; (c) determination of type, quality, and length of supervised field training, especially in the public health aspects of services; and (d) planning for additional training for faculty members.

Since not all Latin American countries can support a university-degree program in this specialty, the Organization was developing a mechanism whereby students from countries lacking such schools could attend the courses already established.

Efforts were being made to overcome several difficult problems encountered by the schools, among them the shortage of suitable textbooks in Spanish or Portuguese,

the lack of laboratory equipment, and the need for means of transportation to health centers and areas where field training is conducted.

The Organization was assisting one graduate program leading to a Master's degree in public health nutrition (in Puerto Rico), for physicians, nutritionists-dietitians and biochemists. In the 1969-1970 course, students from five Latin American countries and Canada were enrolled, in addition to two from Puerto Rico.

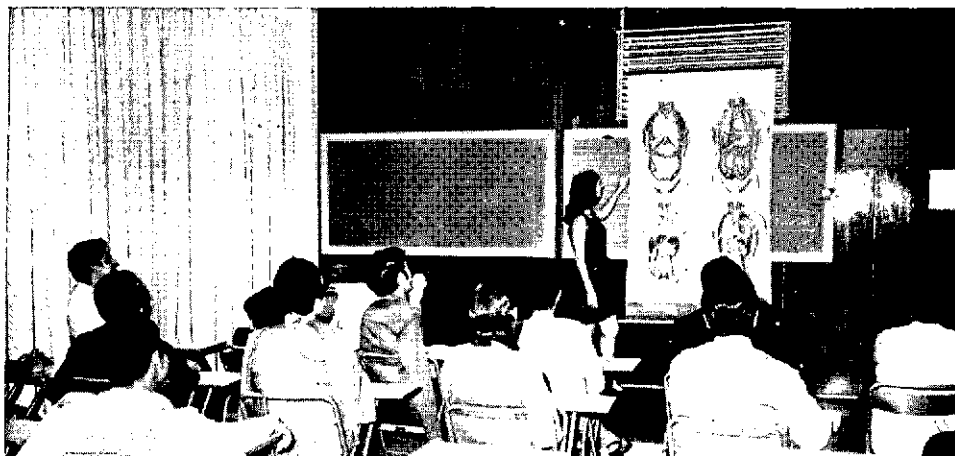
Two short courses in nutrition for practicing physicians and for members of medical school faculties were offered in Brazil, with the Organization's assistance and in line with the recommendations of the Conference on Nutrition Education in Schools of Medicine and Schools of Public Health in Latin America (Washington, D.C., 1966). Since the curricula were being revised in a number of medical schools in Latin America, greater emphasis was being placed on the incorporation of the various aspects of nutrition into the core curriculum. In some schools, the assignment of a coordinator in nutrition ensured better planning and less repetition.

### Biostatistics Education

The Brazilian Association of Medical Schools, the Foundation for Specialized Teaching in Public Health, the Unit for Planning, Evaluation, Research, and Special Projects (PAPPE), and PAHO organized a seminar on the teaching of statistics in medical schools in Brazil, on the subject "Health of the Community: Statistics as a



The School of Nutritionists of the Institute of Nutrition of the Federal University of Pernambuco, Brazil, has trained more than 160 nutritionists.



An instructor in Costa Rica gives a class in the principles of human anatomy, which forms part of the basic training of medical records librarians.

Working Instrument.” There were 69 participants from schools of medicine, the state health ministries, the national Ministries of Health and of Education, the U.S. Agency for International Development, and the sponsoring groups. Advisory services were rendered by two short-term consultants on national health surveys and teaching of medical statistics.

Another short-term consultant gave advice on biostatistics teaching at the School of Medicine of the University of Uruguay, the School of Hygiene and Public Health of the University of São Paulo, Brazil, and the Department of Mathematics Applied to Biology of the School of Medicine of Ribeirão Preto, Brazil.

In the medical records field, very few persons have been prepared at the professional level. Courses in the United States of America require knowledge of the English language and the only course given in Spanish is that in the University of Puerto Rico, for which possession of a university degree is a prerequisite. In the period 1961-1969, in order to prepare the large numbers of persons needed in this field, emphasis was placed on developing training programs in Latin America at the intermediate level and on preparing many persons in auxiliary-level courses. Despite the excellent progress made, it has become increasingly evident that in order to fill leadership positions in ministries of health, in teaching institutions, and in university hospitals, more professional medical records librarians must be trained. In October 1969 a workshop was held in Buenos Aires to define the needs for medical records personnel in Latin America and their functions, and to outline a plan of studies for professional-level courses. Plans were under way to introduce such a course in Argentina in 1970 and other countries were proposing to initiate advanced courses within a few years. One medical records librarian

from Argentina, holding a PAHO fellowship, was graduated from the course in Puerto Rico in June and one from Costa Rica enrolled in that course in July.

### TEXTBOOKS

A total of 108 Latin American universities have joined this program by signing letter-agreements with the Organization.

Surveys were carried out among the professors to select those who will make up the committees of experts responsible for recommending the books most useful in the teaching of histology, embryology, gynecology, obstetrics, clinical surgery, and psychiatry.

The first meetings of the internal medicine and morphology committees covered the subjects of anatomy, histology, and embryology. These meetings were attended by 15 professors who drew up recommendations for the restructuring of the teaching programs and the selection of the textbooks in these fields. A temporary adviser assisted with the preparation of the basic document “Teaching of Morphology in Latin America,” which served as a reference for the expert committee on that subject.

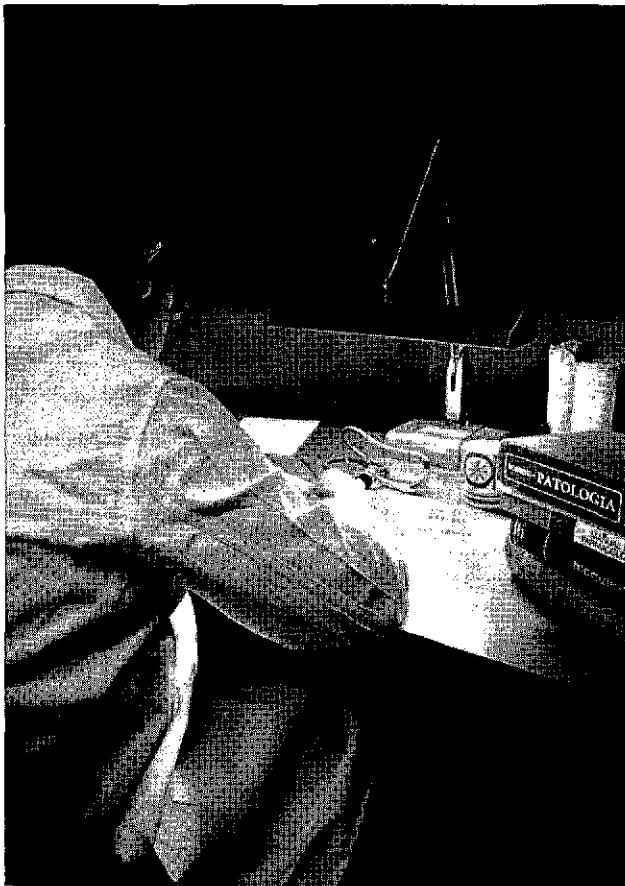
The textbooks *Fisiología humana*, by B. A. Houssay, and *Manual de farmacología*, by Kuschinsky and Lüllmann, were selected in accordance with the recommendations of the expert committees in those fields, and their distribution was begun in the second half of the year.

By the end of 1969 the first four textbooks in this program had been distributed as follows:

	Number distributed	Date distribution commenced
<i>Tratado de patología,</i> by Stanley L. Robbins	10,000	October 1968
<i>Bioquímica,</i> by José Laguna	9,855	January 1969
<i>Fisiología humana,</i> by B. A. Houssay	7,904	August 1969
<i>Manual de farmacología,</i> by G. Kuschinsky and H. Lüllmann	7,245	October 1969

About 60 per cent of the first two texts have been sold (80 per cent for cash and the rest by installments). The system of renting books out has hardly been used. Sale of the other two texts has now been started and distribution of W. Nelson's *Pediatría* will shortly be commenced.

The reports of the first six committees on the teaching of pathology, biochemistry, physiology, pharmacology, pediatrics, and preventive and social medicine were published as separate booklets.



In the Organization's program of textbooks for medical students, more than 35,000 copies of four titles were distributed to participating universities by the end of 1969.

The negotiations with the Inter-American Development Bank concerning the loan sought for the program were continued.

## TRAINING OF PERSONNEL

The Organization collaborated with the universities in the organization of **laboratories of human relations and medical teaching** in Ciudad Bolívar, Venezuela, and in Pôrto Alegre, Brazil, which were attended by 30 and 24 participants, respectively.

Two seminars on the teaching of **behavioral sciences** were conducted for professors of these and related disciplines at the School of Medicine of the University of Uruguay in Montevideo, and at the José M. Vargas School of Medicine in Caracas, Venezuela.

At the University of Havana School of Medicine in Cuba, a seminar on the methodology of social research applied to medical problems was held (24 November-5 December) as a continuation of the 1968 seminar on the teaching of behavioral sciences.

Seminars were being prepared on the definition of educational objectives and the **planning of curricula** in several countries; the first of these was held at the School of Medicine of Antioquia University in Medellín, with the cooperation of the Colombian Association of Medical Schools.

A seminar on **epidemiology** for public health officers was held in Recreo, Argentina, from 21 to 27 April. Six similar seminars were conducted during the year, together with one intermediate-level and one specialized course.

The School of Medicine of the University of El Salvador was engaged in planning a seminar on epidemiology for clinical instructors, to be held in April 1970.

The inclusion of educational programs on **health service and hospital administration** in the curricula of medical schools continued to be a matter of special concern to the countries. To assist them in these activities, the Organization provided advisory services to 10 schools in the course of the year. At the Latin American Center for Medical Administration (CLAM), in Argentina, the first seminar on this subject was held for teachers of preventive and social medicine, directors of university hospitals, and teachers responsible for clinical services. The seminar, lasting three weeks, was attended by 15 participants from the universities in Buenos Aires and Rosario (Argentina), Santiago and Concepción (Chile), Asunción (Paraguay), and Montevideo (Uruguay).



## III. DEVELOPMENT OF HUMAN RESOURCES

TABLE 26. SHORT COURSES AND SEMINARS ON SANITARY ENGINEERING HELD IN COOPERATION WITH UNIVERSITIES, 1969.

Place of training	Date	Subject	Duration (in hours)	Participants			Lecturers				Collaborating or sponsoring agencies	
				National	Inter-national	Total	National	STC <sup>a</sup>	PAHO staff	Total		
Argentina	13 Oct.-28 Nov. 1-5 Dec.	National program of rural water supply systems	276	22	—	22	22	—	1	23	4	
		Stabilization ponds	40	15	2	17	5	—	—	5	4	
Bolivia	14-25 Apr. 10-21 Nov.	Excreta, waste water and garbage disposal	62	31	—	31	7	—	2	9	2	
		Ventilation of mines	60	40	—	40	7	1	1	9	3	
Brazil	19-30 May 21 July-1 Aug. 8-10 Jan.	Water rates	84	22	—	22	3	2	1	6	13	
		Stabilization ponds	74	24	—	24	3	1	1	5	10	
	17-26 Mar. 2 weeks 1 week 2 weeks 2 weeks 8-19 Sept. 17-21 Nov. 14-25 July 1-12 Sept. 1-6 Sept. 18-23 Aug. 17 Nov.-4 Dec. 1-12 Dec. 10-21 Nov. 24-28 Mar. 10-19 Apr. 1-10 Oct. 16-27 June 15-20 Dec. 17-29 Mar. 21-26 July 1-12 Sept. 20-31 Jan. 12-17 May 21 July-29 Sept. 4-16 Aug. 24-28 Mar. 24-29 Mar. 29 Sept.-9 Oct. 1-15 Dec. 5-16 May 6-18 Oct. 17-28 Nov. 10-29 Nov. 3-14 Feb. 3-18 Nov. 7-13 May 6-17 May 2-11 Oct. 3-31 Jan. 1-15 Sept. 13-25 Oct. 15-27 Sept. 1-6 Dec. 30 July-8 Aug. 24-28 Nov. 7-16 May 8-13 Sept. 17-22 Nov. 6-10 July and 2-16 Aug. 3-7 Feb. 20-31 Oct. 1-8 Sept. For 15 weeks	Epidemiology and prophylaxis of water-borne diseases	9	66	—	66	1	—	—	1	2	
		Bacteriological analysis of water	48	17	—	17	8	—	—	8	2	
		Training of swimming pool operators	38	19	—	19	14	—	—	14	2	
		Water supply pumping stations	15	61	—	61	1	—	—	1	2	
		Laboratory techniques for hydrobiologists	66	14	—	14	10	—	—	10	2	
		Training of swimming pool operators	2 weeks	40	26	—	26	14	—	—	14	2
		Modern techniques of water treatment	39	63	—	63	2	—	—	2	2	
		Fluoridation of water supplies	41	23	3	31	6	1	2	9	3	
		Activated sludge	72	18	—	18	7	1	2	10	3	
		Water meters and plumbing	72	24	—	24	5	1	—	6	3	
		Air pollution problems related to boilers and incinerators	22	40	—	40	10	1	—	11	2	
		Water supply pumps	36	31	—	31	9	—	—	9	3	
		Ground water	120	26	4	30	4	2	—	6	3	
		Wastes and urban hygiene	54	31	—	31	9	1	—	10	2	
		Stabilization ponds	52	18	—	18	1	—	—	1	3	
		Sanitary meat handling	32	14	—	14	1	—	1	2	2	
		Treatment of industrial liquid wastes	57	25	—	25	15	—	1	16	3	
		Training of water filtration plant operators	56	44	—	44	18	—	1	19	4	
		Flow in steel pipes	56	29	1	30	9	1	1	11	2	
		Sanitary engineering in disasters (seminar)	39	215	5	220	63	2	1	63	4	
Seminar on industrial hygiene	70	19	—	19	—	—	1	1	2			
Fluoridation engineering of water supply	21	39	5	44	9	2	1	12	5			
Solid wastes collection and disposal	60	39	—	39	8	1	1	10	4			
Waste water biological treatment plants design	63	34	—	34	4	1	—	5	2			
Fluoridation of water supplies	48	27	1	28	11	3	1	15	2			
Organization and administration of water and sewerage agencies	236	19	—	19	13	—	—	13	2			
Hydraulic problems in water treatment plants	60	29	—	29	4	1	—	5	2			
Fluoridation of water supplies	38	29	—	29	5	3	—	8	4			
Environmental sanitation activities	35	28	—	28	8	2	2	12	4			
Economic design of water supply systems	69	25	—	25	4	3	1	8	3			
Housing problems in low-income families	36	25	5	30	4	1	1	6	3			
Well drilling techniques	69	19	—	19	3	1	1	5	5			
Water, sewerage and drainage for buildings	50	42	—	42	3	1	—	4	2			
Design and construction of sewerages	38	14	—	14	6	1	1	8	4			
Community organization for development of rural areas	116	28	—	28	19	7	2	28	2			
Operation and maintenance of water supply wells	71	26	—	26	10	1	1	12	3			
Industrial hygiene and air pollution	61	40	—	40	19	2	1	22	6			
Financing of water supply systems	24	30	—	30	8	1	3	12	6			
Financing of water supply systems—water rates	70	31	5	36	14	2	4	20	5			
Ground water development	51	20	—	20	5	1	—	6	6			
In-service training for well drillers	150	14	—	14	5	1	1	7	6			
Stabilization ponds	78	15	—	15	3	1	—	4	4			
In-service training for well drillers	78	22	—	22	24	—	—	24	3			
Plumbing	64	19	—	19	3	1	1	5	3			
Seminar on housing hygiene	25	34	—	34	8	1	1	10	8			
Systems analysis applied to hydrologic resources	54	28	4	32	4	4	—	8	3			
Air pollution	38	15	—	15	12	1	—	13	2			
Computers in sanitary engineering problems	50	17	—	17	2	2	1	5	3			
Symposium on plumbing	30	27	—	27	2	2	—	4	4			
Seminar on specifications for water supply and sewerage systems design	35	30	2	32	10	2	2	14	4			
Administration and management	188	48	—	48	4	1	—	5	4			
Water fluoridation	28	43	—	43	2	3	1	6	3			
Biological treatment of liquid wastes	70	34	—	34	2	4	1	7	3			
Advanced technology in water clarification	36	31	6	37	3	3	—	6	3			
2nd course for water treatment plant operators	216	11	—	11	8	—	—	8	3			
<b>Total</b>		56 courses, 4 seminars, and 1 symposium	4,004	1,896	43	1,939	530	74	44	648	215	

— None.

... Data not available.

<sup>a</sup> Short-term consultants.



Seminar on administration of health services and hospitals, conducted by the Latin American Center for Medical Administration in 1969.

CLAM was extremely active, providing advisory services for hospitals and health institutions in Argentina and conducting educational programs, such as its course on hospital maintenance and engineering. It also participated in the teaching of hospital administration courses at the School of Public Health in Buenos Aires.

As in prior years, PAHO staff gave lectures and participated in group discussions in the course on organization and operation of medical services in social security institutions, conducted by the Inter-American Center for Social Security Studies (CIESS).

To improve the practice stage of the training in administration for medical directors, Venezuela held its first symposium on residencies in hospital administration. The 25 participants were professors from the School of Public Health, directors of the major hospitals in the country who acted as course tutors, and officials of the Ministry of Health and Social Welfare. They studied the objectives, duration, and purpose of residencies, and also the responsibilities of the instructor, the resident, the Public Health School, and the Ministry.

As regards training in **rehabilitation**, a course held in Mexico City between February and November for teachers of physiotherapy was attended by specialists from Argentina, Brazil, Chile, Colombia, Guatemala, Mexico, Uruguay, and Venezuela. This course, in which the Government of Mexico and the World Confederation of Physiotherapists cooperated, dealt with modern therapy methods and the organization of training courses or schools.

Reports were received from 17 projects on the training at local levels of 11,597 workers in the **general health services**. A substantial effort has been made in this field. For example, in Honduras it was reported that 3,141 health workers were trained; in Chile 1,756 administrative personnel in health services; in Guyana, 600 health workers; in the Dominican Republic, 623; and in Costa

Rica, 394. The objectives included, in addition to improvements in the number and quality of personnel, the search for new methods of training in order to meet, in the shortest time and at the lowest cost, the need for expanding the services and strengthening teaching institutions through specific projects.

In the field of **sanitary engineering**, in order to increase training facilities at graduate and other levels and to provide engineering personnel with an opportunity to keep abreast of technological advances, the Organization intensified its support of engineering schools in Latin America.

Of special importance in this field were the programs of continuing education based on short, intensive courses. The schools were responsible for these programs and for the preparation of the courses, while the Organization furnished technical and financial assistance. International consultants helped to organize the courses and gave some lectures, but local teaching staff took charge of 80 per cent or more of the study programs.

As shown in detail in Table 26, 56 short courses, four seminars, and one symposium were offered in 17 countries in 1969. Training opportunities were thus provided for a total of 1,939 persons, a figure which is indicative of the reception given to this program in the countries. The 530 national instructors who gave lectures and participated in the courses were assisted by 44 staff members and 74 short-term consultants of the Organization.

The course subjects were selected by the schools in consultation with government agencies and other institutions concerned which, in most instances, also helped to organize and finance these activities. Most of the courses dealt with water supply, covering almost all aspects of this field: planning, design, financing, administration, operation, and maintenance. They also included other areas of environmental sanitation such as sewerage, air pollution, industrial hygiene, solid wastes, housing, groundwater resources, and river basin development.

As to the training of **nursing personnel**, during the year 24 short courses or seminars were held in the six Zones for a total of 1,051 participants, principally teachers at nursing schools or chiefs of nursing services used for practical training. A wide range of subjects was covered: integration of nursing education and services in university hospitals; gearing of nursing education to the resources and requirements of health programs; design and revision of curricula; planning of apprenticeship experience; teaching of administration; audiovisual aids; social sciences; planning of nursing care; teaching of nursing with emphasis on family care; research; and planning in nursing.



Training of nurses at St. Ann's Mental Hospital in Port-of-Spain, Trinidad.

Eighty-five nurses attended the workshops on population dynamics and family health services held in Panama and Trinidad.

Schools of nursing in Costa Rica, Guatemala, and Paraguay held short courses on maternal and child health attended by a total of 99 nurse-midwives.

The programs at the Inter-American Nursing-Midwifery Center in Brazil included a course on pediatric nursing, a course on maternal and child health attended by 41 nurses and 27 midwives, and a seminar on the same subject attended by 28 nurses and midwives.

In Jamaica, as part of the postbasic nursing program at the University of the West Indies, a course on psychiatric nursing was conducted for 18 student nurses.

In addition to collaborating in the preparation of professional personnel, the Organization continued to sponsor the training of **nursing auxiliaries**. Substantial progress has been made in this field. Brazil has 72 courses or schools for auxiliaries which have graduated an average of 1,387 persons a year in two-year programs. In 1969 some of these courses were conducted, on a trial basis, with a one-year plan of studies. In the Central American countries and Panama, the number of trained nursing auxiliaries rose to 77 per cent of all those in service, and in Cuba and Honduras these figures reached 90 and 100 per cent, respectively. Of 12 English-speaking countries and territories of the Caribbean area, 10 were training nursing auxiliaries.

In its assistance to the countries during 1969, the Organization laid emphasis on the evaluation and strengthening of curricula, on the orientation and training of instructors, and on the preparation of teaching material.

In Brazil a course on the planning and supervision of

students' practical work was attended by 26 instructors of nursing auxiliaries, and in Nicaragua a workshop was held for 20 instructors. In the Caribbean area, an interdisciplinary seminar on the training and utilization of auxiliary personnel was offered for 31 participants and a guide on the conduct of courses for such personnel was prepared.

Refresher courses were held for 185 nursing auxiliaries in Brazil, and 63 auxiliaries in Ecuador attended a course on sterilization techniques.

In a number of countries, the Organization promoted the professional education of personnel in **mental health**, as well as inservice training and special courses in this field. Assistance was given in Jamaica and Venezuela in training psychiatric nurses in demonstration units. In addition, Venezuela was assisted with the organization and development of a psychiatric nursing course which was completed by nine nurses.

In cooperation with the Government of Uruguay and the Inter-American Children's Institute, a course was offered for 52 professionals from nine countries, on the early stimulation of children with brain damage.

A Working Group on the Administration of Psychiatric and Mental Health Services met in Viña del Mar, Chile, in April. This meeting, which was attended by 44 professionals, chiefly psychiatrists and public health administrators, from 22 countries, made recommendations on the setting of priorities, the establishment of objectives, and the definition of a strategy for care of the patient in the community and his early rehabilitation.

In Chile the 12-month course for training physicians in the clinical use of **radioisotopes**, jointly sponsored by the University, the National Health Service, the W. K. Kellogg Foundation, and the Organization, was again



A group of microscopists receive training in the examination of slides for malaria parasites.

held. It was attended by five students, bringing to a total of 34 the physicians trained at the nine annual courses so far held.

Fellowships were awarded to Chile and Jamaica for the training of radiation physicists and arrangements were being made for the award of seven similar fellowships to personnel in Argentina, Bolivia, Ecuador, and Peru.

Training activities were in progress in almost all countries where malaria eradication was under way. In Mexico large numbers of spraying personnel and evalu-

ators were trained or retrained, and in all the Central American countries training was stepped up, especially for sprayers and medicators, among whom there was a high rate of turnover. The instability of field personnel, due to the low wages paid, obliged the Malaria Eradication Service in Colombia to carry on a continuous training program at the zone level. The details of the courses given in the various countries, by categories of personnel, are set forth in Table 27.

The XVI Meeting of Directors of National Malaria Eradication Services in Central America, Mexico, Pan-

TABLE 27. TRAINING COURSES GIVEN IN NATIONAL MALARIA ERADICATION SERVICES, 1969.

Country or other political unit	Professional personnel		Entomological auxiliaries		Microscopists		Zone or sector chiefs		Spraying brigade chiefs		Spraymen		Mass drug administration sector chiefs		Medicators		Chief evaluators		Evaluators		Supervisors		Other		
	No.	Hrs.	No.	Hrs.	No.	Hrs.	No.	Hrs.	No.	Hrs.	No.	Hrs.	No.	Hrs.	No.	Hrs.	No.	Hrs.	No.	Hrs.	No.	Hrs.	No.	Hrs.	
Argentina																									
Zonal	—	—	—	—	2	400	—	—	—	—	—	—	—	—	—	—	—	—	20	15	—	—	—	—	
Regional	—	—	—	—	—	—	15 <sup>R</sup>	21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	6
Bolivia																									
National	—	—	—	—	1	480	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Zonal	—	—	—	—	—	—	—	—	—	—	81	40	—	—	—	—	—	—	75	40	—	—	—	—	
Brazil																									
Regional	—	—	—	—	9	27	45	240	13	36	13	24	—	—	—	—	3	16	31	60	—	—	6	180	
State level	—	—	—	—	2	108	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Zonal	—	—	—	—	—	—	—	—	22	120	8	65	—	—	—	—	—	—	11	84	—	—	—	—	
British Honduras																									
Regional	—	—	—	—	—	—	—	—	—	—	18	24	—	—	—	—	—	—	—	—	—	—	—	8	24
Colombia																									
National	10	185	—	—	5	185	—	—	36 <sup>R</sup>	80	80 <sup>R</sup>	80	—	—	—	—	—	—	—	—	—	—	—	—	
Zonal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	58	40	—	—	970	80	49	95	—	—	
Costa Rica																									
National	—	—	—	—	14	16	—	—	34 <sup>R</sup>	40	120 <sup>R</sup>	50	—	—	—	—	—	—	—	—	—	—	—	1	
Zonal	—	—	—	—	—	—	29 <sup>R</sup>	96	—	—	—	—	2	32	12	40	—	—	16	80	—	—	—	139 <sup>R</sup> (b)	
Dominican Republic																									
Regional	—	—	—	—	21	16	28	128	10	40	57	80	—	—	—	—	—	—	143	30	—	—	—	—	
Ecuador																									
Zonal	—	—	—	—	—	—	15 <sup>R</sup>	144	17	64	249	108	20	56	—	—	—	—	20	56	2	40	—	—	
El Salvador																									
National	—	—	—	—	—	—	32 <sup>R</sup>	44	25 <sup>R</sup>	123	536	1,283	85 <sup>R</sup>	201	310	598	13 <sup>R</sup>	30	103 <sup>R</sup>	71	—	—	—	1	
Zonal	—	—	—	—	—	—	—	—	—	—	—	—	50	80	43	200	—	—	—	—	—	—	—	240	
Guatemala																									
National	3	200	—	—	—	—	5 <sup>R</sup>	20	—	—	15	64	—	—	13 <sup>R</sup>	12	1	197	12	197	18	200	2	12	
Guyana																									
National	—	—	—	—	2	546	—	—	—	—	9	48	—	—	—	—	—	—	—	—	—	—	—	—	
Haiti																									
Zonal	—	—	—	—	—	—	23 <sup>R</sup>	16	116 <sup>R</sup>	24	630 <sup>R</sup>	40	—	—	—	—	—	—	—	—	—	—	—	—	
National	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	
Honduras																									
National	—	—	—	—	16	525	—	—	—	—	—	—	—	—	7	27	—	—	—	—	—	—	—	—	
Regional	—	—	—	—	—	—	12	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	
Mexico																									
Central	25	9 wks.	—	—	31	303	45	335	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	55	
Zonal	103 <sup>P</sup>	(b)	—	—	—	—	406 <sup>P</sup>	(b)	746 <sup>P</sup>	88	3,615 <sup>P</sup>	88	49 <sup>R</sup>	24	—	—	—	—	1,205 <sup>P</sup>	(b)	—	—	—	262 <sup>P</sup>	(b)
Nicaragua																									
National	—	—	21	208	10	380	3	208	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Zonal	—	—	—	—	—	—	—	—	26	156	105	104	3	208	588	104	—	—	111	208	—	—	—	9	
Surinam																									
National	—	—	—	—	—	—	7 <sup>R</sup>	41	4	(b)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Venezuela																									
National	3	721	—	—	11	400	—	—	—	—	—	—	—	—	—	—	—	30	2,565	—	—	—	—	—	

— None.  
R = Retraining.  
\* Includes retrained personnel from the mass drug administration program.

<sup>b</sup> The duration of the various courses differs.  
<sup>c</sup> Includes retrained personnel.

ama, and the Caribbean area was held in the Dominican Republic in October for the purpose of exchanging views and discussing technical problems.

The Government of Venezuela, through its training center in Maracay, continued to offer facilities for the preparation of professional staff from all countries of the Americas. For the course conducted from November 1968 to March 1969, the Organization arranged for nine fellowships (Argentina 1, Bolivia 2, Colombia 3, Honduras 1, Paraguay 1, and Peru 1). For the 1969-1970 course, it arranged for 11 fellowships (Bolivia 1, Colombia 3, Ecuador 1, El Salvador 2, Guatemala 1, Haiti 1, and Honduras 2). These courses are followed by a one-month field trip to other countries. For both courses, the Organization paid the travel expenses of all fellows and the stipends of all but six of them whose stipends were paid by the Government of Venezuela.

In the field of **tuberculosis control** continued efforts were made to promote the training of national personnel. There were exchanges of views with the authorities in a number of countries on the possibility of sending fellowship holders to tuberculosis courses such as those being held in Brazil, Chile, and Colombia.

In cooperation with the Government of Venezuela, the Organization sponsored the first international course on epidemiology of tuberculosis and administration control programs. The course, which was attended by 20 physicians from 16 Latin American countries, was designed to train administrators and supervisors in epidemiology, planning, evaluation, and operations research with a view to the inclusion of tuberculosis control activities in national health programs.

To provide personnel with training in bacteriological methods and techniques and to emphasize their important bearing on epidemiological reporting, treatment control, and program evaluation, the third regional course on tuberculosis bacteriology was held, also in Venezuela, under the Government's auspices. It was attended by 14 physicians and technicians from 13 countries.

PAHO staff participated in the binational meeting on tuberculosis organized in Nuevo Laredo by the Ministry of Health and Welfare of Mexico and the U.S. Public Health Service, and also in the tuberculosis seminar held in Bogotá, Colombia, under the auspices of the International Children's Center. The Nuevo Laredo meeting discussed problems connected with the health services' participation in the ambulatory treatment of tuberculosis patients, the use of new tuberculosis drugs, epidemiological questions, and the organization of control. The Bogotá seminar laid emphasis on general public health

principles and on epidemiological, technical, and administrative aspects of programs.

Support was also given to the third meeting of the working group on tuberculosis for Central America and Panama, held in Costa Rica, which considered the reorientation and organization of programs in those countries, mainly in regard to the inclusion of control activities in the work of the health services.

Staff of the Organization attended a meeting of WHO regional advisers on tuberculosis in Geneva, which discussed program planning, personnel training, and some aspects of prophylaxis, diagnosis, and treatment.

The programs in **health and population dynamics** at the University of São Paulo and the University of Chile, which were established with the Organization's assistance, continued to provide training in this field. The fourth course was offered at the University of Chile, with 25 students enrolled, and the third course was given in Brazil, with 35 students.

In Panama and Trinidad one-week workshops on population dynamics and family health services were held for nurses, nurse-midwives, and midwives. Eighty-five persons from 23 countries participated in these sessions.

A workshop on educational components of population dynamics and family health services in Latin America, held in Quito, Ecuador, was attended by 72 persons from 22 countries.

A seminar on family planning for medical practitioners was held in Trinidad for 60 physicians in both governmental and private practice.

Training programs in family planning were organized for Ministry of Public Health personnel in Ecuador.

A comprehensive orientation program in population dynamics and family planning was presented in Zone I, and preliminary orientation programs were conducted for the staff of Zones III and VI.

PAHO-assisted training activities in the field of **maternal and child health** were continued in Argentina, Chile, Colombia, and Uruguay. Forty-seven professionals, 33 of them with fellowships from the Organization, attended the courses on clinical and social pediatrics held in Medellín, Colombia, and in Santiago, Chile. In Chile the training of specialists was continued through the expansion of the pediatrics residency program.

In Uruguay the Obstetrical Physiology Service and the Obstetrical Clinic of the School of Medicine of the University in Montevideo, conducted a second intensive course on techniques for care of the mother, the fetus, and the newborn, which was attended by 18 professionals, nine with PAHO fellowships.



In Santiago, Chile, in 1969 the eighth course in clinical and social pediatrics was held. A similar program has been conducted since 1965 in Medellín, Colombia.

These teaching activities will be strengthened as a result of the establishment of the Latin American Center for Perinatology and Human Development.

The basic plan of action of the Center—which was set up in Montevideo through the joint efforts of the Organization, the Ministry of Public Health, and the University of Uruguay—includes training, research, and advice in matters related to the physiopathology of gestation, parturition, and the perinatal period, and activities to assist the early diagnosis and prevention or appropriate treatment of cases where there is high risk to the health of the mother or fetus.

From 20 October to 29 November a Latin American course on medical administration in the field of maternal and child care was held in Buenos Aires. Its curriculum and objectives were similar to those of the comparable course held in Santiago, Chile, in 1968 for the basic training of potential leaders in this field. There were 28 participants, 11 from Argentina and the rest from Bolivia, Brazil, El Salvador, Guatemala, Nicaragua, Paraguay, Peru, Spain, Uruguay, and Venezuela.

As in previous years, the Organization assisted with the teaching activities carried out jointly by the International Children's Center and the Inter-American Children's Institute. It made grants and provided advice for the courses conducted in Montevideo (52 participants from nine countries) and Quito, Ecuador (33 participants from eight countries), dealing respectively with the early

stimulation of the child with brain damage and the study of development problems in infancy.

Extensive programs in the **nutrition** field were being carried out by the Institute of Nutrition of Central America and Panama and by the Caribbean Food and Nutrition Institute. These activities are described in Chapter II-B.

In Colombia a course on simplified equipment for use in **dentistry** was held for 60 teachers, dentists, and equipment manufacturers.

In Ecuador the second national seminar on dentistry took important decisions on curricula, especially for preventive and social dentistry. Also, two short courses were held, one on the teaching of dentistry and the other on preventive and social dentistry.

In Paraguay a two-week course on prosthetic devices, for 22 dentists, and a two-month course for dental auxiliaries were conducted.

The second national seminar on dental materials held in Venezuela in July was attended by 20 technicians, and in November a course on the design and manufacture of simplified equipment was held for 25 dentists and dental auxiliaries of the Venezuelan Ministry of Health and Social Welfare.

In Argentina a course was organized for 10 instructors of dental auxiliaries in Buenos Aires Province.

Six courses on water fluoridation techniques were held in Brazil, Chile, Colombia, and Venezuela, and were attended by a total of 168 persons.

In the field of **veterinary public health** a course on rabies diagnosis and production and control of vaccines was conducted at the School of Veterinary Medicine in Belo Horizonte, Brazil (17-31 May), under the Organization's sponsorship. There were 23 participants from the health and agriculture services of Brazil. In Lima, Peru, a seminar on rabies (6-11 October) was attended by 80 professional workers from Bolivia, Chile, Colombia, Ecuador, and Peru. A regional course on rabies vaccines was held at the Pan American Zoonoses Center (17-28 November) for 25 participants from 14 countries. Complementing these activities, the Organization sponsored five additional courses on **applied epidemiology and control of zoonoses for public health veterinarians** in Argentina, Brazil, Chile, Colombia, and Peru.

The broad programs of training conducted by the Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center are described in Chapter I-A of this Report.

Two courses on **food hygiene** for veterinarians of Brazil and Colombia were held with the collaboration of PAHO consultants: one at the School of Veterinary Medicine of the University of Ceará, with 29 participants, and

the other at the School of Public Health of the University of Antioquia, with 11 participants.

A course on meat hygiene was conducted in British Honduras in March, with the Organization's assistance. It was attended by 14 inspectors from the Ministries of Health and of Agriculture.

The Organization sponsored a Regional Seminar on Postgraduate Preparation of Health Workers in **Health Education** and Behavioral Sciences (Buenos Aires, Argentina, 28 August-5 September), in which health education policy was reviewed and suggestions were made for changes in curricula in this discipline at schools of public health in the Region. The seminar was attended by 44 specialists in various fields and teaching staff from schools of basic health training, schools of public health, and similar institutions in the Americas.

In addition to a wide range of training activities connected with the educational aspects of health and family welfare programs undertaken in various Latin American countries, a training workshop on the educational components of health and family welfare programs in Latin America was held in Quito, Ecuador (24-29 November). It was attended by 72 educators holding senior appointments in national health agencies and educational institutions at the university level in 21 countries and territories of the Region.

From July to December the Regional Center for Functional Literacy in Rural Areas for Latin America (CREFAL) offered a course in functional literacy, attended by 16 students, almost all from the field of general education and drawn from most of the Latin American countries.

In Quito, Ecuador, the Center held an eight-day seminar on functional literacy in Latin America, attended by 31 participants from almost all the countries. The Organization cooperated with CREFAL through a health education adviser.

A number of English-speaking countries and territories in the Caribbean area were assisted by an adviser in the planning and holding of refresher courses for staff from various agencies. In Barbados short courses of from 10 hours' to four days' duration provided practical training for 21 nursing students, 18 youth leaders, 20 uncertified public health inspectors, and 15 others who subsequently specialized in interview and census work in preparation for a nutrition survey being undertaken by the Caribbean Food and Nutrition Institute. Similar training was given to five nurses, seven inspectors, and 34 community leaders in St. Vincent; to 31 workers in Dominica; and to 13 U.S. Peace Corps volunteers who are to be assigned to community health work in the eastern Caribbean area.

The Organization also furnished assistance in connection with the study of school health education at the international course on the understanding of the child held in Quito, Ecuador (10 November-5 December), under the auspices of the International Children's Center of Paris and the Inter-American Children's Institute. The course was attended by 10 fellowship holders from Bolivia, Chile, Colombia, Nicaragua, Panama, Peru, and Venezuela and by 15 teachers without fellowships from Ecuador.

The training of personnel in **health planning**, which



The "four-hands" technique is a method in which dental staff are being trained in Latin America.



Regional Seminar on Postgraduate Preparation of Health Workers in Health Education and Behavioral Sciences, Buenos Aires, Argentina, 28 August-5 September 1969.

was continued during the year, is described in Chapter IV of this Report.

**Training of statisticians** at the professional level was given special emphasis following the recommendations of the Fifth Regional Advisory Committee on Health Statistics in 1968 for the creation of new research and training centers and the strengthening of those already existing in Latin America. The School of Public Health of the University of Chile completed the 15-month course

initiated in 1968; 12 students, including dentists, veterinarians, and physicians, were enrolled. This professional-level program was revised in 1969 to extend over two years and provide more instruction in statistical methodology; it will be directed to the preparation of biostatistics professors for medical and public health schools as well as chiefs of biostatistics divisions in the health ministries. A short-term consultant participated in the planning of this new course, which will begin in March 1970, and also participated in the teaching and in seminars for the staff of the School.

The Biostatistics and Demography Center of the School of Medical Sciences, National University of Buenos Aires, Argentina, began its activities in 1969. It has two departments, biostatistics and demography, and its first courses were for (a) teachers of statistics from the School, (b) physicians needing some knowledge of elementary statistics, and (c) research workers. The latter course was presented by a short-term consultant, who also gave advice on the Center's program.

Several students from Argentina holding PAHO fellowships received training in the United States of America: two studied statistics at schools of public health in preparation for professional-level positions in the Ministry of Health and the Biostatistics and Demography Center; one studied statistical methods in pharmacology; and two specialists received training at computer centers. A fellowship was awarded to a Chilean physician to study computer science in relation to genetics studies.

TABLE 28. STUDENTS TRAINED IN HEALTH STATISTICS OR MEDICAL RECORDS AT THE INTERMEDIATE LEVEL, BY PLACE OF STUDY AND COUNTRY OF ORIGIN, 1969.

Country of origin	Place of study						Total
	Argentina	Colombia	Costa Rica	Mexico	Peru	Venezuela	
Argentina	79	—	—	—	—	—	79
Bolivia	—	—	—	—	3	—	3
Brazil	—	—	1	—	—	—	1
Chile	1	—	—	—	—	—	1
Colombia	—	28	—	—	—	—	28
Costa Rica	—	1	7	—	—	—	8
Cuba	—	1	—	—	—	—	1
Ecuador	—	1	—	—	—	—	1
El Salvador	—	—	2	—	—	—	2
Guatemala	—	—	1	—	—	—	1
Honduras	—	—	1	—	—	—	1
Mexico	—	—	4	22	—	—	26
Nicaragua	—	—	1	—	—	—	1
Paraguay	1	—	—	—	—	—	1
Peru	—	—	—	—	16	—	16
Uruguay	4	—	—	—	—	—	4
Venezuela	—	—	—	1	—	17	18
Total	85	31	17	23	19	17	192

— None.



III. DEVELOPMENT OF HUMAN RESOURCES

TABLE 29. TRAINING OF STATISTICAL AUXILIARIES IN SHORT COURSES IN LATIN AMERICA, 1969.

Country	Courses		No. of students trained
	No.	Duration	
Argentina.....	10	12 weeks	241
Brazil.....	1	...	14
Colombia.....	1	...	...
Cuba.....	...	...	162
Dominican Republic.....	4	80 hours	80
Ecuador.....	1	4 weeks	35
El Salvador.....	1	8 weeks	19
Guatemala.....	1	1 month	18
Paraguay.....	1	8 weeks	15
Venezuela.....	1	6 months	116
Total.....	21		800

... Data not available.

Intermediate-level training in statistics and in medical records was continued in the schools of public health in Argentina, Colombia, Mexico, and Peru, where 158 trainees were graduated in 1969 (Table 28). Three of these four schools included training in medical records in the curriculum for the statisticians. Two courses in the Ministries of Health of Costa Rica and Venezuela trained 34 persons in medical records and hospital statistics. In five of the courses included in the table, students were accepted from outside the country and for these courses PAHO fellowships were awarded to 27 students.

Auxiliary-level training was given in 10 countries in 1969 to more than 800 students (Table 29), according to the information reported to PAHO. In Ecuador a working group met to plan a series of four-week courses in different areas of the country. In Costa Rica training was planned for statistical auxiliaries in hospitals. In the fourth intermediate-level course on medical records con-

TABLE 30. STUDENTS TRAINED IN SPECIAL COURSES ON THE EIGHTH REVISION OF THE INTERNATIONAL CLASSIFICATION OF DISEASES, WITH PAHO PARTICIPATION, 1969.

Country	Number of students trained
Colombia.....	25
Costa Rica <sup>a</sup> .....	17
El Salvador.....	22
Panama.....	31
Peru <sup>a</sup> .....	21
Total.....	116

<sup>a</sup> Training in the use of the *International Classification of Diseases* included in a course on health statistics and medical records.

ducted in Costa Rica, emphasis was placed on teaching the students to plan and participate in the instruction for the auxiliary-level personnel.

Two medical records officers from Surinam observed procedures in health centers in Jamaica and Trinidad. Two persons from Barbados and St. Kitts received special training in the statistical centers of the health services of Canada and the United States of America.

Table 30 shows the number of students trained in the use of the *International Classification of Diseases* as part of the program of the Latin American Center for Classification of Diseases.

### Fellowships

*Fellowships awarded in the Americas.* The total number of fellowships granted to individuals in the Hemisphere rose from 1,004 in 1968 to 1,051 in 1969 (Table 31). Included in this figure are 92 grants for training in nutrition, awarded by the Institute of Nutrition of Central America and Panama, and 41 awards made to health personnel of the Americas to attend interregional courses financed by WHO Headquarters.

The fellowship awards reflected not only an increase in the size of the program but also what appeared to be the beginning of a trend toward a wider range of study, encompassing such highly specialized fields as computer science, perinatology, biology of reproduction, health and population dynamics, radiation protection, and others. Thus, the major category under which these activities are classified (Other Health Services) showed an increase of approximately 70 per cent. Other areas in which there was a significant rise in the number of fellowships were environmental sanitation, with 142 awards, and communicable diseases, with 188, representing increases of 19 and 14 per cent, respectively (Table 32).

All countries of the Hemisphere participated in the fellowship program in varying degrees and in accordance with their expressed needs. Twenty-two countries as well as five other Regions served as study areas for the training of fellows from the Americas (Table 33). Of the fellows who studied in other Regions, 73 per cent went to Europe to attend WHO-sponsored interregional courses in the fields of anesthesiology, epidemiology, medical care, public health planning, sanitation, radiation protection, and dental public health teaching. Forty-one places were made available by WHO to health personnel from the Americas, as compared with 21 in 1968.

TABLE 31. FELLOWSHIPS AWARDED IN THE AMERICAS, BY COUNTRY OF ORIGIN AND TYPE OF TRAINING, 1969.

Country of origin of fellows	Type of training					Total
	Courses organized or assisted by PAHO or WHO			Regular academic courses	Travel grants and other awards	
	Short group courses	Nonacademic	Academic			
Argentina.....	20	3	—	14	22	59
Barbados.....	23	—	5	—	2	30
Bolivia.....	13	2	3	11	10	39
Brazil.....	17	3	2	8	31	61
Canada.....	—	—	—	2	2	4
Chile.....	10	2	2	7	23	44
Colombia.....	12	—	1	8	25	46
Costa Rica.....	15	—	14	10	11	50
Cuba.....	4	3	—	9	11	27
Dominican Republic.....	6	—	—	15	8	29
Ecuador.....	10	6	5	17	17	55
El Salvador.....	3	2	15	6	7	33
Guatemala.....	4	3	49	5	6	67
Guyana.....	16	—	2	—	3	21
Haiti.....	2	1	1	3	4	11
Honduras.....	5	1	9	12	6	33
Jamaica.....	7	—	—	3	18	28
Mexico.....	14	5	—	3	11	33
Nicaragua.....	7	3	16	5	3	34
Panama.....	8	7	17	4	3	39
Paraguay.....	10	5	—	6	2	23
Peru.....	14	2	1	9	11	37
Trinidad and Tobago.....	16	—	4	5	7	32
United States of America.....	—	—	8	—	24	32
Uruguay.....	14	4	1	4	18	41
Venezuela.....	17	4	—	16	16	53
British Territories <sup>a</sup> .....	40	—	13	7	16	76
French Territories.....	1	—	—	—	5	6
Surinam and the Netherlands Antilles.....	1	—	—	—	7	8
Total.....	309	56	168	189	329	1,051

— None.

<sup>a</sup> Of these, 6 are from British Honduras.

More than half of the 1,051 persons who received fellowships were placed in courses which were either assisted or organized by PAHO/WHO; 18 per cent followed regular academic courses and 31 per cent received travel grants for study or observational visits of short duration (Table 34). A number of these travel grants were given to individuals holding academic and administrative posts in schools of medicine and related sciences. The fellowship program as a whole continued to give support to the strengthening and expansion of teaching institutions. Fourteen per cent of all awards were made to teaching personnel; of the 150 persons who received such awards, 14 were from schools of public health, 102 from schools of medicine, 15 from dental schools, 10 from engineering schools, and 9 from veterinary medical schools (Table 35).

The increasing scope of the Organization's training programs and the Government's interest in this type of activity were reflected in the larger number of fellows who attended PAHO/WHO-sponsored courses: 533 participated in 44 courses, as compared with 462 attending 25 courses in 1968.

The breakdown of the fellowship awards, by profession or occupation of the recipients, is given in Table 36.

The 1,051 awards constituted 5,285 fellowship months. Excluding the 92 INCAP grants and 41 interregionally financed awards, the total cost of the fellowship program for 1969 was \$1,740,730.

*Fellows from other Regions.* Cooperation with other Regional Offices in the placement of their fellows in the Americas was continued. Program arrangements were made for 298 fellows, 59 of whom came from Africa, 62

TABLE 32. FELLOWSHIPS AWARDED IN THE AMERICAS, BY FIELD OF STUDY AND COUNTRY OF ORIGIN, 1959.

Field of study	Country of origin of fellows																					Total										
	Argentina	Barbados	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Guyana	Haiti	Honduras	Jamaica	Mexico	Nicaragua	Panama	Paraguay		Peru	Trinidad and Tobago	United States of America	Uruguay	Venezuela	British Territories*	French Territories	Surinam and the Netherlands Antilles		
Health organization																																
Public health administration.....	3																															
Hospital and medical administration.....	3			1																												
Other.....	2	2	3	6	1	1	4	2	1	1	2	1	3	12		3	5	6		5		3		10	1	6	10					
Environmental sanitation																																
Sanitary inspection.....																																
Sanitary engineering.....	3		3			4	4			4	4	1			2	1		2		1												
Other.....	4		3	2		1	2	2	2	5	4						1	1														
Nursing																																
Nursing education.....	2	4		5	1	2	3	2		5		1	1	2	1		6			1												
Public health nursing.....																																
Nursing services.....	1			3		1	10	1	1	1	1	1		2	1	6			1		1											
Maternal and child health.....	1		1	3		1	1	1	1	1	2	1	1		3				2	9		4										
Other health services.....	1		1			2	2	2	2																							
Mental health.....	1	1				3																										
Health education.....																																
Occupational health.....	1																															
Nutrition.....	1																															
Health statistics.....	1			1		1	2	14	3		3	15	47			9			16	17		1										
Dental care.....	4	1	4	2		1	2	3	4	1		2	1		1				4	3	1	3	1	2		2	2	1				
Rehabilitation.....																																
Control of pharmaceutical preparations.....	1																															
Communicable diseases																																
Malaria.....			1							1	1	3	1			2	2															
Tuberculosis.....	6		5	6		3	5	1	2	3	2	1	1			1			3	3	1	1	3									
Zoonoses.....	7			3		1				1									2													
Foot-and-mouth diseases.....		1	2	2		4	3	1	1	1	3	1	1	2		1			1	1	1	2	1									
Leprosy.....			1								1																					
Other communicable diseases.....	3		1	2					1		6							2	2			1	3									
Laboratory services.....	3	3		1			2											7	1			1	1	2		2						
Veterinary public health.....			2																													
Medical education and related sciences.....	12		10	20	1	11	8	2	4	1	13	1	6		1	1	2	6	2	1		4	9		12	5	18					
Clinical medicine.....				1		1				1	2						1						2									
Total.....	59	30	39	61	4	44	46	50	27	29	55	33	67	21	11	33	23	33	34	39	23	37	32	32	41	53	76	6	8	1,051		

— None.  
\* Of these, 6 are from British Honduras.



TABLE 34. FELLOWSHIPS AWARDED IN THE AMERICAS, BY FIELD OF STUDY, TYPE OF TRAINING, AND COUNTRY OF ORIGIN, 1969.

Field of study and type of training	Country of origin of fellows																					Total												
	Argentina	Barbados	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Guyana	Haiti	Honduras	Jamaica	Mexico	Nicaragua	Panama	Paraguay		Peru	Trinidad and Tobago	United States of America	Uruguay	Venezuela	British Territories <sup>a</sup>	French Territories	Surinam and the Netherlands Antilles				
Public health administration	1	2	3	5	—	2	3	2	1	—	2	1	3	12	—	3	3	7	—	—	5	3	—	8	—	5	6	10	—	—	—	87		
Courses organized or sponsored by PAHO/WHO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Academic courses	3	2	—	—	1	1	3	1	2	10	2	1	1	—	—	6	—	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—		
Travel grants	4	—	—	2	—	6	—	—	3	1	—	—	3	—	—	—	4	—	—	—	—	—	1	3	—	—	—	—	—	—	—	—		
Environmental sanitation	6	18	3	1	—	4	3	2	1	2	6	—	—	—	—	1	—	1	—	—	—	—	3	—	2	3	24	—	—	—	—	84		
Courses organized or sponsored by PAHO/WHO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Academic courses	1	—	—	—	—	1	4	—	4	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	
Travel grants	—	—	—	—	—	1	1	—	1	3	2	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nursing	—	4	—	—	—	—	—	9	—	—	—	—	—	4	—	—	4	—	—	—	—	—	—	7	—	—	—	—	—	—	—	—	39	
Courses organized or sponsored by PAHO/WHO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Academic courses	3	—	—	—	—	2	—	1	7	—	—	2	—	1	—	4	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	35
Travel grants	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Maternal and child health	—	—	—	8	1	2	3	2	1	—	—	—	—	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	46
Courses organized or sponsored by PAHO/WHO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travel grants	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Other health services	—	—	—	3	—	1	2	14	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Courses organized or sponsored by PAHO/WHO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Academic courses	5	—	5	—	—	3	4	2	7	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travel grants	2	2	—	2	—	5	—	3	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Communicable diseases	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Courses organized or sponsored by PAHO/WHO	12	4	6	8	—	6	5	2	3	3	7	2	2	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Academic courses	—	—	1	—	—	4	9	2	2	2	5	3	3	—	2	2	2	9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travel grants	7	—	5	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Medical education and related sciences	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Courses organized or sponsored by PAHO/WHO	2	—	5	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Academic courses	2	—	3	6	1	2	2	—	1	1	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travel grants	8	—	2	12	—	9	6	2	3	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Clinical medicine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Courses organized or sponsored by PAHO/WHO	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Academic courses	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Travel grants	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	59	30	39	61	4	44	40	50	27	29	55	33	67	21	11	33	28	33	34	39	23	37	32	32	41	53	76	6	8	1,061	—	—		

— None.  
<sup>a</sup> Of these, 6 are from British Honduras.

TABLE 35. FELLOWSHIPS AWARDED IN THE AMERICAS TO PROFESSORS OF SCHOOLS OF PUBLIC HEALTH, SCHOOLS OF MEDICINE AND RELATED SCIENCES, BY FIELD OF STUDY AND COUNTRY OF ORIGIN, 1959.

Field of study	Country of origin of fellows																	Total							
	Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Haiti	Honduras	Jamaica	Mexico	Nicaragua		Panama	Paraguay	Peru	United States of America	Uruguay	Venezuela	
Organization of public health teaching	1																								
Public health																									
Medical care administration	1																								
Epidemiology			1																						
Hospital administration			1																						
Nutrition																									
Organization of medical education																									
Physiology			1							1															
Preventive medicine			1																						
Pathology			1		1																				
Nutrition			2																						
Epidemiology				1						1															
Cytology					1																				
Maternal and child health	2	2	1		1						1	1								1	1				
Microbiology	1	1	1		1															2					
Surgery			1		1																				
Biochemistry						1																			
Myology																									
Pharmacology			1							1															
Medical education teaching	5	2	6		6	4		2	1	9						1	1		3		2	1	4	51	
Anatomy	1	1																							
Health education			1																						
Organization of dental education		2	1				1			1						1									
Organization of veterinary medical education		1	1									2											2		
Organization of sanitary engineering education			2													2									
Total	12	10	20	1	11	8	2	4	1	13	1	6	1	1	2	6	2	1	4	9	12	5	18	150	

— None.

III. DEVELOPMENT OF HUMAN RESOURCES

TABLE 36. PROFESSION OR OCCUPATION OF FELLOWS, 1969.

Profession or occupation	Number
Physician.....	333
Dentist.....	22
Engineer.....	87
Veterinarian.....	75
Nurse.....	129
Other professions.....	276
Sanitary inspector.....	70
Other nonprofessional occupations.....	59
<b>Total.....</b>	<b>1,051</b>

from the Eastern Mediterranean, 69 from the European Region, 43 from South-East Asia, and 65 from the Western Pacific (Table 37).

The number of fellows who arrived during the year increased by approximately 15 per cent over 1968. Program arrangements were made for 150 who attended academic institutions, and travel programs were prepared for the remaining 148.

It is of interest to note that the trends in training were similar in other parts of the world. Thus, fellowships in sanitation and "Other Health Services" reflected the same priorities as those observed in the Region of the Americas, as did those in medical education, which constituted 19 per cent of the total awards.

*Total fellowship activity.* Tables 31-36 pertain solely to fellowship awards in the Region funded from 1969 moneys, and Table 37 to the fellows from other Regions. They do not reflect the activity in connection with fellows who began their studies in prior years and remained under the Organization's administrative supervision in 1969. The combined total of all fellows in active study was 1,664.

A total of 495 fellowship requests which were received were carried over into 1970 (231 from the Americas and 264 from other Regions), and 274 were either withdrawn or rejected during the reporting year.

In addition to this activity, advisory and programming services were rendered to the Venezuelan Government's fellowship program, and placement arrangements were provided for PAHO/WHO staff of this and other Regions.

TABLE 37. FELLOWS FROM OTHER REGIONS WHO BEGAN STUDIES IN THE AMERICAS, BY FIELD OF STUDY, TYPE OF TRAINING, AND REGION OF ORIGIN, 1969.

Field of study and type of training	Region of origin					Total
	Africa	Eastern Mediterranean	Europe	South-East Asia	Western Pacific	
Public health administration						
Academic courses.....	9	7	3	5	2	26
Travel grants.....	1	6	3	2	5	17
Sanitation						
Academic courses.....	14	6	2	8	5	35
Travel grants.....	3	2	19	1	5	30
Nursing						
Academic courses.....	7	10	2	6	11	36
Travel grants.....	2	3	2	—	2	9
Maternal and child health						
Academic courses.....	1	—	—	—	—	1
Travel grants.....	—	—	—	—	—	—
Other health services						
Academic courses.....	2	4	1	4	8	19
Travel grants.....	—	4	2	5	16	27
Communicable diseases						
Academic courses.....	—	—	—	1	2	3
Travel grants.....	—	2	—	2	4	8
Medical education and related sciences						
Academic courses.....	4	7	2	5	2	20
Travel grants.....	5	7	24	3	1	40
Clinical medicine						
Academic courses.....	9	—	—	—	1	10
Travel grants.....	2	4	9	1	1	17
<b>Total.....</b>	<b>59</b>	<b>62</b>	<b>69</b>	<b>43</b>	<b>65</b>	<b>298</b>

— None.

## IV. HEALTH PLANNING

A review of the development of the planning process in the countries of the Region during 1969 reveals a trend in several of them to extend the institutional coverage of health plans and improve their coordination with plans for economic and social development. This analysis also reveals the measures taken for the introduction of reforms designed to adapt administrative systems to the needs arising out of these plans; the improvement of information, budgetary, and control systems; and the implementation of infrastructure programs to strengthen or create sectoral resources and improve the allocation and utilization of these resources.

These trends have found concrete expression in the establishment of formal and operational mechanisms for providing closer coordination among institutions within the health sector, the formation of health planning units linked to agencies responsible for development planning, and the strengthening of intersectoral relationships.

A number of investment plans in the health sector were redesigned in line with general public investment programs, and most of the Governments that had health plans drew up programs for appropriate administrative adjustments. Countries that were at the stage of formulating their health plans had included in them measures designed to improve their implementation, on the basis of institutional and financial analyses and studies on the creation, utilization, and productivity of resources, particularly human resources.

Regional efforts in the health planning field can be summed up in the fact that, to the nine countries that already had national health plans, three more were added in 1969, while seven others were in the preliminary stages of the planning process. Nevertheless, only five of the 12 countries with health plans had reached the stage of consolidating the measures for their implementation at the local level. This would indicate the need to continue the efforts aimed at raising the sectoral operating capacities in most of the countries.

Special attention was given to questions concerning the financing of the health sector and the better deployment

of the resources allocated to it, in response to the interest expressed by a number of countries in receiving PAHO/WHO assistance in this field. The various aspects of this problem were analyzed in depth by the representatives of the Governments at the XIX Meeting of the PAHO Directing Council in the course of the Technical Discussions on the topic "Financing of the Health Sector." The growing difficulties in obtaining additional financial resources from sources outside the sector were carefully examined.



Working group at the international course conducted by the Pan American Health Planning Program in Santiago, Chile.



In order to implement the recommendations of the PAHO Directing Council and of the World Health Assembly in regard to long-term planning of PAHO/WHO activities of collaboration with the countries, a draft scheme of joint programming entitled "Quadrennial Projections of PAHO/WHO Collaborative Activities" was prepared. This document seeks to establish a common frame of reference and to identify areas in which the Organization's assistance will be required over a four-year period. In accordance with the decision taken by the Directing Council, this procedure will be applied from 1970 onward, and it is hoped that it will lead to improvements in the planning and evaluation of the Organization's cooperation with countries of the Region.

Further progress was made in applying the methodology of planning to certain areas and, consequently, in determining their importance in the planning process itself. To this end, a Technical Group made up of 12 specialists met in May to examine the components of a food and nutrition policy. The Group's conclusions and recommendations—which appeared in *Scientific Publication PAHO 194*—will serve as a frame of reference for the application of planning methodology to nutrition. Relevant details are given in Chapter II-B of this *Report*.

Among the various activities in this field, special importance is attached to those promoted and carried out by the Pan American Health Planning Program, which has operated in accordance with the goals set for development of human resources, research, and information.

### Training

The training of national personnel in health planning was carried forward during the year. The eighth international course was held in Chile; it was attended by 28 officials from 12 countries of Latin America. Progress was made with studies and administrative arrangements for a similar course for officials from English-speaking countries, which is to be held in Jamaica in 1970 with the collaboration of the University of the West Indies.

Five countries continued to provide systematic training in planning techniques through regular courses given

in schools of public health. As part of the plan for assistance under the Pan American Health Planning Program, a scheme was drawn up for cooperation with national courses which is to come into force in 1970. Health planning continued to form part of the training courses organized by the Latin American Institute for Economic and Social Planning (ILPES).

A seminar, attended by 27 participants from 10 countries, was held in Mexico to study the various aspects of nursing within the general planning process. Another seminar was held in Peru to discuss the health education component in the planning process; it was attended by 38 officials from 19 countries.

Orientation programs for PAHO field personnel, designed to effect improvements in the preparation of projects for technical assistance to countries through the application of health planning procedures, were conducted in three Zones.

### Research

The Organization continued to devote attention to research studies on health planning and on patterns of demand and allocation of funds to the health sector. Three countries carried out systematic programs in this field. Mention should also be made of the research studies carried out in Argentina and Chile on the demand for and use made of health services.

A number of special studies and investigations were carried out through the Pan American Health Planning Program. Among the special studies were those concerning revision of the methodology employed in most of the countries for the formulation of plans, and preparation of a methodological model for systematic analysis of health planning policies; financing of the health sector; analysis and methods of dealing with nutrition problems, and formulation of food policies; inclusion of environmental health and mental health in health plans within the over-all context of economic and social development; and analysis and formulation of investment projects for the health sector.

## V. RESEARCH DEVELOPMENT AND COORDINATION

### ADVISORY COMMITTEE ON MEDICAL RESEARCH

The Eighth Meeting of the PAHO Advisory Committee on Medical Research took place from 9 to 13 June, in Washington, D.C. During the meeting, perinatal factors affecting human development—those that may act during pregnancy, labor, and early life and can interfere with the normal development of the infant—were examined at a special session in which a distinguished panel of 31 scientists participated. In addition, a half-day symposium was devoted to the subject of iron metabolism and anemia, with topics ranging from the basic concepts of the chemistry and biochemistry of iron to the epidemiological and therapeutic aspects of the anemia problem. The proceedings of the special session and of the symposium

were issued later in the year as *Scientific Publications PAHO 185* and *184*, respectively.

Other subjects considered by the Advisory Committee included studies on dental health, the geographic distribution and possible northward movement of Venezuelan encephalitis virus in Central America and Mexico, operations research on health economics and medical care, and the role of molecular biology in health and medicine.

The expanded research program endorsed by the Committee in 1968 calls for the Organization's research activities to be carried out through the following means: implementation of research and research training projects in fields that are directly relevant to health problems in the Region; promotion of multinational cooperative efforts among biomedical scientists so as to make the best possible use of existing resources for research and research



Special session of the PAHO Advisory Committee on Medical Research (9-13 June 1969) which examined perinatal factors affecting human development.

training; strengthening of communication among biomedical scientists in the Hemisphere; and improvement of the effectiveness of health expenditures through the application of operations research methodologies to the planning and administration of public health programs. These phases of activity, taken together, form the framework of the current PAHO research program. Under each of them, specific projects were carried out during 1969.

## FIELDS OF RESEARCH

### Arthropod-Borne Viruses

The Research and Training Program in Virology offers an example of results achieved from a PAHO-coordinated research activity. Field work under this program, which is carried out through the Department of Microbiology of Cornell University Medical College, focused during 1969 on the study of encephalitis viruses transmitted by arthropods in Mexico and Central America.

In April plans were formulated with the National Institute of Virology in Mexico to trace the northern extent of Venezuelan encephalitis virus activity along the lowlands of the Gulf of Mexico in the northeastern part of the country. During July and August sentinel hamsters were exposed at 11 sites extending from the known endemic region of southern Mexico to the U.S.-Mexico border. VE virus and other related agents as well were isolated from five sites extending from Minatitlán to north of Veracruz City.

In May a horse epizootic-human epidemic of VE was encountered in Guatemala by personnel from Cornell University Medical College working in cooperation with physicians from the University of San Carlos Medical School. It spread through much of the eastern part of the country and through El Salvador, southern Honduras, and a part of Nicaragua. The Cornell-San Carlos team undertook intensive studies at two population centers in the northern and southern extremes of the epidemic area in Guatemala.

The program also continued its studies on the role of migratory birds in the spread of arboviruses in these geographic areas. The investigations were expanded during the year to include domestic chickens and additional heron species and other birds in Guatemala. Particular emphasis is now being placed on studies of avian globulins and antibody longevity following arbovirus infection.

One trainee received the Ph.D. degree, having pre-

pared a thesis on "Studies of Selected Biological Properties of Arthropod-Borne and Other Animal Viruses in Mosquitoes," and several postdoctoral fellows also participated in the program.

### Malaria

Research in malaria eradication, which continued to be oriented toward the solution of problems encountered by the programs, included both research carried out by program personnel and the planning and implementation of special projects supported by the Organization as an independent activity.

#### *Evaluation of Insecticides*

The large-scale field trial of the insecticide OMS-33 was completed in El Salvador in April (project AMRO-0216). The results indicated that transmission could have been completely interrupted in the whole area if no influence from the surroundings had occurred. The occasional transmission which took place in some localities was attributed to the high rate of renovation of walls and roofs, the considerable movement of population, and the shorter duration of the insecticidal effect during the dry season.

OMS-33 has a considerable air-borne insecticidal effect which can be detected even outside sprayed houses. This effect will not only be very useful in areas or during seasons in which some houses have no walls or only very rudimentary walls, but may lead to economies by making possible only partial spraying of even complete houses.

In El Jocotal (Department of San Miguel), where anopheline densities were high, some houses were sprayed partially with OMS-33 in the period March-June. Three different dosages were studied, representing a total average deposit per house of 16, 59, and 92 grams. The results were compared with unsprayed houses and houses totally sprayed with DDT and with OMS-33 at 2 g/m<sup>2</sup>. This study led to the recommendation that a large-scale field trial of partial spraying of 60 g active substance per house every 35 days be undertaken early in 1970.

As a research activity arising from the routine malaria eradication operations, Colombia initiated in July a comparative study of the effects of four spraying schemes: (a) semestral cycle of DDT at 2 g/m<sup>2</sup>; (b) semestral cycle of DDT 2 g/m<sup>2</sup> plus BHC 0.1 g/m<sup>2</sup>; (c) trimestral cycle of DDT 1 g/m<sup>2</sup> plus BHC 0.1 g/m<sup>2</sup>. This study was based on entomological observations indicating that the addition of small quantities of BHC in-



Malaria research: Entomologists examine test boxes to study the effects of insecticides.

creased considerably the killing effect of DDT on *Anopheles darlingi*.

#### *Investigations in Chemotherapy*

*Evaluation of cycloguanil pamoate.* The field trial in Guatemala of this long-acting injectable drug was completed in mid-1969 with the evaluation of the last round of injections. During the trial period the population received a total of four treatments at six-month intervals, the last being completed in February 1969. The appearance of positive cases less than four months after inoculations suggested the possibility of decreased susceptibility of the parasite to the drug.

Although coverage in each treatment round was of the order of 74-81 per cent, a sample study revealed a high rate of avoidance of treatments by some groups, especially adult males. This was due, in part, to the large movement of population in and out of the area, and to the relatively high rate of local reactions to the injection and its psychological effects. The intensive efforts made to raise the coverage did not produce significant improvements.

There was no evidence of generalized sensitivity; nevertheless, more than half the subjects had some local feeling of pain on walking or tenderness to pressure.

Epidemiological observations showed that the results obtained in the trial area were similar to those observed in the surrounding areas under mass treatment with chloroquine: decrease in parasite incidence after the first treatment, followed by stabilization thereafter.

*Response of P. falciparum to chloroquine.* Between March and May, a field study (project AMRO-0200) was conducted in Brazil (in Cuiaba, Mato Grosso) to determine whether this response could be assessed by a simple *in vitro* method under field conditions. Following the performance of this test, a total of 30 cases completed the standard WHO *in vivo* test of susceptibility to chloroquine.

The *in vitro* findings suggested that all cases were infected with chloroquine-resistant strains of *P. falciparum*; this was confirmed by the *in vivo* test except in two cases that showed susceptible response, but both of these had a history of recent repeated episodes of fever.

It was concluded that the new *in vitro* test is a practical

method for determining the presence or prevalence of chloroquine-resistant parasites.

*Response of P. vivax to single-dose treatments.* Under project AMRO-0200 in Brazil (Camburiú, Santa Catarina) the following drugs were studied in relation to the immediate response of *P. vivax* to a single-dose treatment, the relapse rate, and the latent period: (a) chloroquine at a dose (base) of 10 mg/kg; (b) association of pyrimethamine 0.85 mg/kg and sulfadoxine 24 mg/kg; and (c) association of chloroquine (base) 5 mg/kg, pyrimethamine 0.85 mg/kg, primaquine 0.50 mg/kg, and sulfadoxine 10 mg/kg. Scheme (b) produced a very slow immediate response and therefore was considered inadequate; schemes (a) and (c) gave a similar immediate response, clearance of  $\frac{2}{3}$  to  $\frac{3}{4}$  of parasitemias in 48 hours, and a similar relapse rate, but the latent period was significantly longer with scheme (c) than with (a).

*Radical cure treatment for P. vivax infections.* A trial of a three-day administration of chloroquine, primaquine, and pyrimethamine as a possible radical cure of *P. vivax* was completed in 1968; the computer analysis of the results was under way.

*Mass radical treatment for the elimination of residual foci of malaria.* This project, to be carried out by the malaria eradication program of Bolivia, will study the possibility of using a combination of chloroquine-primaquine-pyrimethamine as a three-day treatment to eliminate residual foci in the southern Andean valleys. The plan of operations was prepared and signed and the work will commence in 1970.

#### *Investigation of the Economic Effects of Malaria*

This project, begun in 1968, is designed to measure the economic impact of malaria on selected agricultural families and small rural industries by comparing the economic activities of the groups affected by malaria with those of groups suffering little or not at all from the disease. The study areas lie in eastern Paraguay, in a region in the early stages of agricultural development.

During 1969 the major activity was the collection of data in the field. From January through October, 6,270 visits were made to farm families (90 per cent of those planned). The field data, on whose quality the entire project depends, were good.

#### *Field Study of Diagnostic Methods*

A study to compare the relative diagnostic values of microscopic examination of thick blood films and fluorescent antibody techniques was begun by the malaria eradication program of the State of São Paulo, Brazil, in cooperation with the Institute of Tropical Diseases and the

Organization. The necessary equipment was provided by PAHO, the Institute began to produce malaria antigens, and the field activities were being started.

Project AMRO-0200 continued the comparative studies on the persistent effect of Romanovski stains in aqueous and methanolic solutions.

## Tuberculosis

The Organization continued to cooperate in the studies on the prevalence of atypical mycobacteria which were being conducted in the Central Tuberculosis Laboratory in Rio de Janeiro, Brazil, with the assistance of the Regional Reference Center for Tuberculosis Bacteriology in Venezuela.

In Brazil and Chile several international collaborative research studies on tubercular infection were carried out.

In Venezuela technical advisory services were provided for an epidemiological investigation into infection by atypical mycobacteria, undertaken under the Government's auspices.

## Plague

Continuing assistance was given to the Government of Brazil in the research on the epidemiology of plague which was in progress in the Exu-Bodocó area. It was determined that there were no *Rattus rattus rattus* in houses in that area; conversely, *R.r. alexandrinus* and *R.r. frugivorus* were found to exist in both houses and in the field. The fleas most frequently found in these rats were of the species *Xenopsylla cheopis*; occasionally they were infested with *Polygenis*, particularly those captured outside the houses.

*Zygodontomys pixuna* was the most numerous among the rodents captured, and cultivated farmland was its preferred habitat. Unlike the species of rats mentioned above, the *Z. pixuna* is infested principally by *Polygenis*, and only rarely by *X. cheopis*. It reproduces in the months of June, July, and August.

Recent studies confirmed that *Z. pixuna* is responsible for the epizootization of the disease. It was also determined that the disease has two "peaks": a short one in January and February and a long one in June through September. The infection in the rats (*R.r. alexandrinus* or *R.r. frugivorus*) is generally secondary to infection in *Zygodontomys*; the latter succumb readily to the disease, while the rats survive to the extent of at least 30 per cent.

By August 1969, 314 strains of *Pasteurella pestis* had been isolated and studied; these strains are lethal to white laboratory mice but not to guinea pigs, which show only a slight local reaction at the site of inoculation.

The fleas taken from rats captured within the houses at Exu showed a high degree of resistance to DDT in concentrations of up to 4 per cent, whereas the fleas gathered in Quixaba were sensitive to a 2 per cent concentration of DDT. This insecticide has been in use in Exu since 1947 but has never been used in Quixaba, which is situated 80 km from Exu. The Exu fleas are also resistant to dieldrin.

The above studies indicate the relative epidemiological importance of *Z. pixuna* and its flea, *Polygenis*, and of *R.r. alexandrinus*, *R.r. frugivorus* and their flea, *X. cheopis*. The first two are responsible for the epizootization of the disease, while the latter are secondarily infected and may facilitate the transmission of the epizootic to man. It is also accepted that *Pulex irritans*, the flea that acts as a parasite in man, may play an important role in epidemics. Although there is no conclusive proof of this, available evidence indicates that this flea becomes infected only by biting persons infected with the disease in septicemic and generally fatal forms.

## Nutrition

The major objectives of the Organization's nutrition research program are the identification and evaluation of the problems in this field in the Region; coordination of collaborative projects through joint meetings; con-

duct of technical conferences for reviewing and updating guidelines for preventive programs; and identification of gaps in knowledge in order to give orientation for future research projects and the training of investigators.

During 1969 visits were made to countries in the Hemisphere to obtain detailed information on the number of investigators currently at work, the types of research being undertaken, and the plans for future activities. Since relatively little information is available to health services on the subject of maternal nutrition and its relationship to family planning, a technical group was convened to consider the different aspects of this problem, taking into account biological, socioeconomic, and cultural factors. The report of the group contained recommendations that will help to orient future investigations in this field.

The reports of technical group meetings on the following subjects were prepared and published: nutritional anemias; hypovitaminosis A (in press); and endemic goiter. The follow-up of some of the research recommendations of these technical groups was continued during the year.

The reference centers for iodine determination in Santiago, Chile, and for nutritional anemias in Caracas, Venezuela, continued to provide training to collaborating investigators.

A broad program of research in nutrition was carried on by PAHO through the Institute of Nutrition of Central America and Panama and the Caribbean Food and Nutrition Institute. These activities are reported in Chapter II-B.



Research is an important aspect of the nutrition program. Here chemical analyses of foodstuffs are conducted in a laboratory.

## Health and Population Dynamics

A longitudinal study of human reproduction in two small contrasting Peruvian communities—Lurín and Masma—was begun in late 1966. Up to May 1969 it was supported by a WHO research grant, and for the remainder of 1969 by the Center for Population and Development Studies in Peru. One of the communities (Lurín), with a population of about 3,000, lies in the coastal region, and the other (Masma), with approximately 2,500 inhabitants, is in the highlands. Monthly visits were being made to all households where there are women aged 15 to 49 years, and at three-month intervals to all other households. Information was being obtained on births, deaths, migration, pregnancy, fetal deaths, breast feeding, and condition of live-born children. Questions on income, nutrition, and contraceptive practices are to be included in future interviews. Provisional tabulations revealed differences between the two communities in regard to onset of menarche, length of intervals between births, duration of lactation, and birth rates. Birth weights appeared to differ widely. Three years of prospective observation will have been completed in Lurín by June 1970 and in Masma by January 1971. Censuses were repeated in both communities in December 1969.

In addition to the above-mentioned research activities, studies on the effects of lactation on the regulation of fertility were in their final phases.

The Organization provided financial assistance to the Department of Preventive and Social Medicine of the University of Chile for studies on the attitudes of men toward family planning, and on family planning practices in a Santiago shantytown.

## Maternal and Child Health

The research on physiopathological factors which may lead to fetal injuries during gestation and, principally, during parturition, was continued at the Obstetrical Physiology Service and the Obstetrical Clinic of the University of Uruguay School of Medicine in Montevideo. The findings, which were reported at the Eighth Meeting of the PAHO Advisory Committee on Medical Research, made it possible to identify factors constituting a high risk to the mother, among them hypertension, toxemia during pregnancy, and placental pathology. It was also possible to define more precisely the mechanism which initiates the ill-effects on the fetus and the subsequent disturbances in the latter's nervous and cardiovascular systems and which are shown by homeo-

static disturbances—hypoxia, metabolic acidosis, hypercapnia—and alterations in encephalograms and in the fetal cardiac functioning.

These results have facilitated progress in the planning of a therapeutic scheme for application in cases such as those referred to, designed primarily to inhibit uterine contractions by administering to the mother drugs that stimulate Beta adrenergic receptors.

These studies are being continued and will be properly coordinated with the advisory work which will be carried out in the countries by the Latin American Center for Perinatology and Human Development, established as a cooperative project of the Government, the University of Uruguay, and the Organization.

## Dentistry

In Brazil the third phase of the four-year research project (August 1967-August 1970) on the prevention of dental caries by the self-application of stannous fluoride was under way. This is a joint project of the University of São Paulo, the Dental Health Center of the U.S. Public Health Service, and the Organization. It involves 1,279 children from eight São Paulo schools, divided into four study groups plus one control group. A clinical evaluation is made each year to determine the reduction in dental caries. In 1969 the evaluation of 896 pupils made by two PAHO consultants and two São Paulo University examiners showed that a reduction in incidence had occurred.

In Colombia the study on the fluoridation of table salt in four communities in Antioquia Department was continued. The distribution of the fluoridated salt was continued regularly, indicating the acceptance of this new vehicle for fluoride in prevention programs. Adjustments were made in order to determine the optimum dose, one of the objectives of these trials. Assistance was given in transferring the epidemiological data onto IBM tapes for computer analysis.

In Colombia and Venezuela the Organization continued to provide technical assistance in the studies on dental manpower and on the distribution of oral diseases. An 80 per cent response was obtained in Colombia to the questionnaires sent out to all dentists; forms were designed for a study on the teaching of dentistry and the surveys were begun at two of the country's four dental schools. In Venezuela instruction manuals were prepared and the study of teaching resources at the three dental schools was started. The collection of data on dental morbidity was completed in the population group

remaining to be surveyed in Táchira State. All questionnaires completed during the dental health surveys and household interviews were reviewed and coded, and programming and data tabulation for the national morbidity survey was under way (20 per cent completed).

## Mental Health

Research into patterns of communication in the families of schizophrenic patients was continued in Argentina. An analysis was made of the father/mother/schizophrenic child triangle and the findings were compared with those in a control group.

Studies on the epidemiology of alcoholism were carried forward in Chile. Two comparative studies on the treatment of alcoholism in women and in men were completed, and a medical-anthropological investigation of alcoholic behavior was conducted. The general survey of the prevalence of mental disorders in Chile was continued and the data compiled during the year were coded.

The Fifth WHO Seminar on Psychiatric Diagnosis, Classification, and Statistics, held in Washington, D.C. (29 October-4 November), was attended by 13 scientists from the Region. Its main theme was mental retardation. Recommendations were drawn up for a classification based on degree of retardation, etiological factors, psychiatric disturbances, and psychosocial factors present.

## Occupational Health

Research into basic metabolic disorders induced by manganese poisoning resulting from occupational exposure was continued at the School of Medicine of the Catholic University in Chile, with the cooperation of the Brookhaven National Laboratories of Long Island, New York, and the Organization. The results so far achieved have made an important contribution to the understanding of the metabolic manifestations of several neurological disorders and their therapeutic implications.

## Sanitary Engineering

In accordance with the guiding principles adopted by the Organization on the basis of recommendations of its advisory bodies, research programs in sanitary engineering are being carried out in close cooperation with the universities of the countries of the Region. The research is concerned with study and analysis of technical condi-

tions or processes which, in keeping with prevailing conditions in the various countries, help to determine and improve the control measures and instruments and methods of operation best suited to the development of national plans.

Within this framework, the Organization continued and increased its support in the course of 1969. There were 20 projects in progress in six countries, as follows:

### ARGENTINA (University of Buenos Aires)

#### 1. Household garbage incinerators

Status: Completed.

Results: It was demonstrated that fumes from household garbage incinerators are partly responsible for air pollution in the city of Buenos Aires.

Objective: To provide a basis for later studies and for the introduction of stricter regulations than those at present in force.

#### 2. Stabilization ponds

Status: The second stage was in progress, the first having been completed in November.

Results: Two ponds were constructed, one aerobic and the other anaerobic. A partial report was prepared on preliminary work on oxidation ponds. The definitive findings will be known when the second stage is completed.

Objective: To obtain more precise information on the effectiveness of this type of treatment in Buenos Aires Province.

#### 3. Treatment of drinking water containing arsenic, vanadium, or fluorides

Status: In progress.

Results: No significant results are available as yet.

Objective: To improve treatment processes with a view to eliminating these noxious substances more easily and economically.

### BRAZIL (University of São Paulo)

#### 1. Biological treatment of toxic wastes from manioc flour mills

Status: In progress.

Results: No significant results are available as yet.

Objective: More information on the possible effect of toxic substances in the wastes from manioc flour mills in the processes of waste water treatment.

#### 2. Efficiency and uses of slow filters

Status: Completed.

Results: Most of the slow filters used in Brazil are not of the best design. Nevertheless, it was felt that from the biological point of view the filtering process using slow filters was adequate to meet the demand for good-quality water in small communities.

Objective: To obtain information on the operation and functioning of slow sand filters in Brazil with a view to improved design, construction, and operation.

#### 3. Sanitary and economic aspects of refuse disposal processes

Status: In progress.

Results: A survey was being carried out with a view to compiling information and classifying it under four groups of cities comprising 19 cities in all.

Objective: To provide official and private agencies and teaching institutions with properly organized data on methods of solid waste disposal in a series of cities in Brazil.

#### 4. Use and efficiency of household water meters (PAHO/IDB)

Status: In progress.

Results: No significant results are available as yet.



## V. RESEARCH DEVELOPMENT AND COORDINATION

**Objective:** The purpose of this survey, like that of similar projects in Colombia and Guatemala, is to find out more about the efficiency of meters in various types of dwellings, with a view to working out improved methods of selection, installation, operation, and maintenance of meters.

### CHILE (University of Chile)

#### 1. *Basic data on the design of water supply and sewerage systems*

**Status:** In progress.

**Results:** The first stage, which included the study of population increases, was completed.

**Objective:** To assist in establishing design specifications in keeping with conditions and experience in Chile.

#### 2. *Evaluation of the influence of filtration rate on water quality at the Santiago treatment plant*

**Status:** In progress.

**Results:** No significant results are available as yet.

**Objective:** It is hoped to enlarge the capacity of plants considerably if the investigation shows that the load can be increased without appreciably affecting the quality of the water.

#### 3. *Stabilization ponds*

**Status:** In progress.

**Results:** The excavation of three ponds in the city of Melipilla by the Department of Sanitary Works of the Ministry of Public Works was completed. The process of filling the ponds with wastes from the city and the natural settling of the ponds means that it will be some time before the laboratory tests are carried out.

**Objective:** The efficiency of the ponds will be compared with that of a conventional plant treating the same waste with a view to determining realistic patterns of load absorption.

#### 4. *Sedimentation tanks*

**Status:** In progress (project was approved in December).



A pilot plant for research on filtering material for water treatment. The model, made of plastics, facilitates observation of the filtering process.

**Results:** No significant results are available as yet.

**Objective:** To clear up problems of circular sedimentation tank design.

#### 5. *Increase in filtration rates at the Lo Castillo plant, its influence on water quality, and the possibility of extending the rate increase to conventional plants*

**Status:** In progress.

**Results:** The preliminary findings include the following: average residual turbidity shows no significant change; the effective removal of bacteria would appear to be less when the filtration rate increases, and there is a definite drop in efficiency when a coarser type of sand is used. The lifetime of the filter is longer for a given filtration rate when a more coarse-grained sand is used. These findings indicate that the most important parameter in selecting the type of sand is its efficiency in removing bacteria. The recommended effective grain size at this stage of the investigation would appear to be 0.65 mm.

**Objective:** It is hoped that higher filtration rates will bring about an increase in the capacity of water treatment plants.

#### 6. *Economic aspects of municipal processing of composts, including design and financing of plants*

**Status:** In progress.

**Results:** No significant results are available as yet.

**Objective:** It is hoped that if the survey establishes the feasibility of the process, the Municipality of Santiago might consider constructing a composting plant.

### COLOMBIA (National University of Colombia)

#### 1. *Use and efficiency of household water meters (PAHO/IDB)*

**Status:** In progress.

**Results:** No significant results are available as yet.

**Objective:** The purpose of this survey, like that of similar projects in Brazil and Guatemala, is to find out more about the efficiency of meters in various types of dwellings, with a view to working out improved methods of selection, installation, operation, and maintenance of meters.

#### 2. *Filtering qualities of natural sand*

**Status:** In progress.

**Results:** The specially-constructed pilot plant was completed. Studies were made of sand taken from seven different sites, three of which were selected as sources for obtaining sand.

**Objective:** To discover less expensive methods of selecting and grading sand and to economize on the cost of importing filtration materials for water treatment.

### GUATEMALA (University of San Carlos)

#### 1. *Use and efficiency of household water meters (PAHO/IDB)*

**Status:** In progress.

**Results:** No significant results are available as yet.

**Objective:** The purpose of this survey, like that of similar projects in Brazil and Colombia, is to find out more about the efficiency of meters in various types of dwellings, with a view to working out improved methods of selection, installation, operation, and maintenance of meters.

### MEXICO

#### 1. *Stabilization ponds (University of Mexico—UNAM)*

**Status:** Completed.

**Results:** The inflow was greater than expected, and this had an effect on the retention period; thermal stratification was observed; evaporation was greater than precipitation; it was found that the solar radiation level adopted—0.6/cal/cm<sup>2</sup>/day per kg of BOD/Ha./day—was unduly conservative, and the conclusion was drawn

that BOD was not the only parameter for measuring output and that the accumulation of sludge at the bottom of the pond was not appreciable.

Objective: It is hoped that the findings of this project will encourage the efforts to acquire more knowledge of this subject and lead to a more extended use in Mexico of oxidation ponds.

### 2. *Use of plastic materials in drinking water systems (UNAM)*

Status: Completed.

Results: An Advisory Committee on Standards for Plastic Pipes, officially recognized by the Ministry of Industry and Commerce, was set up, and two standards were prepared: "quality standards for polyvinyl chloride pipes for the conduction of fluids under pressure," and "standards for testing methods."

Objective: These standards should make for better control of the production and use of polyvinyl pipes.

### 3. *Helicoidal flow hydraulic flocculators (UNAM)*

Status: Completed.

Results: The hydraulic functioning of the model constructed was satisfactory; turbulence in the flocculator cells can be controlled; there is a retention period that is more efficient for each cell; and the average value is 210 seconds.

Objective: The use of hydraulic flocculators simple in construction and operation which would be less costly than mechanical flocculators of similar efficiency.

### 4. *Water distribution (University of Chihuahua)*

Status: In progress.

Results: No significant results are available as yet.

Objective: To determine per-capita water consumption rates on the basis of actual observations and records, with a view to reducing the construction costs of waterworks.

The Sanitary Engineering Center of the University of Mexico and the Sanitary Engineering Institute of the National University of Buenos Aires, Argentina, signed contracts with *Petróleos Mexicanos* and *Yacimientos Petrolíferos Fiscales*, respectively, to conduct research on the pollution produced by the discharge of wastes from the petroleum industry in specific localities in the two countries.

## Health Planning

Research studies in this field were continued through the Pan American Health Planning Program. These activities are described in Chapter IV.

## Health Statistics

Research in the field of health statistics has centered around studies of mortality and studies of human reproduction.

### *Inter-American Investigation of Mortality in Childhood*

Research workers in 15 areas were participating in this continental collaborative study. To achieve the goal

established in the Charter of Punta del Este of reducing "the present mortality rate in children under 5 years of age by one half," persons responsible for planning and carrying out health programs must have qualitative and quantitative data on causes of death in this age group. The Investigation is designed to develop accurate and comparable statistics on child mortality and to study the interrelationships with socioeconomic and ecological factors.

The study was initiated in 13 areas in eight Latin American countries in mid-1968 and in one in California, U.S.A., in 1969; an area in the Province of Quebec, Canada, was included in 1969 and research will begin there in 1970. In the Latin American areas the Investigation is supported by funds from the U.S. Agency for International Development; the U.S. Children's Bureau provides financing for the California study, and the National Health Service of Canada for that in Quebec.

In each study area information is collected on deaths of children under 5 years through interviews with families and physicians, and use is made of hospital and clinical records, autopsy reports, and death certificates as basic sources. Over a two-year period, 35,000 deaths will be studied in the 15 areas. A probability sample of households for each community over that period will yield data for 20,000 living children. In each project local staff of the Investigation—consisting of physicians, nurses, social workers, and secretaries—are under the direction of a principal collaborator, who usually is from the faculty of a medical or public health school.

Completed questionnaires are transmitted monthly to PAHO Headquarters, where they are reviewed and the information is coded for processing by computer. The assignment of underlying and associated causes of death is done in accordance with procedures developed with the assistance of a medical referee.

A most important preliminary finding of these studies was the high proportion of deaths in childhood in which nutritional deficiency is one of the contributing causes. In the past, official mortality statistics have not revealed the magnitude of the problem of malnutrition as a pre-existing condition contributing to death, and this factor has been ignored when acute infectious diseases have been involved as a cause of death.

Provisional data from four of the projects showed nutritional deficiency to be the underlying cause in 10 per cent of deaths, a contributory cause in 31 per cent, and a consequence of the underlying cause in 15 per cent. Thus severe deficiency existed in 56 per cent. The frequency of malnutrition associated with deaths from infectious diseases and other causes in the age group

V. RESEARCH DEVELOPMENT AND COORDINATION

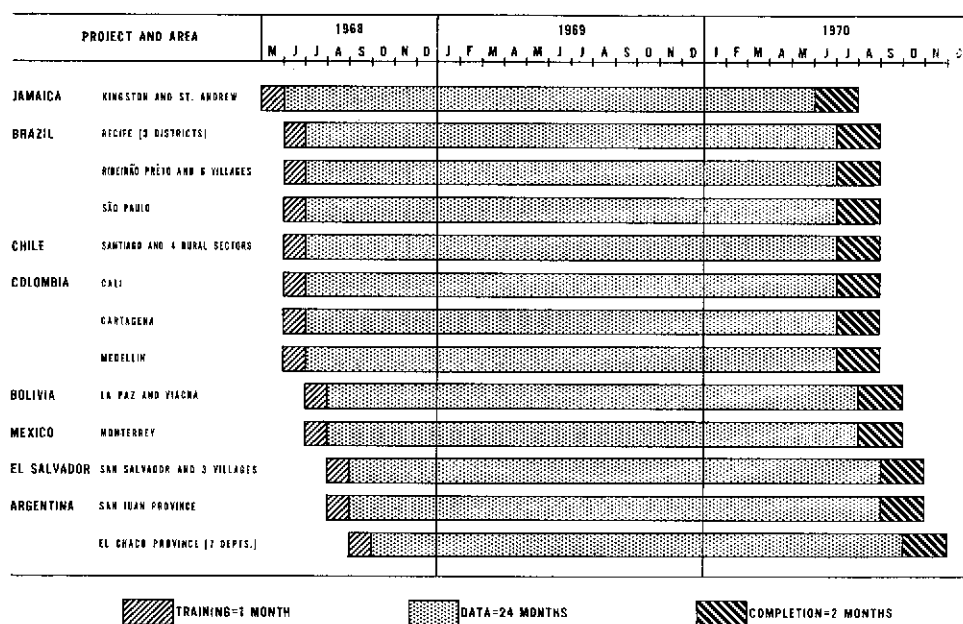


FIG. 13. INTER-AMERICAN INVESTIGATION OF MORTALITY IN CHILDHOOD—MONTHS OF INITIATION AND OF OPERATION OF THIRTEEN PROJECTS, MAY 1968-NOVEMBER 1970.

6 months-4 years is shown in Table 38 for two areas, in Brazil and Chile.

Another early finding was the large number of deaths due to measles in Recife, Brazil, and La Paz, Bolivia. In the early months of the Recife study, 49 per cent of deaths of children aged 6 months-4 years were found to be due to measles. Two-thirds of these had a pre-existing nutritional deficiency. In La Paz, 39 per cent of deaths in the same age group were due to measles and nutritional deficiency was present in 67 per cent. The Organization and the Pan American Development Foundation gave assistance in obtaining measles vaccine with which children in Recife were immunized, and the Brother's Brothers Foundation donated vaccine for immunizations in La Paz.

The Investigation has spurred the efforts to obtain

complete and accurate data by establishing complete files of births, deaths, and fetal deaths, using all possible sources of information in addition to civil registration. The potential effect in improving civil registration is great. Support has also been given to the strengthening of autopsy services in hospitals, and in particular to training in pediatric pathology. Improvement in medical records in clinics and hospitals was also being achieved in the study areas.

The early findings on multiple causes of death were presented to a Working Group on Coding of Multiple Causes which was held at WHO Headquarters, and were also being used in preparing recommendations for the Ninth Revision (1975) of the *International Classification of Diseases*. In three countries where the studies were under way in several areas, coordination meetings were

TABLE 38. FREQUENCY OF MALNUTRITION ASSOCIATED WITH DEATHS OF CHILDREN 6 MONTHS-4 YEARS OF AGE BY UNDERLYING CAUSE OF DEATH. (PROVISIONAL DATA FROM THE INTER-AMERICAN INVESTIGATION OF MORTALITY IN CHILDHOOD FROM RECIFE AND SANTIAGO, APRIL 1969)

Underlying cause	Recife, Brazil			Santiago, Chile		
	Total deaths	With malnutrition		Total deaths	With malnutrition	
		Number	Per cent		Number	Per cent
All causes . . . . .	158	114	72	116	49	42
Nutritional deficiency . . . . .	18	18	100	8	8	100
Infectious diseases . . . . .	109	78	72	27	15	56
Other causes . . . . .	31	18	58	81	26	32



This little girl is being vaccinated against measles in a program in Recife, Brazil, initiated as a result of the preliminary findings of the Inter-American Investigation of Mortality in Childhood.

attended by the principal collaborators, the principal investigators from PAHO, and representatives of the associations of medical schools and of the ministries of health. Through such groups, attention was being focused on the importance of using the results of the Investigation in local and national health planning and in medical education.

#### *Multiple Causes of Death*

An analysis was made of data available from the Inter-American Investigation of Mortality carried out in the period 1962-1966. The data were taken from questionnaires from two cities covering 3,506 persons aged 35-74 years who died of natural causes and for whom autopsy and clinical records were available.

The analysis indicated that the autopsy and clinical records provided additional information essential for the correct classification of the underlying causes of death. An average of two causes were given on each death certificate in the two cities. More than 80 per cent of these causes also appeared on the clinical or autopsy records, but the number of causes on these records was more than twice as high as those on the death certificates. The increase in the number on autopsy and clinical records varied with the cause; for a few, such as tuberculosis of

the respiratory system, alcoholism, and alcoholic psychosis, the increases were large. In more than half the deaths in both cities, arteriosclerotic or degenerative heart disease was found to be a cause.

Methods of combining data from certificates and from autopsy and clinical records in order to determine the underlying and associated causes need to be developed, along with international standards for making comparable tabulations and analyses.

A report on the findings was prepared for the National Center for Health Statistics of the U.S. Public Health Service, which provided contract funds for this research. The same report served as a reference document for the WHO Working Group on Coding of Multiple Causes and the WHO Study Group on the Classification of Diseases.

## OPERATIONS RESEARCH

Pursuant to recommendations by the Advisory Committee on Medical Research, a unit on operations research was established at Headquarters in November 1968 and staffed with an operations research analyst.

It is considered that operations research supplies the scientific methodologies so that health administrators in Latin America will be able to establish orders of priorities, determine the bases upon which choices can be made within the resources available to them, and develop objective means for deciding on the relative effectiveness of different programs.

These methodologies are currently being applied to health planning, blood bank operations, manpower studies, and the determination of a typology for the countries of the Americas based on mortality structures.

## MULTINATIONAL PROGRAMS

Biomedical research in Latin America is characterized by strong points in practically every discipline related to health and medicine, but these points tend to be specialized and isolated. Resources are so scarce that every effort must be made to combine forces and overcome the handicaps inherent in separate, specialized, and relatively limited research activities. The Organization looks upon the development of multinational programs for research and research training as an important step toward the solution of these problems.

One field to which the multinational approach has been applied is immunology. This discipline has received special attention because of the prospects it offers for early diagnosis and for the development of better vaccines against the diseases of public health importance in the Region. In particular, it is hoped that research in this field will lead to ways of immunizing against parasitic diseases such as malaria and that it will provide insights into the problems of autoimmune and other immunopathological disorders and cancer.

The Organization has established two Immunology Research and Training Centers, one in São Paulo, Brazil, and the other in Mexico City, which operate in coordination with three other WHO centers outside the Region. The students come from all parts of Latin America.

The program in São Paulo, established in 1966 at the Paulista School of Medicine, was identified as a center in January 1969 and transferred to the Butantan Institute. To date, four annual eight-month courses have been given at the postgraduate level, and plans were made to offer in 1970 a program of four months' duration which will receive students from Brazil and other countries as well. Its research activity has included work on the responses of patients with Brazilian pemphigus foliaceus to treatment with immunosuppressive drugs; on the biological significance of the heterogeneity of immunoglobulins for the purpose of determining which ones afford protection against infectious agents and which ones contribute to tissue damage by hypersensitivity reactions (allergy and immunopathology); and on the mechanism of the hemorrhagic reaction produced in the skin of normal laboratory animals by the sera of Brazilian pemphigus foliaceus patients. Future research will concentrate on the immunochemistry of venoms and antivenoms of the two major groups of snakes in Brazil: *Crotalus* and *Bothrops*.

The center in Mexico City began combined operations during 1969 using the laboratory facilities and permanent staff of seven cooperating institutions. It offers a unique three-year training program leading to the Master's or Ph.D. degree, and it also gives shorter courses and seminars at the postgraduate level. Research was being carried out on immunochemical analysis of carbohydrate antigens in mycobacteria, immunoglobulin levels in malnutrition, the role of the common antigen (Kunin) of *E. coli* in infant diarrheas, and other subjects.

Another multinational activity is the Grants Program for Research Training in Clinical Medicine, which offers support to individual workers in the Caribbean area, Middle America, and South America who are already engaged in biomedical research, so that they may increase their capability and output through the opportunity of

working at institutions in other countries within this region. The program has been launched on a limited scale for a three-year experimental period. A panel has been constituted, to serve on a rotating basis, for the appraisal and evaluation of the applications received, and knowledge of the program has been increasing rapidly since the initial announcement in May 1969.

Research and research training activities are also carried out on a multinational basis through the Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center, as well as through the Institute of Nutrition of Central America and Panama and the Caribbean Food and Nutrition Institute. These activities are described in Chapters I-A and II-B, respectively.

## COMMUNICATIONS IN THE BIOMEDICAL SCIENCES

### Regional Library of Medicine

Communication among biomedical scientists in the Hemisphere has been enhanced greatly by the activities of the Regional Library of Medicine in São Paulo, Brazil. This institution, whose purpose is to provide library support for biomedical education, research, and practice in Latin America using modern communications technology, initiated interlibrary loan services to all parts of Brazil in January 1969, and from its operations at this level it expects to acquire the experience necessary to extend services to other South American countries in 1970.

During the year, a total of 12,085 interlibrary loan requests from 90 libraries at medical schools, hospitals, and laboratories in Brazil were processed. The Regional Library was able to satisfy 51 per cent of the requests from its own resources. An additional 14 per cent were answered through other libraries in São Paulo, and the remaining 35 per cent were forwarded to the U.S. National Library of Medicine in Bethesda, Maryland, for fulfillment. Some 66 reference requests for special bibliographies were also received: 41 of these were attended to by the Regional Library itself; 20 were sent to Bethesda for bibliographic retrieval by the MEDLARS computer-based system.

Seven subcenters in Brazil—Fortaleza, Recife, Salvador, Brasília, Rio de Janeiro, Belo Horizonte, and Pôrto Alegre—have been identified as the basis of an interlibrary network within the country. Once these libraries'

resources are pooled and operations throughout Brazil are fully established, the Regional Library will cooperate with national centers elsewhere in South America. Already in 1969 gift and exchange activities were conducted with 188 libraries in Brazil and 363 similar institutions in other South American countries.

In the light of the Regional Library's increasingly active role as an education and training center in the Latin American biomedical community, constant efforts are being made to expand its resources. It is well on the way to completing a periodicals collection from 1960 onward covering 1,200 selected journal titles. Emphasis is also being placed on the continued development of a carefully selected reference collection, including monographs and indexes.

To foster cooperative relations with other institutions and to make the work of the Library known, a monthly information bulletin was established and has been distributed widely.

### Meetings and Symposia

A continuing program of scientific meetings and symposia was carried on as part of the effort to promote communication among biomedical scientists in the Region. In addition to the special session and symposium held in conjunction with the Eighth Annual Meeting of the PAHO Advisory Committee on Medical Research, international conferences were convened on a number of subjects of broad and immediate public health importance, and their published conclusions have contributed to the body of knowledge available.

A technical group was convened to study different aspects of the problem of maternal nutrition and its relationship to patterns of reproduction. Attention was given to the biological, socioeconomic, and cultural fac-

tors involved and to the relationship between PAHO program activities in nutrition, on the one hand, and family planning, on the other. The report of the group identified several gaps in the existing knowledge and recommended areas for future research.

A Scientific Advisory Committee on Dengue was formed in response to concern over outbreaks of this disease in the Caribbean area, and its first meeting was scheduled for 15-16 January 1970. As part of the effort to develop a design for an epidemiological and virological surveillance program for dengue in the Caribbean, a PAHO consultant traveled to the affected area in August 1969 and made specific recommendations on this subject.

The increasing public health importance of mycotic infections, which have come into greater prominence as progress has been made in the control of bacterial, parasitic, and viral diseases, induced the Organization to convene an International Symposium on Mycoses for 24-26 February 1970. In preparation for this meeting, a consultant visited institutions in Argentina, Brazil, Colombia, Mexico, and Venezuela to determine the status of work in the field of medical mycology as carried on in these countries.

### Publications Resulting from Research

In addition to the monographs emanating from the Eighth Meeting of the Advisory Committee on Medical Research, reports of technical group meetings on nutritional anemias, hypovitaminosis A (in press), and endemic goiter were prepared and published. Also, a monograph summarizing current knowledge on Argentine hemorrhagic fever, prepared by Dr. Norma E. Mettler, was edited and distributed (*Scientific Publication PAHO 183*).

## VI. SCIENTIFIC AND PUBLIC COMMUNICATIONS

### PUBLICATIONS

The PAHO publications program includes four periodicals—the monthly technical journal *Boletín de la Oficina Sanitaria Panamericana*, the quarterly journal on medical education, *Educación médica y salud*, the new public information quarterly entitled *Gazette*, and the *Weekly Epidemiological Report*—as well as a one-volume English edition of the *Boletín* published each year, and the series of Special Publications of PAHO.

#### Special Publications

In order to reduce the costs of the publications program, the Organization acquired a set of three electronic machines—two magnetic-tape Selectric typewriters and one Selectric composer—which were being used for the typesetting of publications which are printed by the photo-offset method. In the first year, the operation started on a modest scale, but despite the newness of the process and the need for training the regular staff in the use of the machines, a total of 14 publications were prepared by this method.

In the Special Publications Series (Scientific, Miscellaneous, Official Documents, and others), a total of 48 publications were issued, with 8,747 pages and 106,650 copies printed (Tables 39 and 40).

TABLE 39. SUMMARY BREAKDOWN OF PAHO PUBLICATIONS, 1969.

Series	Number	Pages	Pressrun (copies)
Scientific Publications . . . . .	25	3,595	75,000
Second printings . . . . .	2	684	3,500
Official Documents . . . . .	17	3,988	18,150
Others . . . . .	4	480	10,000
Total . . . . .	48	8,747	106,650

Six new publications related to nutrition were issued. Scientific Publication 174 presented a comprehensive bibliography for use in schools of nutrition and dietetics in Latin America; it listed, by subject matter, selected textbooks, leaflets, films, journals, and other reference material on food and nutrition, public health, and related sciences published since 1962. The booklet *Actividades de nutrición en el nivel local de un servicio general de salud* (Scientific Publication 179) contained the recommendations of a technical group convened by PAHO to study the question of nutrition activities at the level of the local health services and to suggest ways of assuring greater effectiveness of those activities through inservice guidance and training, coordination, and evaluation. *Iron Metabolism and Anemia* (Scientific Publication 184) contained the papers and discussions of the symposium held during the Eighth Meeting of the PAHO Advisory Committee on Medical Research, which dealt with basic aspects of hemoglobin transferrin-ferritin metabolism and with the question of absorption of iron—possibly the single most important influence on the production of iron-deficiency anemia. The 462-page volume *Endemic Goiter* (Scientific Publication 193) contained the technical papers presented at the Meeting of the PAHO Scientific Group on Research in Endemic Goiter held in Puebla, Mexico, in June 1968. Its 34 chapters dealt with the research studies conducted in the Congo and New Guinea, Argentina and Paraguay, Brazil, Chile, Colombia, Ecuador, Mexico, and Peru. The booklet *Elementos de una política de alimentación y nutrición en América Latina* (Scientific Publication 194) presented the report on the technical group convened by PAHO in Washington, D.C., in May 1969, to establish guidelines for the formulation and implementation of food and nutrition policy in the countries of the Region. Scientific Publication 192, *Libros sobre nutrición para las ciencias de la salud*, contained the report of the PAHO technical group which studied the needs for textbooks and the publications in the nutrition field in Latin America.

TABLE 40. PAHO PUBLICATIONS, 1969.

Serial number	Title	Pages	Pressrun (copies)
<i>Scientific Publications</i>			
146	Nutrición humana, Segunda edición . . . . .	627	2,000
166	Facts on Health Progress (2nd printing) . . . . .	57	1,500
174	Bibliografía sobre nutrición, alimentación, salud pública y ciencias afines para uso en las escuelas de nutrición y dietética de Latinoamérica . . . . .	458	1,000
175	Health in the World of Tomorrow, by Joshua Lederberg . . . . .	17	3,000
175	La salud en el mundo de mañana, por Joshua Lederberg . . . . .	18	3,000
176	Recopilación de trabajos de enfermería, No. 3 . . . . .	189	4,000
177	Regional Advisory Committee on Health Statistics, Fifth Meeting . . . . .	25	1,000
177	Comité Regional Asesor sobre Estadísticas de Salud, Quinta Reunión . . . . .	27	2,000
178	Tercer Seminario sobre la Enseñanza de Medicina Preventiva y Salud Pública en Escuelas de Medicina Veterinaria . . . . .	126	2,000
179	Actividades de nutrición en el nivel local de un servicio general de salud . . . . .	47	10,000
180	Technical Advisory Committee on Nursing, First Meeting . . . . .	22	1,000
180	Comité Técnico Asesor en Enfermería, Primer Informe . . . . .	23	3,000
181	Manual para programas de erradicación de la viruela en zonas endémicas . . . . .	287	2,000
182	International Symposium on Health Aspects of the International Movement of Animals . . . . .	208	1,000
183	Argentine Hemorrhagic Fever: Current Knowledge, by Dr. Norma E. Mettler . . . . .	60	2,000
184	Iron Metabolism and Anemia . . . . .	89	2,000
185	Perinatal Factors Affecting Human Development . . . . .	261	2,000
186	Reported Cases of Notifiable Diseases in the Americas, 1966 . . . . .	75	1,000
186	Casos notificados de enfermedades de declaración obligatoria en las Américas, 1966 . . . . .	77	1,000
187	Seminario sobre Métodos de Administración en Programas de Vacunación . . . . .	102	2,000
188	La rabia—Educación para la salud, Guía para maestros No. 1 . . . . .	57	5,000
189	Symposium on Education in Veterinary Public Health and Preventive Medicine . . . . .	152	2,000
190	Classificação Internacional de Doenças, Revisão 1965 (Volume I) . . . . .	537	13,000
191	Planificación y administración de hospitales . . . . .	222	2,000
192	Libros sobre nutrición para las ciencias de la salud . . . . .	23	3,000
193	Endemic Goiter—Report of the Meeting of the PAHO Scientific Group on Research in Endemic Goiter . . . . .	462	2,000
194	Elementos de una política de alimentación y nutrición en América Latina . . . . .	31	5,000
<i>Official Documents</i>			
88	Basic Documents of the Pan American Health Organization, Eighth edition . . . . .	125	300
88	Documentos Básicos de la Organización Panamericana de la Salud, Octava edición . . . . .	126	500
89	Special Meeting of Ministers of Health of the Americas—Final Report and Speeches . . . . .	149	2,000
89	Reunión Especial de Ministros de Salud de las Américas—Informe Final y discursos . . . . .	155	2,000
90	Special Meeting of Ministers of Health of the Americas—Working Documents . . . . .	333	1,000
90	Reunión Especial de Ministros de Salud de las Américas—Documentos de trabajo . . . . .	347	1,000
91	Financial Report of the Director and Report of the External Auditor for 1968 . . . . .	82	400
91	Informe Financiero del Director e Informe del Auditor Externo, 1968 . . . . .	82	400
92	Proposed Program and Budget Estimates: PAHO, 1970; WHO, Region of the Americas, 1971; PAHO Provisional Draft, 1971 . . . . .	622	550
92	Proyectos de Programa y Presupuesto: OPS, 1970; OMS, Región de las Américas, 1971, y OPS, Anteproyecto, 1971 . . . . .	622	500
93	Final Report, XVIII Meeting of the PAHO Directing Council (bilingual edition) . . . . .	80	1,500
94	Précis Minutes, XVIII Meeting of the PAHO Directing Council, XX Meeting of the WHO Regional Committee for the Americas . . . . .	128	1,000
94	Actas, XVIII Reunión del Consejo Directivo de la OPS, XX Reunión del Comité Regional de la OMS para las Américas . . . . .	132	1,000
95	Annual Report of the Director, 1968 . . . . .	352	2,000
95	Informe Anual del Director, 1968 . . . . .	365	2,000
96	Final Report and Précis Minutes, 60th and 61st Meetings of the Executive Committee . . . . .	141	1,000
96	Informe Final y Actas, 60ª y 61ª Reuniones del Comité Ejecutivo . . . . .	147	1,000
<i>Other Publications</i>			
Nursing Reports No. 12	Guía de orientación y supervisión de parteras empíricas . . . . .	57	1,000
	Patterns of Urban Mortality—Excerpts . . . . .	27	5,000
	Enfermedades ocupacionales—Guía para su reconocimiento . . . . .	388	1,000
	Programa Latinoamericano de Adiestramiento en Patología (prospecto) . . . . .	6	3,000



## VI. SCIENTIFIC AND PUBLIC COMMUNICATIONS

A revised second edition of the 627-page textbook on nutrition, entitled *Nutrición humana* (Scientific Publication 146), was published in 2,000 copies. This made a total of 8,000 copies printed since the publication first appeared in 1966.

Publications in the field of veterinary public health included the volume *Tercer Seminario sobre la Enseñanza de Medicina Preventiva y Salud Pública en Escuelas de Medicina Veterinaria* (Scientific Publication 178), containing the report and 16 working papers presented at this seminar on the teaching of preventive medicine and public health in veterinary medicine schools; *International Symposium on Health Aspects of the International Movement of Animals* (Scientific Publication 182), which presented the report of the Symposium and the technical papers dealing with the disease problems associated with the importation and exportation of animals and animal products; and the volume *Symposium on Education in Veterinary Public Health and Preventive Medicine* (Scientific Publication 189), containing the report and 25 papers presented at this meeting, held in St. Paul, Minnesota, in March 1968.

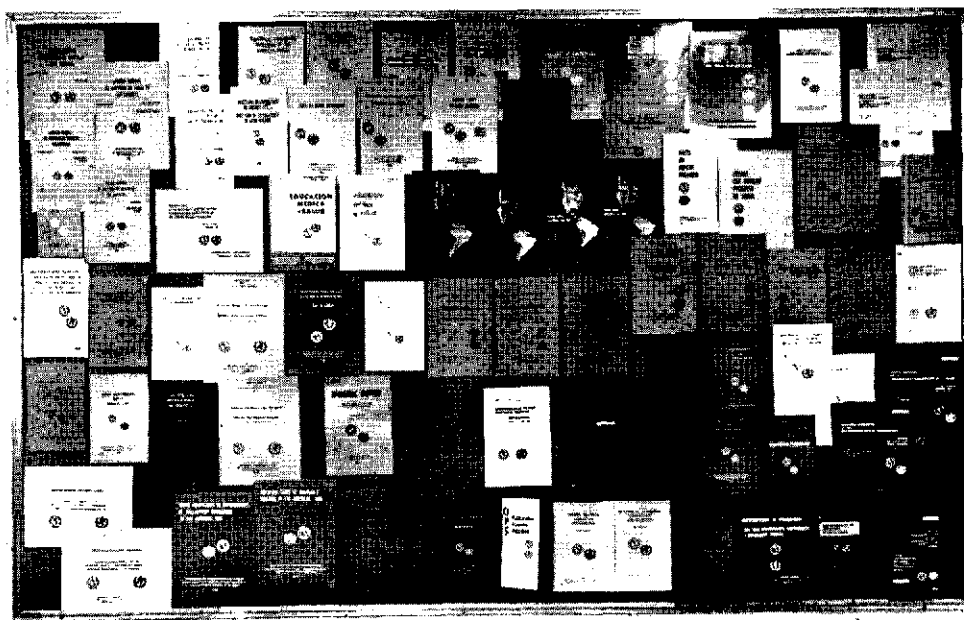
The first in a new series of health education guides for teachers was issued as Scientific Publication 188, with the title *La rabia—Educación para la salud. Guía para maestros No. 1*. It contained a summary of the most important data relating to rabies, a teaching program, and a series of class outlines.

Among the other publications issued were *Perinatal*

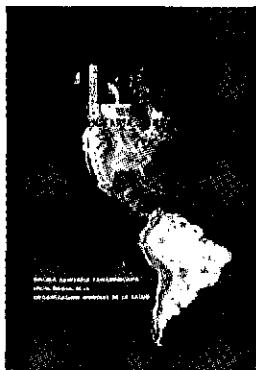
*Factors Affecting Human Development* (Scientific Publication 185), containing the papers and proceedings of the special session held during the Eighth Meeting of the PAHO Advisory Committee on Medical Research; *Argentine Hemorrhagic Fever: Current Knowledge* (Scientific Publication 183), by Dr. Norma E. Mettler, a Spanish edition of which was also in preparation; *Regional Advisory Committee on Health Statistics, Fifth Meeting* (Scientific Publication 177); *Technical Advisory Committee on Nursing, First Report* (Scientific Publication 180); the Spanish translation of the handbook issued by WHO entitled *Manual for Smallpox Eradication Programs in Endemic Areas* (Scientific Publication 181); the Spanish translation of the book issued by the U.S. Public Health Service, entitled *Occupational Diseases—A Guide to their Recognition*, by W. M. Gaffer; and *Enfermería—Recopilación de trabajos No. 3* (Scientific Publication 176), a compilation of articles published in the United States of America and Canada and translated into Spanish for distribution to nursing services in the Latin American countries.

In the Official Documents series, published in English and Spanish, 17 volumes were issued, including the final reports and proceedings of the PAHO Governing Body meetings and of the Special Meeting of Ministers of Health of the Americas, the financial and auditor's reports, the Annual Report of the Director, and the Basic Documents of the Organization.

Publications of PAHO.



## Periodical Publications



The monthly *Boletín de la Oficina Sanitaria Panamericana* completed its forty-eighth year of publication as PAHO's principal organ of scientific information. Its 12 issues, published in two annual volumes, each with its own general index, contained a total of 1,206 pages. The average monthly pressrun was 14,370 copies (12,000 in 1968).

Sixty-three articles were published, occupying 623 printed pages (more than 50 per cent of the total published in the year). Of the total number of articles, five were published in Portuguese, one in English, and the rest in Spanish; at the end of each was an abstract in English, French, and Portuguese.

In keeping with the policy of reporting current techniques and new scientific knowledge of international interest in the field of disease prevention and health restoration and promotion, the articles included the documents of the Technical Discussions held during the XVIII Meeting of the PAHO Directing Council (October 1968) on the topic "Participation of the Health Sector in Population Policy," which appeared in the January issue. Other issues featured papers presented at various medical and scientific meetings, including the meetings of the PAHO Advisory Committee on Medical Research, the XVI Annual Meeting of the U.S.-Mexico Border Public Health Association (April 1968), the Technical Group Meeting on Hypovitaminosis A (November 1968), and the Seminar on Administrative Methods in Vaccination Programs (November 1968). Other articles dealt with communicable diseases, sanitary engineering, health planning and administration, health programs and development, parasitic infections, nutrition in Latin America, cardiomyopathies, and problems of dentistry.

The section entitled "Reseñas" occupied 270 pages (an average of 23 pages per issue) and contained 70 abstracts of articles and publications on such subjects as: nursing activities, dentistry, traffic accidents, suicide and its prevention, neurophysiological research and psychiatric hospitals, schistosomiasis, ascariasis, venereal diseases,

genetical control of insects, air pollution, Inter-American Investigation of Mortality in Childhood, human radiobiology, and programmed instruction in health. This section also included short summaries of articles of current international medical interest selected from the WHO *Bulletin*.

The section entitled "Actualidades" contained 135 pages with 49 news items and reports on matters of international interest in the public health field (an average of four titles to each monthly issue). These included reports on the Special Meeting of Ministers of Health of the Americas (October 1968), the Meetings of Ministers of Health of Central America and Panama (August 1968 and June 1969) and of the River Plate Countries (September 1968), and the Meetings of the Governing Bodies of PAHO and WHO. The results of other meetings and seminars of hemispheric or national interest were also reported. The April issue contained the message from the Director-General of WHO and an extract from articles prepared in commemoration of World Health Day. In addition to a monthly calendar of meetings, this section included in three issues status reports on *Aedes aegypti* eradication in the Americas and in four issues notes on the administration of medical care services, describing developments in this field in the Americas.

The books section contained 81 pages (an average of almost seven pages per month) with reviews of 136 books and publications of PAHO and WHO and of 50 other publications from other organizations and publishing houses, as well as a list of books recently received by the PAHO Library.

Each issue of the *Boletín* concluded with an up-to-date list of the health authorities of the Member Governments of PAHO.

The one-volume *English edition of the Boletín* published in 1969 contained a selection of the articles and reports that appeared in the regular monthly journal during the previous year. The subject matter included rural health services, malaria eradication, smallpox, zoonoses, teaching of medical care administration, maternal and child nutrition, research on child mortality, environmental sanitation, and dental health. The edition also contained reports on technical meetings sponsored by the Organization, a summary of PAHO publications, and an editorial on the future of nutrition activities in Latin America.

educación  
médica  
y salud



*Educación médica y salud*, the quarterly Spanish-language journal on medical education and health, has been published regularly since the end of 1966 in collaboration with the Pan American Federation of Associations of Medical Schools. Four issues, with an average of 96 pages each and a pressrun of 5,000 copies, appeared in 1969. The last issue included an index of authors and subjects. The journal featured articles on the education and training of health personnel, especially those concerned with the planning, development, and evaluation of educational programs, new educational methods, and research into medical education and the development of health manpower. In addition, it published short notices of interest to medical educators at the international level and reviews of books and articles of particular importance in the medical education field.

The April-May-June issue contained reports by the PAHO/WHO expert committees on the teaching of the following subjects in medical schools in Latin America:

pathology, biochemistry, pharmacology, physiology, pediatrics, and preventive and social medicine. These reports were also separately published in a new series entitled "Development of Human Resources," so as to facilitate their distribution on a wide scale in Latin America.

The *PAHO Weekly Epidemiological Report* was issued regularly during 1969 in a bilingual English-Spanish edition.

*Distribution of publications.* During 1968 the Organization distributed 474,783 copies of publications of both PAHO and WHO (Table 41). This represents an increase of approximately 116,000 copies over 1968.

While the great majority of PAHO publications continued to be made available without cost to official health services throughout the Americas, the volume of sales increased during the year to 20,813 copies, twice the number sold in the preceding year.

## INFORMATION

### Media

*Special events.* Thirteen news stories were prepared on the activities of the XIX Meeting of the PAHO Directing Council (29 September-10 October). All were carried by the major wire services: Associated Press, Spanish News Service, France Press, Reuter's, and United Press International, and also by the U.S. Information Agency. The report on the *Aedes aegypti* and the malaria eradication campaigns and the Council's resolution calling for a study on warnings of the dangers of cigarette smoking received wide coverage. Press interviews with the President of the Council and with other officials of the meeting were arranged.

For the Twenty-Second World Health Assembly, held in Boston, Massachusetts (8-25 July), three members of the PAHO information office staff were detailed to that city as part of a Geneva-New York-Washington information team that was assigned to the meeting. The Washington Office also stimulated full U.S. Information Agency and Voice of America coverage of the Assembly. The USIA's "Washington Correspondent" television program taped three-minute interviews with some 50 delegates, the tapes being air mailed directly to countries for televising while the Assembly was still in progress.

To focus public attention on the 1969 theme of World Health Day—"Health, Labor, and Productivity"—and on

TABLE 41. PUBLICATIONS DISTRIBUTED, 1969.

Type of publication	Number of copies distributed	Total
<i>PAHO publications</i>		
Scientific Publications.....	112,513	
Official Documents.....	11,910	
Miscellaneous Publications.....	5,800	
<i>Boletín de la Oficina Sanitaria Panamericana</i> .....	172,480	
<i>Boletín de la Oficina Sanitaria Panamericana</i> —English edition.....	10,000	
<i>Educación médica y salud</i> , Vol. 2, No. 4, and Vol. 3, Nos. 1-3.....	20,000	
<i>Gazette</i> —English Vol. 1, No. 1-3.....	31,000	
Spanish Vol. 1, No. 1-3.....	31,000	
Other PAHO publications.....	36,000	
Total PAHO publications.....		430,703
<i>WHO publications</i>		
Technical Report Series, Monograph Series, Public Health Papers, and Official Records.....	8,930	
Other WHO publications.....	35,150	
Total WHO publications.....		44,080
Grand total.....		474,783

WHO's twenty-first anniversary, a mat feature in English, Spanish, Portuguese, and French was released to 3,650 editors. Also distributed were some 12,000 World Health Day kits in English, Spanish, and Portuguese, along with a poster designed by the Washington Office.

For World Leprosy Week (15-21 February), assistance was given to its sponsors, the Leonard Wood Memorial Foundation, in drawing up a detailed program aimed at creating greater public understanding of the disease. A major part of it was an ecumenical service at Washington's National Cathedral. As a result of the press briefings of leprosy experts that were set up, stories were carried by a number of U.S. newspapers.

A news briefing was also organized for participants in the special session held during the Eighth Meeting of the PAHO Advisory Committee on Medical Research (10 June) on the subject "Perinatal Factors Affecting Human Development."

*News and feature releases.* A total of 117 releases were issued in English, Spanish, and Portuguese. Most of these related to meetings convened or sponsored by PAHO and WHO, to field projects, and to World Health Day.

*Radio.* In the new taped radio program launched by the Organization, entitled *Salud para las Américas*, four tapes were issued, each comprising four five-and-a-half-minute broadcasts; 300 Spanish-language stations received the tapes. The first tape presented an explanation of the work of PASB, a message from the WHO Director-General, and descriptions of the work of INCAP and of the Pan American Foot-and-Mouth Disease Center. The second dealt with the theme of World Health Day. The third covered nutrition, malaria, research on child mortality, and the Special Meeting of Ministers of Health of the Americas. The last tape described the work of the PAHO Directing Council, activities in the coordination of medical services, nutrition programs, and the concept of disease eradication.

The information office taped an interview with the President of the Directing Council and sent copies to stations in Barbados, Guyana, Jamaica, and Trinidad and Tobago. It worked with the Voice of America in developing a science feature called "The Dilemma of DDT," and in arranging for the recording of a statement by the Director of PASB, who participated with heads of other inter-American agencies in a special program on the occasion of the U.S. moon landing.

*Television.* Assistance was given to the USIA in the production of a 25-minute color television documentary on health for that Agency's series *Enfoque: Las Américas*.

## Information Literature



The new quarterly magazine, *Gazette*, was introduced early in the year. This non-technical, illustrated periodical is aimed at a wide range of readers—from public officials to citizen groups—its purpose being to give a clear and concise account of the work of the Governments and of the Organization to reduce disease and to promote individual and community well-being. It is produced in both English and Spanish, in 10,000 copies. Each issue contains several feature stories, news of work at Headquarters and in the field, notes on meetings and on publications, and other items of current interest.

The flyer "65 Years of Inter-American Health" was reprinted in 5,000 copies, to meet the continuing demand.

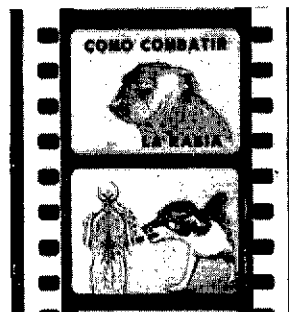
## Other Activities

The information office answered 4,470 written and telephone inquiries from the general public. Approximately 63,000 pieces of literature were distributed in information kits or in bulk shipments.

A total of 104 loans of films were made to schools, citizen groups, government agencies, and other organizations. Approximately 600 photographs were distributed.

Talks on the work of the Organization, tours of the Headquarters building, and film showings were continued as a regular service.

## VISUAL AIDS



The Organization produced eight more titles in the series of color filmstrips, with accompanying scripts in Spanish, which are prepared in collaboration with the National Medical Audiovisual Center of the U.S. Public Health Service. They are used as teaching aids in the

schools of public health, medicine, nursing, veterinary medicine, and sanitary engineering in Latin America.

The following filmstrips in Spanish, with an average of 65 frames each, were issued:

- No. 37 Higiene avícola—Preparación y procesamiento (Poultry Hygiene—Processing Plant)
- No. 38 Exantema vesicular y enfermedad de Teschen (Vesicular exanthema and Teschen's Disease)
- No. 39 La Organización Panamericana de la Salud y la Organización Mundial de la Salud (The Pan American Health Organization and the World Health Organization)
- No. 40 El control doméstico de vectores mediante el saneamiento básico (Domestic Vector Control by Basic Sanitation)
- No. VET-41 Cólera porcino y peste porcina africana (Hog Cholera and African Swine Fever)
- No. 42 Lagunas de estabilización (Stabilization Ponds)
- No. 43 Cómo combatir la rabia (How to Combat Rabies)
- No. VET-44 Peste bovina (Rinderpest)

Of the above titles, Nos. 39, 42, and 43 were original works, written and illustrated by PAHO staff members. An English version of No. 39 was being prepared.

Approximately 6,700 copies of filmstrips were distributed during the year. A special distribution was made of No. 40, "Domestic Vector Control by Basic Sanitation," to public health authorities at the state level in all Latin American countries.

One thousand copies of filmstrip No. 43, "How to Combat Rabies," were sent to teachers' colleges and state health authorities of Latin America. To each copy was attached a copy of PAHO Scientific Publication 188 entitled *La rabia*. This health education guide, complemented by the filmstrip, was distributed as the first of a special series designed to help in the training of secondary school teachers and to inform the general public about prevalent health problems in Latin America, especially in the rural areas.

Three exhibits were prepared during the year, one on the PAHO program in health statistics, which was presented at the Annual Meeting of the American Public Health Association (Philadelphia, 9-13 November), and was later set up in the rotunda of the Headquarters building. The other two were updated exhibits on publications and medical care.

The volume of other work done by the Visual Aids Unit was as follows: 687 maps, charts, graphs, and designs prepared; 2,806 copies of drawings made; 451 signs and captions produced; 798 projection slides prepared; 813 slides supplied; 1 poster designed; 230 photographs supplied. Illustrations for 80 documents and publications were made and 448 printer's negatives were supplied.

## LIBRARY

The Library further enlarged its collection in the public health field, particularly with reference to Latin America. It continued services to Headquarters staff in Washington and to technical personnel attached to the Zone Offices, and maintained liaison with numerous scientific institutions, sending out publications, acquiring material of various kinds, and providing bibliographic information.

It also furnished advisory services on librarianship problems, the preparation of questionnaires and guides, terminology, and related matters. The Librarian was chosen to represent WHO at the United Nations meeting on microfiche standards held in New York in November.

The Library's collection was increased by the following: 1,700 books and pamphlets, 4,400 copies of periodicals, 4,000 copies of WHO documents and publications, and 16 agreements for incorporation in the archives. Nine thousand cards were added to the catalog, 5,000 reference queries were answered, and 9,000 Xerox pages were supplied.

Fifteen hundred items were discarded or donated to other Latin American libraries or to the U.S. Book Exchange. Thirty bibliographies were prepared and 2,000 interlibrary loans were made. Readers and visitors amounted to some 3,200.



View of the PAHO Library.

## TRANSLATIONS

The translation service continued to meet the needs of the publications and information programs as well as those of all the technical departments of PASB. In addition, the staff provided language services during PAHO

organizational meetings and technical conferences and seminars.

The number of translations completed by the staff (exclusive of work performed at meetings) was as follows: 6,955 pages into Spanish, 3,661 pages into English, and 1,823 pages into Portuguese: a total of 12,439 pages. In addition, 3,205 pages were translated outside the Bureau under contract.

## VII. ORGANIZATION AND ADMINISTRATION

### GOVERNING BODIES

The following meetings of the Governing Bodies were held at the Headquarters building in Washington, D.C., in 1969: 61st Meeting of the Executive Committee (23 June-1 July); XIX Meeting of the Directing Council (29 September-10 October); 62nd Meeting of the Executive Committee (26-27 September); and 63rd Meeting of the Executive Committee (10 October).

#### Directing Council

The XIX Meeting of the Directing Council of PAHO, XXI Meeting of the Regional Committee of the World Health Organization for the Americas, was held in Washington, D.C., from 29 September to 10 October, with representatives of 27 Governments present. The Government of Canada appointed an official observer. The meeting was also attended by one of the WHO Assistant

Director-Generals, as well as by observers from the Organization of American States, the Inter-American Development Bank, the United Nations, the United Nations Children's Fund, the Food and Agriculture Organization, and the United Nations Development Program. Observers from 14 nongovernmental organizations were also present.

Dr. Sylvia Talbot, Minister of Health and Housing of Guyana, was elected President of the Council and the Representatives of Brazil and Costa Rica were elected Vice-Presidents.

The Council held an inaugural session, 17 plenary sessions, and a closing session; the Committee on Credentials held five sessions; and the General Committee eight sessions. Thirty-nine resolutions were approved in the course of the meeting, the main recommendations of which are summarized below.

*Budget and finance.* The Council approved the Financial Report of the Director and Report of the External Auditor for 1968, congratulating the Director on having



Dr. Sylvia Talbot, President of the Directing Council, signs the Final Report of the XIX Meeting.



Plenary session of the XIX Meeting of the Directing Council.

maintained the Organization in a sound financial condition and thanking the External Auditor for having included in his Report the appropriate observations concerning the efficiency of the administrative, financial, and accounting procedures and controls.

The Council appropriated the sum of \$15,475,578 for the financial year 1970. The appropriation will be financed from the quotas of Member Governments and Participating Governments in the amount of \$15,270,578, and from miscellaneous incomes totaling \$205,000.

After examining in detail the Provisional Draft of the Proposed Program and Budget Estimates of PAHO for 1971, the Council requested the Director to use it as a basis for the preparation of the Proposed Program and Budget Estimates for 1971, after further consultations with the Governments to ascertain their latest desires and requirements in relation to the priorities of the Organization. It requested the Executive Committee to make a detailed examination of the revised Proposed Program and Budget Estimates to be presented by the Director and to submit its recommendations thereon to the XVIII Pan American Sanitary Conference.

The Council approved the Proposed Program and Budget Estimates of WHO for the Region of the Americas for 1971 and requested the Regional Director to transmit them to the Director-General of that Organization so that he might take them into account in preparing the WHO budget estimates for 1971. It also requested the Regional Director to transmit to the Director-General a request that he maintain the level of the WHO budgetary appropriation for malaria eradication in the Americas by increasing the appropriate allotment in the WHO regular budget to the extent necessary to offset any reduction in the allotment from the WHO Malaria Eradication Special Account.

The joint budget estimates of PAHO and of the WHO Regional Office for the Americas, excluding funds from the tax equalization plan, amount to \$28,705,987 for 1970. The largest allotment (about 25 per cent of the total) is for communicable diseases, of which almost half is earmarked for malaria. Specific health promotion programs represent approximately 20 per cent, general health services about 19 per cent, and the development of teaching institutions and environmental sanitation account for approximately 9 per cent each.

*Communicable diseases.* The Council took note of the XVII Report on the status of malaria eradication in the Americas and requested the Director to cooperate with the WHO Director-General in the application of the new world-wide eradication strategy. It expressed to the

Governments its satisfaction with the progress made, urged them to continue to take the necessary steps to ensure that the programs are adequately financed and efficiently administered, recommended that they continue to undertake research to identify and solve the technical problems involved, and requested them to increase the coordination of the malaria eradication services with the general health services. It expressed its concern over the tendency of voluntary cooperation and the cooperation of some international agencies in financing malaria eradication programs to decline, and requested the authorities concerned to reconsider their policy of regional and world collaboration for the program.

As regards *Aedes aegypti*, the Council requested the Director to sponsor an in-depth study of this problem by setting up a multidisciplinary group to review the present strategy for the prevention and control of diseases transmitted by *A. aegypti* in the Americas and by engaging an independent agency to carry out as necessary the study defined by the multidisciplinary group.

The Council reiterated that, in addition to the *A. aegypti* eradication requirements established by the PASB, for a country to be considered free of the vector it must satisfy the following conditions: (a) eliminate all colonies of *A. aegypti* that exist in its territory in areas in which the ecological conditions are favorable to the development of the vector; (b) not permit the existence of any colonies except in recognized research centers located in areas that are ecologically unfavorable to the vector; and (c) ensure that colonies of the vector existing in those unfavorable areas are permanently maintained in such a way as not to allow the country to be reinfested by *A. aegypti*.

The Council reaffirmed that the eradication of smallpox remains one of the highest priorities for the Hemisphere and made various recommendations concerning epidemiological surveillance, maintenance programs, and the standardization of a freeze-dried vaccine meeting WHO requirements.

*Nutrition.* Considering that malnutrition continues to be a major health problem in the Hemisphere and that present demographic and food production trends indicate that the problem might become more serious in the future, the Council recommended: (a) to the PASB that it continue to give high priority to the nutrition program and that it assign corresponding resources to enable effective action to be undertaken, especially in the formulation of national food and nutrition policies; and (b) to the Member Governments that such policies should be formulated as quickly as possible, with the objective of



controlling the problem of malnutrition, and hence reducing the costs of health care and allowing reassignment and more efficient use of resources.

The Council also took note of the preliminary report on the use of resources of the World Food Program, recommending to the Director that he encourage the use of these resources and to the Governments that they study the means of transportation, preservation, and distribution of the foods necessary for the operation of the Program, and that they give due priority to the food needs of the population.

Considering that the Institute of Nutrition of Central America and Panama (INCAP) has gained excellent experience in providing specialized training and consultant services in the nutrition field both in Central America and in the rest of the Hemisphere, the Council recommended to the Director that he provide INCAP with assistance in reorienting its present programs in order to better meet the needs of the Institute's present member countries and of the other countries of the Hemisphere, and that he continue to seek funds for INCAP from its traditional sources and increase, to the extent that the budget of the Organization permits, the annual grant which is made to the Institute to enable it to effectively carry out the proposed expansion of its services.

*Health promotion.* The Council approved the augmentation of the resources of the Special Fund for Health Promotion as follows: (a) increase in the amount of regular budget contributions to the Fund in years when the budgetary situation so permits; (b) transfer to the Fund of any surplus which may arise and which is not required to maintain the Working Capital Fund at an adequate level; and (c) funds from extrabudgetary sources, including voluntary contributions from public and private agencies.

*Medical care.* The Council took note of the report of the Study Group on the Coordination of the Medical Care Services which was set up jointly by the Organization of American States and PAHO and met from 4 to 8 August in Washington, D.C. In addition to ratifying the Group's recommendations, the Council recommended to the Director that he give the report the widest possible distribution and that he organize zone meetings of senior health, social security, and medical education officials for the purpose of discussing how and to what extent these recommendations could be applied in the countries concerned.

The Council also took note of the Brazilian Plan for the Coordination of Activities Relating to the Protection and Recovery of Health, which in general follows the ideas embodied in Resolution XX of the XVII Meeting of the

PAHO Directing Council and the recommendations of the Final Report of the Special Meeting of Ministers of Health of the Americas (October 1968), and which incorporates administrative machinery that is a new experiment for Brazil in the health field and is worthy of study.

*Drugs.* The Council, after studying the pertinent resolutions of the Governing Bodies and the report of the Director on the study of the production of drugs and the manufacture and maintenance of equipment and instruments for health programs, recommended that the Director request the Governments to consider the possibility of having such studies carried out in their particular countries, with technical assistance from the Organization, provided the costs involved were borne by the country concerned.

*Control of cigarette smoking.* Recognizing that cigarette smoking is an important factor contributing to premature deaths from bronchopulmonary cancer, coronary disease, chronic bronchitis, and chronic respiratory insufficiency, the Council requested the Director to report to the XVIII Pan American Sanitary Conference on: (a) measures which have been taken to control the advertising of cigarettes; (b) other possible methods of warning the public; and (c) measures which might be taken to control smoking in places of work or in public gatherings. It also recommended to persons attending meetings of the PAHO Governing Bodies that they refrain from smoking during the meetings.

*Fluoridation.* The Council took note of the Director's report on the present status of fluoridation of public water supplies. It urged the national water authorities to take the necessary measures to introduce fluoridation of public water supply systems where the fluoride intake from such sources is below optimum levels, and recommended that the Director continue to promote the fluoridation program, and in particular the training of personnel in this field.

*Multinational centers.* Bearing in mind the extent of health problems in the Americas as compared with the limited funds available to the Organization for dealing with them, the Council declared that multinational centers are needed and useful, provided their policy continues to be designed to benefit all the countries, and it supported the steps taken by the Organization to develop and improve existing centers. It requested the Director to appoint a study group to draw up a set of general guidelines laying down the basic conditions for the establishment and operation of such centers.

*Medical education.* The Council urged the countries to review their programs for health personnel training

based on a multidisciplinary or health team approach in order to meet the needs of the various services. The Director was asked to continue to give priority attention to continental programs for the development of health manpower in general, and to continue the Organization's close cooperation with universities and institutions of higher education in general. The need was reiterated to establish interinstitutional relations for the development of plans and the execution of training programs for health personnel and, in particular, closer relations between ministries of health, universities, social security agencies, and national professional associations.

In view of the urgent need for full implementation of the textbook program, the Council supported and approved the activation of the Pan American Health and Education Foundation and authorized the Director, until such time as the textbook program is functioning under that Foundation, to make temporary advances from the Working Capital Fund for the purchase of books under the textbook program.

The Council instructed the Director to give the highest priority in the further development of the PAHO Regional Library of Medicine to planning its activities, establishing a sound internal organization staffed by the necessary personnel, and improving the basic collection. It instructed him to explore all possibilities of supplementing the financing of the Regional Library with international, national, and private funds, and to make a study of partial self-financing based on specific payment by the countries for the use of certain services offered by the Library.

After considering the proposed criteria for the award of within-country fellowships, the Council agreed to approve provisionally the proposed criteria and to request the Director to submit a report on the program after it has been in operation for one year.

*Planning and evaluation.* Recognizing the importance of evaluation of all programs and projects carried out by the Governments in collaboration with the Organization, the Council requested the Director to continue his efforts to improve the evaluation procedure and ensure its application to all projects and programs, paying special attention to those of long duration, as well as those which are about to terminate but whose extension is contemplated.

The Council approved the Director's report on long-term planning and evaluation as well as the proposed method for making four-year projections of the collaboration activities with the countries. It recommended that he prepare long-term plans and the corresponding budget estimates, following the guidelines proposed by the

Twenty-Second World Health Assembly, and in conformity with the national health plans and the needs of the countries.

*Health legislation.* The Council requested that the Director continue the comparative study of health legislation in the Americas and submit it to the Executive Committee at its 64th Meeting, and that he urge the health authorities to collaborate and assist in this study.

*Emergency situation in Honduras and El Salvador.* The Directing Council, being aware of the action taken by the Secretary General of the OAS and by the Director of the PASB in the emergency situation which arose between Honduras and El Salvador, took note of the establishment of the Inter-American Emergency Aid Fund and of its Statutes, and thanked the Governments which provided the two countries with effective assistance, either through PAHO or on their own account.

*Technical Discussions.* The topic of the Technical Discussions, held on 7 October, was "Financing of the Health Sector." The Council examined the Final Report of the Discussions and recommended to the Director that he study the possibility of the Organization: (a) promoting national studies on the financing and expenditures of the health sector; (b) organizing a regional study for the purpose of improving the machinery for the allotment of domestic funds to the health sector; (c) encouraging and coordinating feasibility studies of national health insurance schemes and other similar services, and of the possibility of establishing a multinational fund for the financing of the health sector; and (d) organizing a regional study for improving the machinery, conditions, and terms for external funds for developing the health infrastructure.

The Directing Council selected the topic "Venereal Diseases as a National and International Health Problem" for the Technical Discussions at the XVIII Pan American Sanitary Conference, XXII Meeting of the Regional Committee of WHO for the Americas.

*Election of Member Governments to the Executive Committee.* During the meeting of the Council the Governments of Guyana, Peru, and Venezuela were elected to the Executive Committee for three years, on the termination of the periods of office of Brazil, Colombia, and the United States of America.

## Executive Committee

The 61st Meeting of the Executive Committee was held from 23 June to 1 July in Washington, D.C. The Governments of Argentina, Brazil, Colombia, Costa Rica,

Mexico, Nicaragua, Trinidad and Tobago, the United States of America, and Uruguay were represented. Also present were observers from France and the Kingdom of the Netherlands, as well as from the Organization of American States, the Inter-American Development Bank, and the Rockefeller Foundation.

Under the chairmanship of the Representative of Nicaragua, the Committee held 12 plenary sessions and one closing session. Eight of the sessions were devoted to a detailed examination of the Proposed Program and Budget Estimates of the Organization, prepared by the Director pursuant to Article 14-C of the Constitution, and to consideration of the report on the collection of the quotas and the Financial Report of the Director and the Report of the External Auditor. In addition, the discussions covered specific projects and general questions relating to the policy and program of the Organization. The 26 resolutions approved during the meeting included those relating to financing of the health sector, production of drugs, eradication of *Aedes aegypti* and smallpox, water fluoridation, multinational centers, proposed criteria for the programs of the Organization, planning, health legislation, and the award of within-country fellowships.

The 62nd Meeting (Washington, 26-27 September) was attended by the Representatives of Argentina, Brazil, Colombia, Costa Rica, Mexico, Nicaragua, Trinidad and Tobago, the United States of America, and Uruguay,



Plenary session of the 61st Meeting of the Executive Committee.

as well as by observers from France, Jamaica, and Peru. The Committee held three plenary sessions and approved two resolutions: one on the Provisional Draft of the Proposed Program and Budget Estimates of PAHO for 1971, and the other on the Proposed Program and Budget Estimates of WHO for the Region of the Americas for 1971.

The 63rd Meeting was also held in Washington, on 10 October, and was attended by the Representatives of Argentina, Costa Rica, Guyana, Mexico, Nicaragua, Peru, Trinidad and Tobago, Uruguay, and Venezuela, as well as by observers from Barbados, Brazil, France, the United Kingdom, the United States of America, and the Milbank Memorial Fund. The Representative of Argentina was elected Chairman and the Representative of Uruguay, Vice-Chairman. The Committee received its three new members, Guyana, Peru, and Venezuela, and took note of the Directing Council resolutions requiring its attention. It also fixed the date of the 64th Meeting and decided that the topics to be discussed would include one on the amendment of the Rules of Procedure of the Governing Bodies.

## COORDINATION WITH INTERNATIONAL AGENCIES

The Organization increased its participation in the activities of the agencies making up the Inter-American System, which have been given new impetus as a result of the structural changes that were being introduced in the System.

The Inter-American Emergency Aid Fund, the Committee of which includes the Director of the Pan American Sanitary Bureau, started to function in July following the conflict between El Salvador and Honduras. At the request of the Secretary General of the OAS, the Organization took an active part in coordinating assistance to the two countries in the health field. The Director and members of the technical staff visited the areas affected and served on missions that collaborated with the Ministers of Health and their advisers in the planning of measures to meet immediate needs and in the rehabilitation activities. During the emergency period, the Organization sent several consignments of equipment, vaccines, and medicines to the two countries, coordinated relief shipments from other countries, and acquired needed supplies using the resources of the OAS Inter-American Emergency Aid Fund.

As the result of the approach made by PAHO, the Fund made available the sum of US\$200,000 to assist with rehabilitation work in the health field; as a consequence, the Governments of the two countries, with technical assistance from PAHO, were able to draw up health plans for this phase.

At the request of the OAS, the Organization also assisted in coordinating health activities following the emergency situation caused by Hurricane Francelia in Guatemala.

It also took part in most of the meetings held during the year by the Inter-American Committee on the Alliance for Progress (CIAP) to review and evaluate progress made in the Hemisphere countries participating in this program. It is hoped that this cooperation will be more active in the future, bringing about the incorporation of a chapter on health in the documents prepared by the CIAP Secretariat. In 1969 it was not possible to start the analysis in the countries that had been selected by joint agreement, but it is hoped to do this in 1970, and to continue the process until the goal of permanently incorporating the health sector in the CIAP annual reviews is achieved for all the countries.

The Organization continued to participate in the meetings of both the Inter-American and the United Nations Systems; as a member of the latter System it took

part in the regional meeting of resident representatives of the United Nations Development Program in Latin America and the Caribbean area, thereby strengthening its relations with that agency and its representatives in the Americas.

## ADMINISTRATIVE MANAGEMENT

### Budget and Finance

The total amount of PAHO/WHO funds budgeted for 1969 (*Official Document 92*) was \$28,637,122, representing an increase of 12.34 per cent over the budget of the previous year (Table 42). The total amount of PAHO/WHO funds obligated was \$24,799,560, an increase of 4.49 per cent over the previous year. The low level of obligations was due in part to reductions in PAHO regular funds because of low quota contribution payments, and in part to the fact that some grants and special funds were received too late for the implementation of programs.

The amount available from all funds was 100.58 per cent of the amount budgeted, with variations occurring mainly in the special funds and grants.

TABLE 42. PAHO/WHO FUNDS: AMOUNT BUDGETED, AVAILABLE, AND OBLIGATED, 1969.

Source of funds	Budget 1969		Amount available 1969 (U.S. dollars)	Amount obligated 1969	
	Amount (U.S. dollars)	Per cent increase or decrease from 1968		Amount (U.S. dollars)	Per cent increase or decrease from 1968
<b>Pan American Health Organization</b>					
Regular budget.....	12,592,836	10.53	12,592,836	12,144,534	10.22
Special Malaria Fund.....	1,799,785	-3.45	1,758,480	1,142,862	-16.73
Community Water Supply Fund.....	149,858	-12.27	151,241	56,742	-51.16
Special Zoonoses Fund.....	—	—	4,545	4,545	100.00
Grants and other contributions.....	3,680,635	78.76	3,477,529	2,025,245	36.31
INCAP/Regular budget and grants received.....	1,175,184	9.98	1,453,025	1,275,480	-6.07
Total.....	19,398,298	17.17	19,437,656	16,649,408	7.40
<b>World Health Organization</b>					
Regular budget.....	6,271,250	15.64	6,345,704	6,230,345	7.86
Malaria Eradication Special Account.....	205,573	-62.46	180,673	177,519	-55.16
UNDP-Technical Assistance.....	1,413,050	-8.32	1,317,300	926,333	-34.41
UNDP-Special Fund.....	1,190,250	-7.93	1,319,850	673,097	31.50
Other.....	158,701	20.23	201,433	142,858	5.06
Total.....	9,238,824	3.38	9,364,960	8,150,152	-1.00
<b>PAHO/WHO total.....</b>	<b>28,637,122</b>	<b>12.34</b>	<b>28,802,616</b>	<b>24,799,560</b>	<b>4.49</b>

— None.

As a result of delays in quota payments arising largely from the monetary crisis affecting many countries, the Organization, despite reduction in expenditures, suffered a deficit of \$1,803,180 in the PAHO regular budget, which was advanced from the Working Capital Fund. Of this amount, \$1,224,123 was restored with payments of quota arrears received in the first quarter of 1970. Inasmuch as additional payments are expected soon, the financial situation is still basically sound. In this connection, it should be mentioned that the Organization has for the past 10 years followed a financial policy to the effect that it would not, on the average, spend at a level higher than its income. In the Financial Report of the Director for 1969 (*Official Document 97*, p. 6), a table is included showing income and expenditure over the period 1960-1969. Despite the deficit in 1969, the 10-year average shows a surplus of income over expenditure amounting to \$229,659.

In accordance with the agreement with the W. K. Kellogg Foundation, an amount of \$250,000 was transferred to the Special Fund for Health Promotion to finance expanded program activities in water supply, nutrition, and education. This is the approved method of repayment of the Foundation's generous loan of \$5,000,000 for construction of the present Headquarters building of PAHO. The Directing Council, at its XIX Meeting (Resolution XXXIII), authorized expansion of the program of the Special Fund for Health Promotion to include all authorized health activities of the Organization, and also authorized augmentation of the Fund from other sources.

During the year problems concerning the future financing of the malaria eradication program came into focus. It is now clear that there will be deficits in 1971 and 1972 amounting in total to about \$1,200,000, despite drastic reductions made in some categories of personnel after a review in mid-1969.

Further progress was made in the textbook program. The purchase of books from publishers, starting in 1968, amounted to \$256,000 by the end of 1969. Sales totalled \$92,566 and the inventory value of books in schools, in warehouses, and on order was \$233,798. The Directing Council, at its XIX Meeting (Resolution XXXVI), supported the activation of the Pan American Health and Education Foundation, through which it is expected the textbook program can be financed by means of a loan currently under consideration by the Inter-American Development Bank.

In 1969 the availability of property to meet long-term space requirements of the Organization in Washington was guaranteed by the purchase of the Governor Shepherd

apartment building and land, located on Virginia Avenue across from the PAHO Headquarters building. This acquisition of an income-producing property was made as an investment. In the future, as the space requirements of the Organization grow, apartments can be converted gradually for office use. Since other land in the vicinity of the Headquarters is unobtainable, the assurance of future space is of prime importance. Fortunately, the purchase also represents a sound financial investment.

The use of automatic data processing in budget and finance progressed in 1969. In September the general ledger accounts were entirely computerized. The allotment control accounts were placed on the computer on a pilot basis in the course of the year, and in their entirety as of January 1970. Progress was made in computerizing the preparation of the budget and it is anticipated that this system will be effective in 1970 for production of the budget book.

## Personnel

The total staff strength of the Organization at the close of business on 31 December 1969 was 1,236 (1,216 in 1968), including 31 temporary employees and 14 short-term consultants. Of the 1,191 regular staff members, 297 were stationed at Headquarters and 894 in the field.

A total of 1,052 persons were appointed during 1969. They included 69 professionals and 71 general service employees appointed as regular staff members; 752 short-term consultants and temporary advisers; and 160 temporary conference and general services employees hired during peak work periods and during meetings of the Governing Bodies of the Organization.

The 375 post classifications completed during the year included 142 initial classifications, 60 reclassifications, 36 redefinitions, and 137 revisions.

Local salary scale revisions were approved during 1969 for Buenos Aires, Argentina; Rio de Janeiro, Brazil; Bogotá, Colombia; Kingston, Jamaica; Lima, Peru; Paramaribo, Surinam; Port-of-Spain, Trinidad and Tobago; the U.S.-Mexico Border Field Office; and Washington, D.C. At the close of the year the salary scale for Guatemala City was under review.

On the basis of studies of cost-of-living factors for each area, post-adjustment classes for professional staff were revised for 26 countries and other areas.

Amendments to the Staff Rules of the Pan American Sanitary Bureau included: an increase in the salaries of professional staff by 5 per cent; recalculation of post-

adjustment rates on the basis of new salary scale; an increase of the ceiling on the education grant; provision for meritorious increase for staff members completing 20 years or more of continuous satisfactory service; and implementation of a lump-sum element added to the installation grant, where local conditions so warrant, to compensate in part for additional establishment expenses. These amendments were similar to those adopted by the World Health Organization.

As part of the continuing efforts to improve the performance of the staff, training seminars were held at Headquarters on supervision, secretarial practices, general office practices, filing methods, and conference activities. In addition, several English-language workshops were held.

### **Administrative Analysis**

In October 1968 an Administrative Analysis Unit was established to review management practices and procedures with a view to securing greater economy and efficiency in the use of the Organization's resources. In the summer of 1969 the Unit assisted in the organization and initial stages of operation of a Secretarial Center to meet the typing needs of the Headquarters offices. Concurrently with the establishment of the Center, an effort was made to reduce the ratio of secretaries to professional staff in the technical departments, and secretarial overtime was also reduced.

In October a study was made of the mailing system used for the distribution of PAHO documents and publications. The system had been based on mailing lists maintained on addressograph plates, with much of the work of mailing being done outside on a contractual basis. The conclusion was reached that it would be more efficient to maintain the lists of some 50,000 names on the computer, using a computer print-out for producing the mailing addresses. The Administrative Analysis Unit made the study and served as the focal point for installation of the new system, which was put into operation in March 1970.

### **Services and Supply**

The procurement activity continued to increase. A total of 2,851 purchase orders for equipment and supplies were issued, representing an increase of 20 per cent over 1968. These orders covered 11,474 line items (an increase of 19 per cent). The dollar value of purchases

rose by 15 per cent. Proforma invoices issued to Governments covered 1,125 line items, or 57 per cent less than in 1968, but this decrease was more than offset by the 73 per cent increase in firm purchases of 2,153 line items made on behalf of the Governments. The dollar value of proforma invoices in 1969 increased by 109 per cent.

Requests from Governments for purchases against the Emergency Revolving Fund were given top priority and shipments were usually made immediately after placement of the order. The purchases included the following: Chile—200,000 doses of BCG vaccine and 5,000 disposable blood transfusion kits; Costa Rica—60,000 doses of poliomyelitis vaccine and 700 of human rabies vaccine; Dominican Republic—45,000 doses of typhoid vaccine, types A and B; Ecuador—600,000 doses of poliomyelitis vaccine; Honduras—200,000 doses of poliomyelitis vaccine and 400,000 of BCG; Nicaragua—400,000 doses of poliomyelitis vaccine, 500,000 of BCG, 40,000 of PPD tuberculin; Panama—300,000 doses of poliomyelitis vaccine, 1,000 of human rabies serum, and 400 of canine rabies vaccine; and Venezuela—600 cc of cholera vaccine.

Emergency purchases by the Organization to meet the needs arising as a consequence of Hurricane Francelia in Guatemala included the following items: 30,000 doses of poliomyelitis vaccine, 3,000 of measles vaccine, 5,000 vials of tetanus antitoxin, 1,000,000 halazone tablets, 2,200 vials of DPT vaccine, 6 jet-injectors, and 5 cooler chests.

The Organization was also asked to purchase supplies and equipment to relieve the emergency situation that arose in Honduras and El Salvador during 1969. Purchases included 1,000,000 halazone tablets for water purification, 20,000 doses of poliomyelitis vaccine, one jet-injector, and 41 orders for various drugs and vaccines. All items were promptly airfreighted to the OAS offices in the two countries. The total value of the goods purchased was approximately \$40,000. In addition, 12 Jeeps and 2 trucks were purchased for each of the countries, and orders were placed through UNICEF for equipment and supplies needed for maternal and child health centers in Honduras.

To strengthen lines of communication, emphasis was placed on the installation of Telex systems in Zone Offices and other field installations, where a study of the volume of cable communications, costs comparisons, and availability of facilities warranted such action. At the year's end, Telex systems were in operation in Zone Offices I, IV, and V and in Chile and Panama. The installation of systems at other locations was pending the availability of Telex lines.

### **Conference Services**

The principal activity during the year was the organization of the meetings of the Governing Bodies held at the PAHO Headquarters: the XIX Meeting of the Directing Council, XXI Meeting of the Regional Committee of WHO for the Americas, and the 61st, 62nd, and 63rd Meetings of the Executive Committee.

Assistance was given in organizing and conducting more than 20 other technical meetings and seminars, half of them held in Washington and half in the various countries. Among them were the II Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control, at the Ministerial Level; two PAHO Advisory Committee Meetings, on medical research and on malaria eradication; three technical group meetings on nutrition; four meetings related to population dynamics; two meetings on mental health and psychiatric diagnosis; a meeting of the U.S.-Mexico Border Public Health Association; and other seminars and study group meetings on medical care, health education, Chagas' disease, radiation protection, cancer registration, physical medicine and rehabilitation.

Advisory and administrative services were rendered to the Governments concerned in connection with the

Conference of Health Ministers of the Caribbean, held in Port-of-Spain, Trinidad and Tobago (11-14 February); the Third Meeting of the Central American Public Health Council, held in San José, Costa Rica (19-21 June); and the Meeting of Directors of National Malaria Eradication Services of Central America, Panama, Mexico, and the Caribbean Area, held in Santo Domingo, Dominican Republic (20-25 October).

Assistance was also given to WHO Headquarters in staffing the secretariat of the Twenty-Second World Health Assembly held in Boston, Massachusetts (8-28 July).

### **ZONE AND FIELD OFFICES**

The organization of the Zone and Field Offices was maintained without change during 1969. Administrative and financial procedures were kept under review and certain improvements were made.

Efforts to acquire more suitable office space for the Zone I Office in Caracas were continued.

## **VIII. PROJECT ACTIVITIES**





## VIII. PROJECT ACTIVITIES

This chapter contains information on projects begun, continued, or completed in the Americas in 1969 with PAHO/WHO assistance. Unless otherwise specified, the information applies to the calendar year.

Country projects are arranged alphabetically, followed by AMRO (intercountry or interzone) and interregional projects. Project numbers in parentheses correspond to a previous classification.

A *country-project* purpose states the objective for which the project was undertaken by the Government concerned and is not related to the form or extent of PAHO/WHO assistance. An *AMRO-project* purpose states the goal, or goals, sought by the Organization.

As to projects that include *Fellowships* in the title, the awarding of fellowships itself constitutes the objective of each of those projects; other fellowship awards are shown within the project of which they are part.

The Pan American Sanitary Bureau operates basically with funds from the regular budgets of the Pan American Health Organization and the World Health Organization. Monies received from other sources are channeled through either PAHO or WHO. Below each project description the sources of funds are shown at the left and cooperating agencies at the right, as applicable.

The following acronyms are used to identify the sources of funds:

PAHO/RB	Regular Budget of the Pan American Health Organization
PAHO/CWSF	Community Water Supply Fund
PAHO/SFHP	Special Fund for Health Promotion
PAHO/SMF	Special Malaria Fund
PAHO/OF	Other Funds
WHO/RB	Regular Budget of the World Health Organization
WHO/MESA	Malaria Eradication Special Account
WHO/UNDP	United Nations Development Program
WHO/OF	Other Funds

Other acronyms—and the corresponding full names—used in the *Report* appear on page v and in the index.

### ARGENTINA-0100, Communicable Disease Control

*Purpose:* Reduction of morbidity, mortality, and disabilities caused by communicable diseases to a point where they will cease to be public health problems.

*Probable duration:* 1969-1973.

*Assistance provided:* Advisory services by the epidemiologist assigned to project AMRO-0106 and by AMRO-6100 staff.

*Work done:* An intensive training program in epidemiological techniques was carried out. This included: 4 one-week seminars for 96 technicians in different fields, including 59 physicians; 1 intermediate-level course (1 month) for 15 physicians (3 foreign fellows); and 1 short orientation course for 24 physicians from Patagonia. The School of Public Health of the National University of Buenos Aires offered its first diversified course in epidemiology (4 months), for 12 physicians (2 foreign fellows). Four national meetings were held to update technical standards for the execution of tuberculosis, leprosy, and venereal disease control programs. A study of the structure and functions of epidemiological services at the various levels of Argentina's public health organization was begun. A survey was made of human and material resources available for the execution of communicable disease control programs, and a legislative proposal was drafted to improve the mechanisms for the reporting and registration of cases of epidemiological interest.

### ARGENTINA-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1959-

*Assistance provided:* 1 medical officer; entomological supplies and antimalaria drugs.

*Work done:* The areas in the maintenance and consolidation phases, containing 70% of the population of the malarious area, were extended to embrace 55% of the area originally subject to the disease. The annual parasite incidence for the entire malarious area was reduced to 0.08 per 1,000 inhabitants, or 85.7% of the 1967 rate.

From January to September 247 cases were discovered, including 165 in the consolidation phase, where the parasite incidence was 0.4 per 1,000. Of the cases discovered 159 were investigated and subjected to radical treatment; 136 (85.5%) of these were autochthonous cases, 95% of them originating in 19 localities in San Ramón de la Nueva Orán, Province of Salta. All 198 reporting stations were visited, the average frequency of visits being 32 days.

In the attack-phase area, 46,404 houses were sprayed with DDT during the first cycle (71.7% of the target), and in the second cycle (July-December) 81.9% of the target was reached. The slide positivity rate in this area was reduced from 1.4% in 1967 to 0.2% in 1969.

Training in epidemiological surveillance work was given to 22 health inspectors from Salta Province. Action was being taken to transfer the responsibility for malaria surveillance to the general health services in the Provinces of Jujuy, Salta, Santiago del Estero, and Tucumán.

**PAHO/RB****UNICEF****ARGENTINA-0300, Smallpox Eradication**

*Purpose:* Eradication of smallpox in the country through vaccination of 90% of the population over a period of 5 years.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by staff assigned to project AMRO-0306; equipment and supplies; and 1 short-term fellowship.

*Work done:* 453,468 persons were vaccinated with freeze-dried vaccine, representing 14.2% of the target. Production of vaccine was 21,427,850 doses.

The morbidity rate remained at zero.

**WHO/RB****ARGENTINA-0400, Tuberculosis Control**

*Purpose:* Execution of a tuberculosis control program through the country's general health services.

*Probable duration:* 1960-1970.

*Assistance provided:* 1 short-term consultant; advisory services by the epidemiologist assigned to project AMRO-0106; and 3 short-term fellowships.

*Work done:* Activities were continued in the initial work area in Santa Fe Province, with emphasis on training. Similar activities were carried out by the National Tuberculosis Center in Mar del Plata, which is responsible for the Patagonian provinces. Training was given to 12 medical officers, 8 bacteriology technicians, 28 nursing auxiliaries, and 9 social workers.

A national meeting was held to review technical standards and administration of control programs and to establish criteria for bacteriological diagnosis.

A survey to update the information on prevalence of infection in the school population was completed and showed figures ranging from 1.3% to 19.9% in the urban areas and from 3.3% to 32.3% in rural areas. Analysis of mortality data for 1967-1968 revealed an over-all yearly average of 13.1 per 100,000 inhabitants, with provincial levels ranging from 6.4 to 81.8.

The antituberculosis activities of the Secretariat for Public Health were brought under centralized direction, and a procedure was instituted for performing tuberculosis bacteriology tests in the laboratories of the health centers. A

seminar was conducted to establish uniform standards for extending the BCG vaccination program, employing this vaccine directly in certain areas and among certain population groups, intensifying the search for cases, adopting uniform treatment standards, etc.

**PAHO/RB, WHO/RB****ARGENTINA-0700, Pan American Zoonoses Center**

*Purpose:* Strengthening of the Pan American Zoonoses Center and expansion of its technical facilities for research, training, and the development of studies and field demonstration programs, in order to provide Argentina and other Member States with better advisory services in animal health.

*Probable duration:* 1966-1971.

*Assistance provided:* 1 project manager, 3 public health veterinarians, 2 epidemiologists, 5 scientists, 12 short-term consultants, and advisory services by staff of project AMRO-0700; equipment and supplies; and 7 short-term fellowships.

*Work done:* The Center carried forward its activities under the headings of services, training, and research.

Laboratory animals and biological reagents were furnished to several agencies in Argentina. Quality control tests were conducted on 39 batches of Brucella vaccine. In Buenos Aires a swine brucellosis survey was carried out and assistance was given in a rabies control program. Other services included cooperation in a bovine rabies serological survey in northern Argentina, in activities for the diagnosis of animal tuberculosis, and in training and research in food microbiology. The epidemiology of salmonellosis and other diseases derived from horse meat was investigated.

In regard to training, the Center participated in courses on medical parasitology; on the epidemiology and diagnosis of rabies, tuberculosis, and hydatidosis; on milk-borne diseases; and on immunofluorescence techniques applied to rabies.

Research activities included ecological studies of vampire bats, which were continued in five localities in Argentina, and other studies on schedules of post-exposure antirabies vaccinations in man, the effectiveness of Brucella vaccines in swine, leptospirosis surveillance procedures in armadillos, the incidence of tuberculosis in pigs, and the occurrence of tubercle bacilli in milk.

The quarterly information bulletin, *Zoonosis*, doubled its distribution. Several technical papers were prepared by staff of the Center.

**PAHO/RB, WHO/UNDP****ARGENTINA-0701, Bovine Rabies Control**

*Purpose:* Evaluation of vaccines used for the control of bovine rabies.

*Probable duration:* 1965-1971.

*Assistance provided:* Advisory services by Headquarters and project AMRO-0700 staff.

*Work done:* Titration of 600 serum samples obtained from the cattle rabies vaccination program of northern Argentina was completed at the Pan American Zoonoses Center.

Trials of a high-titer attenuated vaccine (ERA strain) prepared at the Wistar Institute in Philadelphia (USA) were conducted in a group of 24 bovines. The findings indicated that animals immunized with this vaccine, even in the highest dilutions, resisted the challenge with a rabies virulent strain after 90 days. There appear to be good possibilities for using this vaccine for the control of paralytic rabies in cattle, and further field experiments with it were being undertaken by the Center.

In another experiment to test the duration of immunity, serologic studies were being made of 48 bovines inoculated with 4 different vaccines, one prepared in South America and the other at the Wistar Institute.

#### **ARGENTINA-0703, Antirabies Vaccine**

*Purpose:* Establishment of a center for the production of antirabies vaccine for human use, to meet emergency needs in the Hemisphere.

*Probable duration:* 1968-1970.

*Assistance provided:* Advisory services by project AMRO-0700 staff; supplies.

*Work done:* The National Institute of Microbiology produced 166,533 doses of antirabies vaccine for human use. It supplied 20,272 doses to the Governments of Bolivia (2,560), Brazil (2,496), and Paraguay (15,216).

Each batch of the vaccine was tested for potency and safety at the Pan American Zoonoses Center.

#### **WHO/RB**

#### **ARGENTINA-2100, Environmental Sanitation**

*Purpose:* Strengthening of the environmental sanitation services.

*Probable duration:* 1967-1971.

*Assistance provided:* 1 sanitary engineer, and advisory services by staff of projects Argentina-2200 and AMRO-2106.

*Work done:* An academic course at the National University of Buenos Aires was completed by 12 public health engineers, who will strengthen the provincial services. With the assistance of UNICEF, 4 courses were conducted in the Provinces of Santa Fe, San Juan, Tucumán, and Río Negro for a total of 75 sanitation technicians. In addition, short courses were offered to 340 agricultural extension workers, rural teachers, and community leaders.

Water pollution control activities were continued, and an evaluation was begun of the effects of pollution on the Matanza, Riachuelo, and Reconquista Rivers in the metropolitan area of Buenos Aires. Similar activities were launched in the basin of the Salí and Dulce Rivers. In the waste disposal program, 3 sanitary landfills were started for Greater Buenos Aires, to dispose of 600 tons per day from the municipalities of Avellaneda, Quilmes, Lomas de Zamora, and San Isidro, whose combined population is 1,200,000. Action was under way to purchase \$600,000 worth of additional equipment, which will make it possible to extend the program to 17 districts of the metropolitan area and to serve a total of 3,500,000 persons. A National Revolving Fund was set up to provide loans to rural communities as part of the rural housing improvement program.

#### **PAHO/RB**

#### **UNICEF**

#### **ARGENTINA-2200, Water Supplies**

*Purpose:* Planning and organization of water supply and sewerage services in urban and rural areas.

*Probable duration:* 1960-1971.

*Assistance provided:* 1 sanitary engineer, and advisory services by Headquarters and Zone VI Office staff.

*Work done:* In regard to urban areas, technical advisory services were rendered to the National Sanitation Works Administration (OSN) in the collection of basic data on water supply and sewerage services. The construction or expansion of water and sewerage services during the year will benefit some 300,000 and 250,000 persons, respectively.

In the rural areas, 112 new projects were started and 75 water supply systems were turned over to as many communities. By the year's end, 101 facilities to supply drinking water to the houses of 113,378 persons had been delivered to rural communities. The addition of 2 sanitary engineers and 1 accountant to the staff of the Provincial Service brought a significant improvement in its operating capacity. A total of \$2,183,759 has been received from the Inter-American Development Bank for this program; this accounts for 43.6% of a loan for the construction of waterworks. Negotiations were begun for another IDB loan in the amount of \$7,000,000 to finance 50% of the second stage of the program, involving the construction of 265 water supply facilities over a period of 30 months.

The following courses were conducted: 2 short courses for operators and administrators of water services, attended by 61 persons; 1 short course attended by 14 promoters; and 1 course attended by 22 supervisors of waterworks operators.

#### **WHO/RB**

#### **ARGENTINA-3100, Health Services**

*Purpose:* Improvement in the organization and effectiveness of national, provincial, and local health services; and promotion of the planning and regionalization of health services.

*Probable duration:* 1965-1972.

*Assistance provided:* 1 physician specialized in public health and 7 short-term consultants; 6 short-term and 4 long-term fellowships.

*Work done:* The second phase of the Government Plan, which calls for increased public investment in health, education, and housing, was brought under way. The Secretariat for Public Health was again reorganized: its National Health Sector Department provided liaison with the National Development Council, and a National Technical Information Department was established to bring together the existing vital and health statistics units. Studies were being conducted with a view to ensuring reliable information and establishing permanent sources of current vital and health data as a basis for planning.

Efforts continued to be made to consolidate the policy of centralized technical administration combined with decentralized executive and administrative responsibility by establishing more effective procedures for coordination and supervision. The Secretariat inaugurated its regional offices in each of the 8 economic and social development regions into which the country has been divided.

The environmental sanitation and water supply services

were strengthened in all the provinces. A total of 101 water supply systems were turned over to rural communities, and another 98 were under construction. A Secretariat for Water Resources was established in the Ministry of Public Works and Services, with responsibility for all water-utilization activities.

Initial plans were laid for the improvement of the medical schools. Forty-two regular courses, 43 special courses, and 7 seminars on various public health topics were attended by 678 physicians; 97 dentists; 33 engineers; 913 nurses; 391 statisticians, laboratory workers, sanitary inspectors and orthopedic technicians; 1,124 nursing and sanitation auxiliaries; and 436 administrators, social workers, teachers, and community promoters.

#### **PAHO/RB, WHO/RB**

##### **ARGENTINA-3101, Fellowships**

Eleven short-term and 5 long-term fellowships were awarded.

#### **WHO/RB**

##### **ARGENTINA-3102, Health Services in the Northwest (1957-1969) PAHO/RB, WHO/UNDP, UNICEF**

The original purpose was to organize an integrated health service in the Province of El Chaco, to provide for the training of personnel, and to update health legislation. In 1964 the project was extended to Tucumán Province, and it continued to operate in both Provinces until 1965. Beginning in 1966 it included also the Provinces of Catamarca, Jujuy, Salta, and Santiago del Estero, with the additional purpose of formulating and executing an integrated health plan for the provincial health services in the northwest. The Organization provided the services of a public health physician, an engineer, and a public health nurse; 1 short-term consultant and advisory services by Headquarters and Zone VI Office staff; and 3 short-term and 24 long-term fellowships for the training public health specialists in various fields, notably medicine, nursing, sanitary engineering, health education, epidemiology, statistics, hospital administration, and maternal and child health.

During the initial period, the national health services were decentralized at the provincial level, a process which was completed in 1961 for the medical care services and in 1963 for other services. The Provincial Health Service was reorganized, and 4 health districts were established and began operations. Legislative measures were issued on the organization of the provincial ministries of health, and new standards for their operation were established. The water supply and sewerage services were improved, as were those for latrine construction, garbage disposal, and food hygiene in urban and rural areas. A total of 504 nursing auxiliaries and sanitation inspectors were trained in Argentina, and long-term fellowships were awarded to 13 officials for training abroad in various fields.

From 1964 to 1969 the administration of provincial health services was improved, and progress was made in bringing about a decentralization of national services and a regionali-

zation of provincial services. In 1967 a start was made on the implementation of plans formulated in 1966. The Provinces of Catamarca and Santiago del Estero developed plans for the period 1969-1972. Twenty professionals in various fields were trained in the 5 northwestern provinces; and 1,449 health workers in those provinces received training in 57 courses of varying duration and content. A mechanism for interprovincial coordination was established in the health ministries of 2 of the 5 provinces. With the improvement of the ability of provincial services to develop specific projects, it was possible to extend the activities of various services, particularly in the fields of medical care, maternal and child health, nutrition, communicable disease control, nursing, statistics, and environmental sanitation.

##### **ARGENTINA-3108, Regional Health Services**

One long-term fellowship was awarded.

#### **PAHO/RB**

##### **ARGENTINA-3500, Health Statistics**

*Purpose:* Establishment and modernization of systems for the production of vital and health statistics of the country.

*Probable duration:* 1960-1971.

*Assistance provided:* Advisory services by project AMRO-3506 staff; a limited amount of supplies.

*Work done:* The implementation of the systems of vital and health statistics was completed. By using the forms developed for the national program, it was possible to obtain almost 100% of the data on vital events, hospital discharges, and external consultations from all official establishments covered by the program. The completed forms were reviewed by the provincial departments of statistics. An evaluation of the program was made in mid-year.

The 4th national meeting on health statistics was held. In the regional centers, 10 courses were conducted for a total of 241 auxiliaries.

#### **PAHO/RB**

##### **ARGENTINA-3504, Data Processing Center**

*Purpose:* Formulation of a plan for the effective utilization of electronic computers in the various health agencies; training of personnel in systems analysis, programming, and general administration of the computer units; and conduct of research.

*Probable duration:* 1968-1973.

*Assistance provided:* 1 consultant in systems analysis and electronic computerization; 2 short-term fellowships.

*Work done:* The Computer Center in Health, of the Ministry of Health, began operations in January. Eight courses were held and were attended by 233 students. An IBM 360/50 computer was installed in the José de San Martín Teaching Hospital, and in 1969 it was used principally in the area of hospital information systems (covering both hospitalized patients and outpatients), in the analysis of electrocardiograms and hospital charts, and in administrative areas (personnel, budget, and finance).

This computer and the plans for its use in health programs formed the basis for the preparation of a proposal for UNDP assistance in an expanded program in which training will also be provided to personnel from other countries of the Region. The proposal includes an increase in peripheral computer components, a substantial training program, and fellowships.

#### WHO/RB

#### ARGENTINA-4300, Mental Health

*Purpose:* Formulation and implementation of a national mental health plan; and provision of technical assistance to the National Institute of Mental Health in personnel training and in epidemiological research.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by Zone VI Office staff.

*Work done:* The National Institute of Mental Health, as the agency in charge of supervising and providing advice to mental health activities throughout the country, continued to carry out a program of action, with emphasis on mental care through 5 psychiatric hospitals, 17 psychiatric units in as many provincial hospitals, 2 mental health centers in Greater Buenos Aires, 2 rehabilitation colonies in the provinces, and 2 special homes for the mentally retarded.

In the field of occupational therapy and rehabilitation of patients, the following facilities, among others, were organized or adapted: 7 sheltered workshops, 4 centers for pre-vocational education and social rehabilitation, and 3 alcoholism centers.

#### ARGENTINA-4302 and -4303, Mental Health Research (1964-1969) Grant to PAHO: Foundations' Fund for Research in Psychiatry (Yale University)

The purpose was to carry out psychological research among individuals under treatment at the psychopathology service of the Aroaz Alfaro Hospital, Lanús, Buenos Aires. The Organization administered the grants during the entire duration of the project.

The investigations completed during the period included those on patterns of communication among neurotic patients and a survey on attitudes toward the alcoholic patient and toward alcohol consumption. A third study was on family interaction and schizophrenia. In this long-term study several modes of communication among members of families in which a member was schizophrenic were analyzed. A comparison was made of the results obtained with a control group and a study group in Argentina, and with a sample of English-speaking families (USA) having similar problems.

#### ARGENTINA-4400, Dental Health

*Purpose:* Development of a dental health program as an integral part of the general public health services in the Province of Buenos Aires; and training of auxiliary personnel.

*Probable duration:* 1967-1972.

*Assistance provided:* 2 short-term consultants, and advisory services by Headquarters and Zone VI Office staff.

*Work done:* A plan for increasing the productivity of the dental clinics was prepared.

The instructors for the training courses for dental assistants were trained, and a manual was prepared for the teaching of auxiliaries in this field.

#### PAHO/RB

#### ARGENTINA-4500, Radiation Protection

*Purpose:* Reduction of the risks caused by X-ray equipment.

*Probable duration:* 1967-1971.

*Assistance provided:* Advisory services by project Argentina-2100 staff; supplies.

*Work done:* Systematic control of the risks caused by X-ray equipment was begun; and a review was made of the tasks involved in conducting a census of such equipment in service throughout the country.

The Organization supplied the laboratory equipment required for placing the dosimetry service into operation.

The chief engineer of the program attended the meeting of the working group on radiation protection, held in Guayaquil, Ecuador, from 24 to 28 November.

#### PAHO/RB

#### ARGENTINA-4600, Industrial Hygiene

*Purpose:* Assessment of the extent of problems caused by unhealthful conditions and the lack of safety devices in industrial plants in Greater Buenos Aires, as the basis for establishing within the Secretariat for Public Health an official industrial hygiene program for the Buenos Aires area and later for the entire country.

*Probable duration:* 1966-1971.

*Assistance provided:* Advisory services by staff of Zone VI Office and of projects Argentina-2100 and Brazil-2101; supplies; and 2 long-term fellowships.

*Work done:* The basic guidelines for coordination between the health and labor sectors were established and included in the new National Ministries Law. Equipment for the central reference laboratory was purchased with funds from the budgetary allotment of the Department of Environmental Sanitation of the Secretariat for Public Health. The survey on health conditions in industrial plants in the Provinces of Córdoba, Santa Fe, and Mendoza was continued. Collection of statistical data on the incidence of work accidents was begun on an experimental basis in 18 local plants.

#### PAHO/RB, WHO/RB

#### ARGENTINA-4601, Air Pollution

*Purpose:* Assessment of the extent of air pollution, and adoption of measures to control and abate this problem through the establishment of air-sampling stations in Greater Buenos Aires and later in other cities.

*Probable duration:* 1967-

## VIII. PROJECT ACTIVITIES

*Assistance provided:* Advisory services by staff of projects Argentina-2100 and AMRO-2114.

*Work done:* 12 air-sampling stations were in operation in the Federal Capital, 8 in nearby municipalities, and 2 in the cities of Córdoba and Mendoza. The effects of pollution caused by household trash burners and by combustion gases emanating from Diesel engines were being studied at the Institute of Sanitary Engineering of the University of Buenos Aires.

### **ARGENTINA-4800, Medical Care Services**

*Purpose:* Establishment of a regional system of medical care services; and training of personnel in hospital administration.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by project Argentina-4803 staff.

*Work done:* Technical advisory services were rendered to the José de San Martín Teaching Hospital of the National University of Buenos Aires; the Centenario Hospital and the Fernández Hospital of the University of Rosario; the Ciudadela and San Martín Hospitals, in Buenos Aires Province; and the Naval Hospital in Buenos Aires.

Continuing cooperation was given in the planning for the National Department of Mental Health and in the survey of hospital facilities being conducted by the Secretariat for Public Health as a basis for formulating the hospital construction and modernization program of the country.

Five intensive 4-month courses in hospital administration, each consisting of 540 hours of classroom instruction, visits and practice, were conducted at the School of Public Health of the National University of Buenos Aires. The first 4 courses were attended by an average of 30 hospital directors, while the last (consisting of specialized training as part of the course leading to a diploma in public health) was attended by 12. Two of the courses were given in the Federal Capital and the other 3 in the Provinces of Chaco, Mendoza, and Río Negro. A course in hospital statistics was also conducted.

Lectures were given at the Nursing School of the National University, and cooperation was extended to a 30-day seminar offered at the San Martín Polyclinic Hospital, attended by 120 students. Assistance was also rendered to the Association of Municipal Medical Officers in a workshop held under the sponsorship of the School of Medicine of the National University, attended by more than 80 physicians, and to the Campo de Mayo Military Hospital in an advanced training course in hospital administration for military physicians from various garrisons in the country and for administrative and nursing personnel.

### **ARGENTINA-4803, Latin American Center for Medical Administration**

*Purpose:* Carrying out of advanced education and continuing education programs in administration of medical services; and conduct of research on the utilization and financing of health services, the development of human resources, and teaching and administrative methods.

*Probable duration:* 1967-

*Assistance provided:* 2 medical officers (one of them Director of the Center), 2 nurses, 1 medical records librarian, and 4 short-term consultants; grants for local expenses; equipment and supplies; and 3 short-term and 1 long-term fellowships.

*Work done:* A Department of Information and Documentation and a Library were established in the Center. The plans for the training and research programs in 1970 were completed. A nutrition survey and a study on medical care resources were carried out in the Partido 3 de Febrero section (Greater Buenos Aires), which was selected as the Center's demonstration area. Efforts to coordinate the work of the various health institutions in that section were continued.

An intensive 2-month course on hospital maintenance offered at the Center was attended by 11 engineers, and a seminar on medical and hospital care was held for 15 directors of university hospitals and professors of medicine from Argentina, Chile, Paraguay, and Uruguay.

The Center rendered teaching assistance to the School of Public Health of the National University of Buenos Aires, as well as advisory services to several medical care establishments in the countries of Zone VI.

**PAHO/RB, PAHO/OF,  
WHO/RB**

**Dr. Clement C. Clay,  
Government of Argentina**

### **ARGENTINA-5000 (-4801), Rehabilitation**

*Purpose:* Training of instructors, technicians, and highly skilled operators in the field of orthotics and prosthetics; and organization of a department of research for the production of orthopedic and prosthetic devices suited to various medical and financial conditions and based on the use of new techniques and locally available materials.

*Probable duration:* 1966-1970.

*Assistance provided:* 1 technician in orthotics and prosthetics.

*Work done:* The School of Prosthetics and Orthotics continued to carry out its training program. Three equipment operators and two specialists in orthopedic footwear took their courses during the year. Five instructors completed their theoretical and practical training in educational methodology and were working at the School.

Thirteen technicians completed 3,725 hours of instruction over a period of 4 years, the last of which was devoted to clinical work in the amputees' service of a rehabilitation center.

**WHO/UNDP**

### **ARGENTINA-6100, School of Public Health**

*Purpose:* Strengthening of the School of Public Health of the National University of Buenos Aires in order to provide for the proper preparation of the professional and auxiliary personnel needed for the health programs of the country.

*Probable duration:* 1958-1970.

*Assistance provided:* 1 short-term consultant, and advisory

services by the medical officer assigned to project AMRO-6100; 1 grant; and 1 long-term fellowship.

*Work done:* 423 students were graduated by the School, 83% more than in 1968; 31 foreign fellows were admitted during the year.

The School, as now reorganized, has 9 departments, 2 of which were recently established. Its budget rose from \$168,000 in 1968 to \$182,000 in 1969. There were 9 full-time professors.

A new building, twice the size of the existing one, was acquired and will be placed in service in 1970.

The basic curriculum was revised and improved, with provision made for diversified courses.

The School offered courses and rendered advisory services to 9 provinces. It also assisted the Recreo Training Center in Santa Fe in conducting its intensive training program in epidemiology and cooperated with the School of Nursing in Buenos Aires.

#### WHO/RB

#### ARGENTINA-6200, Medical Education

*Purpose:* Strengthening and expansion of medical education through adequate planning, better pedagogical approaches, and research activities.

*Probable duration:* 1958.

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters and Zone VI Office staff; 5 short-term and 1 long-term fellowships.

*Work done:* Advisory services continued to be given to the medical education institutions in regard to teaching methods, organization and administration, and review of curricula. Assistance was rendered in the planning of teaching programs and in implementing a scientific research plan. A paper on the organization of schools of health sciences was presented to the Assembly of Deans held in Tucumán from 6 to 8 November.

#### WHO/RB

#### ARGENTINA-6201, Health Manpower Study

*Purpose:* Execution of a 3-year study on health manpower needs and the means of meeting them; and compilation of data for the reorientation of the general medical education program and of other training programs for health personnel in the country.

*Probable duration:* 1968-1971.

*Assistance provided:* 9 short-term consultants, and advisory services by the nurses assigned to projects Argentina-3102 and -6300 and the statistical adviser assigned to project AMRO-3506; 1 grant for local costs.

*Work done:* Two phases of the international cooperative study were completed: collection of data on the utilization of medical care resources and of information on the instruction offered by schools of medicine, dentistry, and nursing. The data were being reviewed for statistical processing. The field survey on morbidity, which will cover initially the country's 5 largest metropolitan areas and the region of Patagonia, was begun. A total of 9,000 dwellings will be covered

in the first year. It was hoped to carry out certain demographic studies through this survey. A directory of physicians and dentists was being prepared as part of the manpower study.

A sampling survey, based on a census of the students at the School of Medicine of the National University of Buenos Aires, was being conducted as an aid to assessing certain important characteristics of the students and of medical education.

#### WHO/RB

#### ARGENTINA-6202, Biostatistics and Demography Center

*Purpose:* Establishment of a Biostatistics and Demography Center in the School of Medicine of the National University in Buenos Aires.

*Probable duration:* 1968-1971.

*Assistance provided:* 1 short-term consultant, and advisory services by project AMRO-3506 staff; 1 long-term fellowship.

*Work done:* The Center—which has educational, advisory, and research functions—was provided with personnel, a headquarters, and some equipment and furnishings and began its activities during the second quarter of the year. Study and advanced training sessions were held for the staff, and one of its members was awarded a grant to study abroad. Three short courses, attended by 73 physicians and research workers, and another, attended by the 20 statistics instructors of the School of Medicine of the National University in Buenos Aires, were offered by the Center. Assistance in statistics instruction was rendered to the Schools of Medicine and Veterinary Medicine, and advisory services were provided in connection with more than 25 research projects carried out by the School of Medicine and various health institutions.

The Association of Schools of Medicine was assisted with a study of statistics education aimed at establishing national standards, training personnel for instruction in this field, and creating similar centers in all of the country's medical schools. Cooperation was also given the School of Public Health in the teaching of statistics and demography.

The Center's Department of Demography made plans to conduct 5 research projects—on infant mortality, fertility, and migration—for the national health survey.

#### PAHO/RB

#### ARGENTINA-6300, Nursing Education

*Purpose:* Improvement of the instruction at nursing schools to enable them to meet the country's needs in this field, both quantitatively and qualitatively.

*Probable duration:* 1957-1970.

*Assistance provided:* 1 nurse.

*Work done:* Regulations on the teaching of nursing were issued by decree-law, and a national program in this field was prepared. The national universities were drawing up plans for 2 cyclical courses on nursing education and 2 on administration of services. The university nursing schools, all of which offer a course of instruction leading to a bache-



## VIII. PROJECT ACTIVITIES

lor's degree in nursing, increased their combined enrollment to 520 students.

A survey on nursing education and resources was being conducted in 155 institutions as a joint activity with project Argentina-6201.

The Schools of Nursing of the Universities of Rosario and Tucumán initiated programs enabling graduate nurses to obtain a bachelor's degree.

The National University of Buenos Aires reorganized its obstetrics curriculum into two cycles, nursing and obstetrics, the former being made a prerequisite for the latter.

The Argentine Nursing Federation, which was admitted to membership in the International Council of Nurses, organized a seminar on nursing education and services, attended by 250 nurses.

### PAHO/RB

#### **ARGENTINA-6301, Training of Nursing Personnel (1960-1969) UNICEF**

The purpose was the training of professional and auxiliary nursing personnel in order to improve the health services of the country. The Organization provided the services of 1 adviser (September 1960-November 1962), 1 short-term consultant (July-October 1964), 1 adviser in education (January 1966-December 1968), and advisory services by the nurse assigned to the Zone VI Office and others assigned to various nursing education projects. It also provided vehicles and teaching materials. UNICEF supplied equipment and materials, 2 vehicles, and from 1962 to 1964, 30 nine-month fellowships for attendance by nurses at courses in supervision and nursing education and 250 fellowships for auxiliaries. Between 1965 and 1969 the number of fellowships awarded to auxiliaries and nurses was 300 and 30, respectively. The Government of Argentina, which provided 50% of the cost of the fellowships in the early years, increased its share to 75% in 1969. From 1963 to 1965, fellowships were awarded to students in the university schools of nursing.

The preliminary work was started in 1961, and in March of that year an orientation seminar, attended by 36 nurses, developed a "Guide for the Training of Professional and Auxiliary Nursing Personnel in Argentina." A first evaluation seminar, attended by 43 nurses, was held in April 1963 to revise the Guide. The second evaluation seminar, held in 1968 and attended by 62 nurses, again revised the Guide and also prepared an action plan for the future. This program, carried out with the cooperation of the National Government, national universities, and provincial governments, was coordinated by a nurse at the national level and others at the local level.

A course on nursing supervision, administration, and education was offered each year in Buenos Aires; a total of 213 nurses attended. The courses for nursing auxiliaries were held in earlier years in Buenos Aires, Córdoba, La Plata, Mendoza, San Juan, Rosario, and Tucumán, and later in San Luis, Salta, and Jujuy. There are now some 30 courses for auxiliaries offered in Argentina, most of which follow the basic lines of this program. More than 2,500 auxiliaries were trained. The program for the training of auxiliary

personnel prepared as a result of this project was accepted as part of the new regulations for nursing education. While the effects of this program in terms of courses and inservice training programs cannot be quantified, it is obvious that the number of such activities has grown substantially. This project and the nursing education project have guided the country's activities in the field of nursing instruction.

The national nursing education plan will be put into effect in 1970.

#### **ARGENTINA-6400, Sanitary Engineering Education**

*Purpose:* Strengthening the teaching at the Institute of Sanitary Engineering of the National University of Buenos Aires.

*Probable duration:* 1969-1970.

*Assistance provided:* Advisory services by staff of Headquarters and of project AMRO-2106; grants; supplies; and 1 short-term and 1 long-term fellowships.

*Work done:* An intensive course (13 October-28 November) was offered at the National University in Rosario for 22 supervisors responsible for operation and maintenance of rural water supply systems. At the Institute of Sanitary Engineering of the National University of Buenos Aires, an intensive course on stabilization ponds was attended by 15 national and 2 foreign participants, and 2 postgraduate academic courses, on sanitary engineering and public health, by 9 and 12 engineers, respectively. Eight research projects were completed at the Institute, and another 6 were under way. Four manuals on various sanitary engineering subjects were completed and were being readied for publication; another 6 were being prepared.

### PAHO/RB

#### **ARGENTINA-6500, Veterinary Medical Education**

*Purpose:* Development of the teaching of preventive medicine and public health in the schools of veterinary medicine of the country.

*Probable duration:* 1968.

*Assistance provided:* Advisory services by Headquarters and project AMRO-0700 staff.

*Work done:* A study on the feasibility of establishing a School of Veterinary Medicine at the University of Cuyo, Mendoza, Argentina, was completed. Subsequently, assistance was given in drawing up the building design, development plan, study programs, and administrative structure for the new School.

Staff of the Pan American Zoonoses Center assisted with the teaching at the Schools of Veterinary Medicine in Buenos Aires, La Plata, and Corrientes. The Center provided these Schools with teaching materials, audiovisual aids, biological reagents, and laboratory animals.

#### **ARGENTINA-6700, Training of Statistical Personnel**

*Purpose:* Training of intermediate-level statistical personnel so they may take charge of the organization and management of local and regional offices of vital and health

statistics, and of departments of statistics and of medical and hospital records.

*Probable duration:* 1960-1971.

*Assistance provided:* 1 short-term consultant, and advisory services by the statistician assigned to project AMRO-3506; 1 grant.

*Work done:* The 2nd course of 1968 was completed, with 31 students graduating; the 1st course of 1969 was held, with 30 graduating; and the 2nd course of 1969 was begun, with 24 students.

#### PAHO/RB

#### BARBADOS-2300, *Aedes aegypti* Eradication

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1968-1970.

*Assistance provided:* Advisory services by project AMRO-2301 staff; equipment and supplies.

*Work done:* Four cycles of verification and treatment were carried out during the year, the perifocal method being used in all inspected houses. All potential and actual breeding places were treated with Baytex 40% W.P. in a suspension of 1.5%; to drinking water receptacles and flower vases, Abate 1% at 2 ppm was applied. The number of infested localities was reduced to 40. In the last cycle, 542 houses were found to be infested (index 0.8%). The Seawell airport was negative but the port of Bridgetown remained positive.

#### PAHO/RB

#### BARBADOS-3100, Health Services

*Purpose:* Improvement, expansion, and integration of the curative and preventive health services of Barbados.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by the Eastern Caribbean Office staff; common services; and 3 short-term and 3 long-term fellowships.

*Work done:* A study of the over-all administration of the national health services was under way.

The 6-week training course in basic sanitation was attended by 18 uncertified public health inspectors. Two intermediate-level administrative officers attended a 6-week training course in Guyana. The statistical officer at the Ministry of Health and Community Development received a 6-month fellowship for training in the USA and Canada.

#### PAHO/RB

#### BARBADOS-4200, Nutrition

*Purpose:* Improvement of the nutritional status by means of an applied nutrition program.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by project West-Indies-4200 staff; a limited amount of supplies.

*Work done:* The National Nutrition Committee, set up in 1968 with representatives of the Ministries of Health and

Community Development, Education, and Agriculture, signed an agreement in February 1969 for the establishment of an expanded applied nutrition program. The Committee appointed a working subcommittee to formulate the plans for a nutrition survey, which was conducted in 693 households (2,947 persons) in May. On the basis of the preliminary findings of this survey, which were presented in July, the subcommittee was drawing up the plans for a pilot project.

Eight Barbadians selected by the National Nutrition Committee to attend a course at the Caribbean Food and Nutrition Institute completed their studies and returned to their posts. A short course in hospital food service was given in September.

Dietitians from the Queen Elizabeth Hospital gave nutrition and diet-therapy lectures at the School of Nursing, in accordance with the revised curriculum.

#### WHO/RB

UNICEF

#### BARBADOS-4801, Hospital Administration

*Purpose:* Organization and operation of the Queen Elizabeth Hospital as the central medical institution of Barbados and as a teaching hospital for the University of the West Indies.

*Probable duration:* 1965-1972.

*Assistance provided:* 4 short-term consultants, and advisory services by the PAHO/WHO Country Representative and by personnel assigned to projects AMRO-2200, -3107, and -4207; 1 long-term fellowship.

*Work done:* In conformity with the comprehensive report which was prepared on the administrative services of the Queen Elizabeth Hospital, a senior accountant was appointed to coordinate all accounting functions in the institution.

A study was being made of the present utilization of the 5 infirmaries taken over from the defunct local government bodies (six infirmaries were closed as uneconomical).

Two dietitians were appointed to the Hospital, and the recommendations made by the hospital-food-service consultant were for the most part adopted. Fourteen staff members attended a 2-week course on hospital food service.

Short-term consultant services were provided in connection with housekeeping services and with the formulation of regulations for the Hospital.

#### WHO/UNDP

#### BARBADOS-6300, Nursing Education

(1965-1969) PAHO/RB, UNICEF

The purpose was to strengthen basic and postbasic nursing education, including midwifery, in order to improve the care of patients. The Organization provided one consultant in nursing education from 1966 to 1969, and 2 long-term fellowships in 1967 and 2 in 1969; UNICEF contributed supplies and equipment.

The functions of nursing and midwifery personnel were studied and the curriculum of the School of Nursing was completely revised. Social sciences and public health were added to the study program. A Department of Nursing Education was established and an intensive program to pre-

## VIII. PROJECT ACTIVITIES

pare teaching staff was carried out. Emphasis was placed on the recruitment of students for the basic program in nursing and midwifery, and progress was achieved in raising both the quality and the numbers of students enrolled.

From 1966 through 1969, 97 nurses were prepared in the 3-year basic program, 31 midwives in the 2-year program, and 97 ward assistants in the new 6-month program.

For nurses holding teaching positions and those in service in hospitals and health services, the following programs were carried out: a workshop on philosophy and objectives in nursing education, attended by 25 nurses; 3 inservice workshops on patient-centered care; and inservice education for teaching staff, on guidance and counseling, evaluation methods, test construction, and interviewing methods.

The project had considerable impact on nursing education. With the granting of full recognition by the General Nursing Council of England and Wales, the revised general nursing program attained an international status which had been the Government's goal for some years. Governments and individuals of other Caribbean countries indicated interest in this nursing education program.

The continuing preparation of the untrained members of the teaching staff will help to further improve this program. A proposal for increasing the number of teaching staff (12 posts) was presented to the Legislature. As the caliber of students applying for the program improved, the attrition rate decreased. The ward-assistant program was progressing satisfactorily and the midwifery program was being revised.

The appointment by the Government of a nursing education officer in 1969 made it possible to terminate the project. Cooperation in special fields will continue to be provided under project AMRO-3107.

### **BOLIVIA-0100, Epidemiology**

*Purpose:* Determination of the prevalence and characteristics of communicable diseases in Bolivia, and control of such diseases through joint and coordinated planning by all public health institutions.

*Probable duration:* 1968.

*Assistance provided:* 1 epidemiologist; equipment and supplies.

*Work done:* A basic agreement for the program was signed by the Government and the Organization. The first director of the National Health Laboratories Institute was appointed as an initial step toward reorganizing the Institute in line with a plan prepared in 1967.

A program of concurrent BCG and smallpox vaccination in the rural areas of Cochabamba was completed in September; 228,767 doses of BCG and 228,950 of smallpox vaccine were administered. Another 54,000 vaccinations were administered in urban areas.

A BCG-smallpox vaccination campaign was launched in La Paz in November; the target was to vaccinate 600,000 persons.

Outbreaks of plague in Apolo Canton of jungle yellow fever in Chaparé, Yapacaní, and Caranavi were brought under control during the first half of the year. The program for the control of hemorrhagic fever in the town of Magdalena, Beni Department, including the production of a Machupo virus vaccine in the laboratory of the Middle America Re-

search Unit (MARU) in Panama, was proceeding successfully.

An integrated vaccination scheme was being prepared with the cooperation of the Organization; it provides for the participation of all health agencies in Bolivia, which will coordinate their activities through an interagency committee headed by the Ministry of Public Health. In order to counter any epidemiological effects of migration, the program was planned to include the colonization areas in the eastern part of the country, where 670,000 farmers were being settled with the help of the National Agrarian Reform Council and the National Institute of Land Settlement.

### **PAHO/RB, WHO/UNDP**

#### **BOLIVIA-0200, Malaria Eradication**

*Purpose:* Eradication of malaria.

*Probable duration:* 1957-

*Assistance provided:* 1 medical officer and 1 sanitary inspector; equipment and supplies; and 1 long-term fellowship.

*Work done:* The positivity rate for the country as a whole rose from 1.8% in January to 4.7% in July, making it necessary to return to the attack phase in certain new consolidation-phase areas where control activities became impossible. As a result of a high-level meeting held in August to discuss the status of the program, it was decided to extend the required financial support to the National Malaria Eradication Service, which was thereby enabled to resume spraying operations.

A total of 13,105 houses (55% of the target) were sprayed during the first half of the year, 49,004 inhabitants being given protection. The 2nd spraying cycle was begun in September.

From January to November, 167,287 blood smears were examined, of which 3,957 (2.4%) were positive. This indicates a substantial increase over 1968 (1.1%), 1967 (0.7%), 1966 (0.5%), and 1965 (0.3%) and shows the decisive influence of financial problems on the progress of the campaign.

A letter-agreement was signed in August as a basis for a pilot project in the application of a triple-drug combination treatment.

### **PAHO/RB**

### **UNICEF**

#### **BOLIVIA-0300, Smallpox Eradication**

*Purpose:* Eradication of smallpox.

*Probable duration:* 1962-1972.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and Zone IV Office staff.

*Work done:* A vertical program of simultaneous vaccination against smallpox and tuberculosis in the 0-20 age group was initiated in February; 295,355 doses of smallpox vaccine and 295,565 of BCG were administered. National production of freeze-dried smallpox vaccine amounted to 230,000 doses; another 200,000 doses were supplied by the Organization.

The revision of the plan of operations for mass vaccination

in the city of La Paz was completed. The implementation of the program was seriously hampered by administrative problems.

#### **BOLIVIA-0400, Tuberculosis Control**

*Purpose:* Carrying out of a national tuberculosis control program by means of combined BCC and smallpox vaccination campaigns.

*Probable duration:* 1963-1971.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by Headquarters and Zone IV Office staff; equipment and supplies; 4 short-term fellowships.

*Work done:* A simultaneous BCG-smallpox vaccination program was completed in the rural areas of the Department of Cochabamba (see Bolivia-0100). In urban areas of the Department, 54,000 vaccinations were administered.

Operating plans were drawn up for a similar campaign in La Paz, which was begun in November.

**WHO/RB**

**UNICEF**

#### **BOLIVIA-0500, Leprosy Control**

*Purpose:* Control of leprosy in the country.

*Probable duration:* 1969 (previously reported under project AMRO-0504).

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by staff of Zone IV Office and of project Bolivia-0100.

*Work done:* A Bolivian leprologist received a 3½ month fellowship for studies in Venezuela; upon his return he will be placed in charge of the German Mission for Aid to Leprosy Patients in Monteagudo (Chuquisaca). The nurse assigned to the Mission completed a training course in clinical diagnosis of leprosy, also in Venezuela.

The National Institute of Communicable Diseases conducted a training course in leprosy in Monteagudo (20-30 August) for physicians and auxiliary personnel.

#### **BOLIVIA-0901, Typhus Control**

*Purpose:* Carrying out of a serologic survey and field evaluation of a vaccine prepared with strain E, with a view to the establishment of a control program to include also the application of insecticides.

*Probable duration:* 1967-1970.

*Assistance provided:* 1 sanitary inspector, and advisory services by the PAHO/WHO Country Representative and by Headquarters and Zone IV Office staff; a limited amount of supplies.

*Work done:* With the cooperation of sanitary inspectors from the National Institute of Communicable Diseases and of the epidemiologist from the Chuquisaca Health Unit, a preliminary study of the 3 localities chosen for the serologic survey was carried out in April-June and the plan of operations was prepared. All the equipment for the sampling survey was received. The serologic survey and the field evaluation were under way.

**PAHO/RB**

#### **BOLIVIA-2100, Environmental Sanitation**

*Purpose:* Planning and implementation of general environmental sanitation programs, and training of sanitary inspectors and other auxiliary staff.

*Probable duration:* 1969.

*Assistance provided:* 1 sanitary engineer, and advisory services by Zone IV Office and project AMRO-2114 staff.

*Work done:* Assistance was provided in the preparation of an agreement between the Bolivian Mining Corporation and the National Institute of Occupational Health for carrying out a series of occupational health programs in the camps and mines of the Corporation.

A program of basic sanitation for the Cochabamba and Tarija areas was begun in the city of Cochabamba in March; all the materials and equipment provided by UNICEF were received. As part of this program, 2 courses were conducted in Cochabamba: 1 on environmental sanitation techniques to be used in Chuquisaca Department, and the other to train personnel in the handling of rotary well-drilling equipment.

**PAHO/RB**

#### **BOLIVIA-2200, Water Supplies**

*Purpose:* Preparation and implementation of a water supply program.

*Probable duration:* 1960.

*Assistance provided:* 6 short-term consultants, and advisory services by staff of Zone IV Office and of projects Bolivia-2100 and AMRO-2203.

*Work done:* The National Water and Sewerage Corporation completed the construction of water supply systems for Copacabana, Coroico, Mocomoco and Pucarani, San Ignacio de Velasco, Tiahuanaco, Uyuni, Vallegrande, and Vitichi. The following activities were under way: improvement of the water and sewerage systems of La Paz and Santa Cruz; study of new water sources for Cochabamba; studies for a new water system for Potosí, and improvement of the water system for Sucre. Within the rural basic sanitation program, the well-drilling was continued in the Cochabamba and Tarija areas and the studies and designs for the systems were completed.

The consultants studied various administrative aspects of the local water and sewerage service of Oruro, as well as the administrative systems of the National Water and Sewerage Corporation.

**PAHO/CWSF**

#### **BOLIVIA-3100, Health Services**

*Purpose:* Development of the health services, and training of technical and auxiliary personnel in line with requirements.

*Probable duration:* 1955-1975.

*Assistance provided:* 2 medical officers (including the PAHO/WHO Country Representative), 1 nurse, and advisory services by Headquarters staff; common services; 6 short-term and 2 long-term fellowships.

*Work done:* Basic information for an institutional diag-

nosis of the health sector was gathered and processed. The purpose will be to provide a more realistic over-all approach to the health problems and permit adequate coordination of the services offered by the many public agencies (close to 20) in this field. An extensive analysis of administrative, accounting, and environmental sanitation aspects was conducted through specialized consultants. A study was being made with a view to the establishment of a homogeneous basic system of biostatistics in all these agencies.

As a basis for the diagnosis, a document covering the entire health sector of the country was drawn up and a draft amendment to the project agreement was prepared for the purpose of extending its application to the agencies cited, as a means of bringing them into the National Health Plan within the framework of joint, coordinated planning.

The first director of the National Health Laboratories Institute of the Ministry was appointed as an initial step in reorganizing the Institute.

Activities were intensified at the Health Unit of Santa Cruz Department, which was being brought into the National Health Plan.

In regard to environmental sanitation, assistance was provided in connection with effective utilization of loans, reorganization of sanitary engineering teaching, activities of other agencies in the health sector, and organization of the Central Water Quality Control Laboratory.

A plan was drawn up for a food assistance program to be conducted through the health services. The food will be supplied by the World Food Program, and the goals will be: to improve the composition of the food rations, increase the number of beneficiaries, improve the health services through utilization of the savings achieved, and coordinate the activities of the public agencies comprising the country's health sector so as to attain better use of available resources.

In the nursing field, the following activities were carried out: a short refresher course in public health for 60 nurses from the health centers of La Paz; a seminar on nursing services; evaluation of nursing activities at the Clinical Hospital; studies for the preparation of nursing standards for tuberculosis control; a nursing manpower survey in certain areas of the country; and preparation of a document on a revised salary scale for nursing personnel.

#### **PAHO/RB, WHO/RB, WHO/UNDP**

#### **BOLIVIA-3101, National Plan for Rural Development**

*Purpose:* Strengthening of health services for the indigenous population of the Andean highlands, as a part of their social and economic development and in order to facilitate their integration within the national community.

*Probable duration:* 1953-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* As a part of the Community Development Program, a vaccination campaign, to be carried out through agricultural cooperatives for the benefit of some 50,000 members, was prepared. Almost 200 cooperatives were in operation.

A committee of experts from various international organizations studied an application, to be submitted to the

United Nations, for a loan to finance rural development activities.

The Cantonal Council of Geneva, Switzerland, provided a grant of 130,000 Swiss francs for the purchase of vehicles, equipment, and instruments for 7 clinics and 2 general hospitals.

#### **BOLIVIA-3102, Fellowships**

Eleven short-term and 7 long-term fellowships were awarded.

#### **WHO/RB**

#### **BOLIVIA-3104, Health Services (Cochabamba and Tarija)**

*Purpose:* Development of health services in the Departments of Cochabamba and Tarija as demonstration areas for the National Health Plan.

*Probable duration:* 1966-1975.

*Assistance provided:* 1 nurse, 1 sanitary engineer, 1 short-term consultant, and advisory services by the PAHO/WHO Country Representative; 1 long-term fellowship.

*Work done:* In Cochabamba a program of simultaneous BCG-smallpox vaccination, covering both rural and urban areas, was carried out (see Bolivia-0100). A course for environmental sanitation technicians was completed in September, and the students were assigned to rural areas for field practice.

In Tarija a children's ward was completed in the San Juan de Dios Hospital and the tuberculosis control program was continued with the cooperation of the U.S. Agency for International Development and Peace Corps and of the Organization.

Almost all the equipment shipped by UNICEF was received and delivered to health centers and stations in urban and rural areas of Cochabamba and Tarija.

The Health Unit of Santa Cruz Department, which was being included in the National Health Plan, began to prepare an annual program of activities. Equipment and materials for this Department were also being supplied by UNICEF.

Work was continued on the construction of the water supply systems for the cities of La Paz, Santa Cruz, and Sucre, and the sewerage system of Santa Cruz. The National Water and Sewerage Corporation began construction of 6 small aqueducts. In addition, the following activities were carried out: 161 slabs for latrines manufactured, 135 latrines installed, 40 wells dug, and 4 deep wells drilled.

The X International Course on Modernization of Rural Housing was held in La Paz, and courses on sewage and waste disposal and on mine ventilation were conducted at the Technical University of Oruro.

#### **WHO/UNDP**

#### **UNICEF**

#### **BOLIVIA-3500, Health Statistics**

*Purpose:* Reorganization of the national and local biostatistics services.

*Probable duration:* 1968-1974.

*Assistance provided:* 1 statistician, and advisory services by the PAHO/WHO Country Representative and by project AMRO-3504 staff; 3 long-term fellowships.

*Work done:* The statistician took up his duties in November and prepared the plan of operations for the project.

The fellowships were awarded to officials from the Health Units of Cochabamba and Santa Cruz and from the Central Department, for attendance at the statistics course in Lima, Peru.

#### WHO/RB, WHO/UNDP

#### BOLIVIA-3600, Administrative Methods and Practices in Public Health

*Purpose:* Improvement of the organization and administration of health services.

*Probable duration:* 1968.

*Assistance provided:* 1 short-term consultant.

*Work done:* In June an official of the Ministry of Public Health received a fellowship to attend the training course in administration at the Institute of Organization and Administration (INSORA) of the University of Chile in Santiago.

The consultant was working on an institutional diagnosis of the health services.

#### PAHO/RB

#### BOLIVIA-4500, Radiation Protection

*Purpose:* Establishment of a radiation protection service, and training of professional and technical personnel in this field and in the use of radioisotopes in clinical medicine.

*Probable duration:* 1967-1970.

*Assistance provided:* Advisory services by staff of Headquarters and of project AMRO-4507; supplies.

*Work done:* The facilities of the radiation protection service were completed, and 200 pocket dosimeters were distributed. The National Institute of Occupational Health was supplied with publications and instructions on radiation protection. An agreement for the examination of personnel employed in the mines was signed between the Institute and the Bolivian Mining Corporation.

A Coordination Council on Radiation Protection was established by decree.

#### PAHO/RB

#### BOLIVIA-6000, Medical Textbooks and Teaching Materials

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* The program was proceeding in three Schools of Medicine (La Paz, Cochabamba, and Sucre). The School

at University of San Andrés, in La Paz, received 60 copies of the textbook *Tratado de patología*, 100 of *Bioquímica* and 100 of *Fisiología humana*, of which 59, 29 and 100, respectively, were sold.

The School at University of San Francisco Javier, in Sucre, sold 50 copies of the *Tratado de patología* and 10 of *Bioquímica*.

#### BOLIVIA-6200, Medical Education

*Purpose:* Reorganization of the teaching of medicine at the medical schools of La Paz, Cochabamba, and Sucre, so as to adapt the instruction to the country's needs and socioeconomic conditions.

*Probable duration:* 1968.

*Assistance provided:* 1 short-term consultant, and advisory services by the PAHO/WHO Country Representative and by Headquarters and project AMRO-6204 staff.

*Work done:* A seminar on medical education, held in Cochabamba, recommended the following measures: an assessment of the current situation; conduct of a health manpower study; establishment of a workshop on human relations and medical education; coordination of the activities of the 3 medical schools on the working level; provision of advisory services in the teaching of pathology; and participation in the World Food Program.

A review of the current status and future development of medical education was made with the Organization's assistance.

#### PAHO/RB

#### BOLIVIA-6400, Sanitary Engineering Education

*Purpose:* Improvement of the teaching of sanitary engineering in the universities of the country, in order to increase the number of sanitary engineers and raise the level of their education.

*Probable duration:* 1964-1971.

*Assistance provided:* 3 short-term consultants, and advisory services by staff of projects Bolivia-3104, AMRO-2114, and AMRO-2203; grants; and supplies.

*Work done:* 4 courses were conducted: 2 at the University of San Andrés, La Paz, on water-rate schedules and stabilization ponds; and 2 at the Technical University of Oruro, on sewage and waste disposal and on mine ventilation.

A National Technical and Scientific Documentation Center was established.

A course in well-drilling techniques and a training course in environmental sanitation were conducted in Cochabamba.

The X International Course on Modernization of Rural Housing was conducted with the cooperation of the National Community Development and Rural Extension Service (SEDEX), the Organization of American States, and PAHO.

#### PAHO/RB

#### BOLIVIA-6500, Veterinary Medical Education

*Purpose:* Strengthening of the teaching of veterinary medicine by means of the training of professors, provision of

new equipment and installations, and reorganization of teaching programs.

*Probable duration:* 1967.

*Assistance provided:* 2 short-term consultants, and advisory services by project AMRO-0704 staff.

*Work done:* The School of Veterinary Medicine of Santa Cruz purchased equipment and teaching materials with loan funds from the Inter-American Development Bank.

Assistance was given in strengthening the teaching program in clinical medicine.

With PAHO fellowships, one professor attended the Seminar on Rabies held in Lima, Peru (AMRO-0717), and another attended a 2-week course on preparation of antigens and vaccines for brucellosis at the Pan American Zoonoses Center.

## PAHO/RB

### BOLIVIA-6600, Dental Education

*Purpose:* Reorganization of the curriculum of the schools of dentistry of La Paz, Tarija, and Sucre.

*Probable duration:* 1968-1972.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* Following a study of curriculum organization at the School of Dentistry of San Andrés University in La Paz, areas of correlation, integration and projection to make the educational process more dynamic were defined. A new curriculum was later approved, the principal innovations being those related to public health, the social sciences, epidemiology, and biostatistics. The students will complete their internship at the General Hospital in La Paz.

A letter-agreement was entered into by the San Francisco Xavier University in Sucre with the Ministry of Public Health and the Organization for the conduct of activities similar to those in La Paz.

### BRAZIL-0100, Epidemiology

In December 1969 a grant was awarded to a staff member of the Department of Epidemiology and Public Health, School of Medicine, Yale University, who will collaborate with the Indian Medical Service of Brazil in a field study to determine sensitivity to vaccines against measles and other viral diseases among the members of an isolated tribe living in the Xingu National Park. The study will be carried out during 1970.

## PAHO/RB

### BRAZIL-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1958-

*Assistance provided:* 4 medical officers, 1 engineer, 2 administrative methods officers, 2 entomologists, 4 sanitary inspectors, 1 secretary, and advisory services by project AMRO-0200 staff; antimalaria drugs, equipment and other supplies.

*Work done:* The project absorbed the activities previously assigned to projects Brazil-0201 and -0202, dealing, respec-

tively, with the eradication program for the State of São Paulo and with the training of personnel.

The preparatory phase having been completed in most of the country, a start was made on complete coverage of the malarious area. The scope of this plan was extended gradually to a target of 7.2 million spraying operations (semi-annual spraying of 3.6 million houses) for the year. The program for the first half of the year was virtually completed, but that for the second half was hindered by financial problems.

Application of residual DDT, supplemented by the administration of antimalaria drugs, continued to be the principal attack measure; no vector resistance to DDT was reported.

Evaluation in attack-phase areas was carried out through active and passive search for cases; the annual rate of blood smears examined was 8% or more of the population directly protected. The population in consolidation-phase areas was 12 million; in addition, there were 2 million inhabitants in areas where transmission had been interrupted but which were still in the attack phase, and 800,000 persons in maintenance-phase areas. These figures, taken together, account for almost 40% of the total population of the malarious area, indicating the progress achieved through the program.

A program was launched in October to integrate the malaria eradication and general health services in the State of Rio de Janeiro, its first phase covering 11 municipalities in that state. Multiple-function field activities were carried out by teams of two, composed of representatives of the two services.

Further studies were made on the geographic distribution of *P. falciparum*, its reaction to chloroquine, and treatment of infections. The entomological work included susceptibility and excito-repellency tests of certain mosquitoes and the study of their biology. It was observed that *A. nunez tovari* has different habits in the Amazon region from those it has in Venezuela and Colombia, and there were indications that it also has different genetic characteristics.

## PAHO/SMF, WHO/RB, WHO/MESA

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### BRAZIL-0300, Smallpox Eradication

*Purpose:* Eradication of smallpox from Brazil.

*Probable duration:* 1956-1971.

*Assistance provided:* 3 medical officers, 1 statistical consultant, and 1 secretary; equipment and supplies; and 2 short-term fellowships.

*Work done:* During 1969, 21,864,352 vaccinations (target, 20,000,000) were performed, raising the total number of persons vaccinated since the beginning of the program to 46,390,132, or 50% of the country's population. In the attack areas 7,377 cases of smallpox were confirmed (68.7% more than in 1968). No autochthonous cases were reported in those areas. The incidence of the disease in states where the attack phase was completed dropped by 78.7%.

## WHO/RB

### BRAZIL-0400, Tuberculosis Control

*Purpose:* Reduction of the risk of sickness and death from tuberculosis.

*Probable duration:* 1966-

*Assistance provided:* 1 short-term consultant; supplies; and 5 short-term fellowships.

*Work done:* A reorganization of the Tuberculosis Department in the Ministry of Health of São Paulo State was started. Two São Paulo officials took part in the international course on tuberculosis epidemiology and control held in Caracas, Venezuela.

The School of Medicine of the Federal University of Ceará formulated a program for the verification of epidemiological factors and control methods, to be carried out with the cooperation of the Ministry of Health and the Organization.

As part of the reorganization of the National Ministry of Health, the tuberculosis control program was included among the activities of the health centers and its technical direction was placed under the Disease Control Supervisory Division, the executive agency of which is the Special Public Health Service Foundation (FSESP). In order to staff the technical agencies responsible for the control of this disease, personnel were trained in the National Tuberculosis Service of the Federal Government and in the state health ministries.

## WHO/RB

### BRAZIL-0700, Veterinary Public Health

*Purpose:* Development of veterinary public health services and education, with special reference to zoonoses control and food protection.

*Probable duration:* 1969-

*Assistance provided:* 1 public health veterinarian, and advisory services by staff of Headquarters, projects Brazil-6500, and AMRO-0700.

*Work done:* The Municipality of São Paulo was assisted in establishing a Zoonoses Control Section.

Epidemiological surveillance activities against rabies were undertaken by the Epidemiological Information Center of the Special Public Health Service Foundation (FSESP).

Programs for bovine brucellosis and canine rabies control were established in Bahia State. The cities of São Paulo and Porto Alegre initiated programs against canine rabies.

Assistance was given to all schools of veterinary medicine in Brazil in the training of professors.

## WHO/RB

### BRAZIL-0701, Rabies Control

*Purpose:* Development of the national and state health services needed for producing vaccines and carrying out rabies control programs.

*Probable duration:* 1959-

*Assistance provided:* 2 short-term consultants, and advisory services by staff of Headquarters, Zone V Office, and project AMRO-0700; 1 grant; and 1 short-term fellowship.

*Work done:* A survey was made on the prevalence, epidemiology, and treatment of human rabies cases in 16 states and the Federal District.

A course on rabies diagnosis and vaccine control, conducted

in Belo Horizonte, was attended by 23 scientists. A manual prepared during the course was widely distributed.

A large-scale canine rabies vaccination campaign was initiated in São Paulo. The Ministries of Health and Agriculture of Bahia State organized a rabies control program, and a similar project was under study by the Government of Minas Gerais State.

## WHO/RB

### BRAZIL-0901, Plague Research

*Purpose:* Study of the epidemiology of plague.

*Probable duration:* 1965-1971.

*Assistance provided:* 1 medical officer; and a limited amount of supplies.

*Work done:* The Organization continued to collaborate in the research activities in the Exu-Bodocó area. It was determined that there were no *Rattus rattus rattus* in the houses of that area; however, *R.r. alexandrinus* y *R.r. frugivorus* were found to exist in both houses and in the field. The fleas most frequently found on these rats were of the species *Xenopsylla cheopis*. *Zygodontomys pixuna* was the most numerous among the rodents captured, and cultivated farm land was its preferred habitat. Recent studies confirmed that *Z. pixuna* is responsible for the epizootization of the disease.

By August 1969, 314 strains of *Pasteurella pestis* had been isolated; these strains are lethal to white laboratory mice but not to guinea pigs, which only show a slight local reaction at the site of inoculation.

The fleas taken from rats captured within the houses at Exu showed a high degree of resistance to DDT in concentrations of up to 4%, whereas the fleas gathered with the same technique in Quixaba were sensitive to a 2% concentration of DDT.

During 1969, 293 cases of plague were reported in 4 states of the country.

See also Chapter V of this Report.

## WHO/RB

### BRAZIL-1000 (-0900), Schistosomiasis

*Purpose:* The expansion of knowledge on the epidemiological characteristics of the disease in relation to its intermediate host.

*Probable duration:* 1966-

*Assistance provided:* 1 short-term consultant; supplies.

*Work done:* Applied research activities directed to finding more effective means of controlling the disease continued to be carried out. The Schistosomiasis Snail Identification Center for the Americas was pursuing its work.

Continued appearance of the disease in areas formerly free of it, attributed to population migration and lack of control over irrigation projects, aroused the interest of the Ministries of Health and the Interior, leading them to conduct joint studies in Caatinga de Moura (Bahia). Studies were also made on the efficacy of new methods for treating patients; it was hoped that Hycanhone, a medication used experimentally with apparently satisfactory results, would



## VIII. PROJECT ACTIVITIES

provide effective help in the control of schistosomiasis. Joint studies were also made of the treatment of patients with various medications and on the application of molluscicides.

### PAHO/RB

#### **BRAZIL-1001 (-0902), Research on Chagas' Disease**

*Purpose:* Development of better diagnostic methods, study of the disease and its vectors, and promotion of better and more extensively usable control methods.

*Probable duration:* 1967-1972.

*Assistance provided:* 1 grant.

*Work done:* Although much has been learned concerning Chagas' disease, which continues to be a serious problem, there is much that remains to be done.

Control methods must be applied more extensively in the country. Action has been taken to promote the organization of a nation-wide campaign for the control of the disease. The project has the aim of improving the methods of diagnosis, standardizing laboratory methods, conducting longitudinal studies on cardiopathies, and studies on vectors and their control. However, the activities were currently limited to research, in which the Organization was collaborating with the School of Medicine of Riberão Preto, of the University of São Paulo, the School of Medicine of the Federal University of Bahia, and the Division of Vector Control of the Ministry of Health of the State of São Paulo.

### PAHO/RB

#### **BRAZIL-1002 (-0904), Study on Parasitic Infections**

*Purpose:* Investigation of new diagnostic methods.

*Probable duration:* 1969-

*Assistance provided:* 1 grant.

*Work done:* Studies of immunofluorescence techniques in relation to malaria and Chagas' disease were being carried out at the Institute of Tropical Medicine of São Paulo. Cooperation will be provided to expand the capacity of the Institute so as to enable it to study other parasitic diseases the diagnosis of which can be improved through the use of soluble antigens in the testing of fluorescent antibodies, as is done in the case of schistosomiasis.

### PAHO/RB

#### **BRAZIL-2100, Environmental Sanitation**

*Purpose:* Strengthening of sanitation activities carried out in the country.

*Probable duration:* 1952-1973.

*Assistance provided:* 2 sanitary engineers, 2 short-term consultants, and 1 secretary; 1 short-term fellowship.

*Work done:* In February, the Basic Sanitation Technology Center of the State of São Paulo was inaugurated and the state water pollution control plan was announced. As recommended by the Organization, the Center began its activities by establishing programs to control water quality in the distribution network of São Paulo and by conducting a training program.

A program was established to determine the effects of pollution on Lake Paranoá.

Assistance continued to be provided for the studies being made in the River Plate Basin.

Work was continued in southern Brazil on the collection and analysis of sanitation data to be used in preparing diagnoses for the 3 states in that region. This information will serve as a basis for the preparation of programs of action by the Superintendency of Development of the Southern Region (SUDESUL).

The Ministry of Health of the State of Rio Grande do Sul requested the assistance of PAHO in organizing its sanitary engineering services.

### PAHO/RB

#### **BRAZIL-2101, Air and Water Pollution Control**

*Purpose:* Implementation of a program for the control of air and water pollution in the State of São Paulo, especially in the area of Greater São Paulo.

*Probable duration:* 1963-1970.

*Assistance provided:* 1 sanitary engineer; and 1 long-term fellowship.

*Work done:* All the preliminary work was done for the issuance of a decree to establish a State Air Pollution Control Fund; a final decision by the Government was expected before the end of the year. The new organization will operate as part of the Ministry of Health of São Paulo.

The air pollution surveillance activities attained 65% of the target for the year, and those involving inspection and training attained 70%.

### WHO/UNDP

#### **BRAZIL-2102, Survey of the São Francisco River Basin (1969) WHO/OF**

A short-term consultant made a study on the public health implications of proposed irrigation projects in the lower middle basin of the São Francisco River. A report was submitted to the Government.

#### **BRAZIL-2200, Water Supplies**

*Purpose:* Strengthening of water supply activities in Brazil.

*Probable duration:* 1962-1970.

*Assistance provided:* Advisory services by Headquarters and Zone V Office staff, and by a consultant of project AMRO-2200 for whom travel expenses and per diem were paid.

*Work done:* The Health Statistics Service processed the data on population served by water and sewerage services (1967); approximately 53% of the urban population had water service and 13% had sewerage service. Advisory assistance was extended to the Service in the revision of the forms to be used beginning in 1969 for the collection of basic information.

The Water and Sewerage Department of São Paulo was given advisory services in connection with its organizational

structure and with water meters. Negotiations were continued for the purpose of expanding the advisory services to that agency. In Belo Horizonte, the second phase of the water-rates study was completed.

Advice was also given to the São Paulo Water Company for the solution of technical problems arising from a severe drought in the area which obliged the Company to consider emergency systems using low-quality water.

Studies continued to be made in the southern part of the country with the aim of obtaining a diagnosis of the water supply and sewerage situation as a basis for carrying out specific activities in this field.

## PAHO/CWSF

### BRAZIL-2201, Water Supplies in São Paulo (1969) PAHO/CWSF

The purpose was to give assistance to São Paulo, Brazil, during the period of a severe drought which affected the reserves for the city's water supply. The Organization provided the services of project Brazil-2200 and Headquarters staff, as well as equipment and supplies.

Emergency measures were taken by the local government to cope with the situation. By the year's end the situation had returned to normal. The Organization also assisted in the development of new water supply sources for the city.

### BRAZIL-3101 and -3107, Health Services in the Northeast

*Purpose:* Improvement of the institutional infrastructure of the health sector, including sanitation, for the planning and administration of programs in the northeast of Brazil.

*Probable duration:* 1958-1971.

*Assistance provided:* 1 medical officer, 1 engineer, 1 consultant in administrative methods, 1 nurse, and 1 statistician; supplies; and 3 short-term fellowships.

*Work done:* Collaboration was extended to the State Health Ministries of Paraíba, Rio Grande do Norte, Pernambuco, and Bahia and to the Clinical Hospitals of the Federal Universities of Pernambuco and Bahia. Assistance was also given to the School of Medicine of the Federal University of Pernambuco for its administrative reorganization.

The results attained in the pilot project in sanitary engineering carried out in the city of Guimarães (Maranhão) offered very encouraging prospects for the program to provide water supply services to 24 rural communities in that state to serve a total of 36,000 inhabitants.

The activities directed to the integration of nursing education, research, and services were highly successful. A draft agreement between the School of Nursing and the School of Medicine of the Federal University of Pernambuco, to which the Clinical Hospital is attached, was prepared. Refresher courses in clinical instruction in nursing practice were held, as were courses for nurses from regional centers.

Assistance was extended to a university extension course in Recife (Pernambuco) on maternal and child welfare, and to a seminar in Salvador (Bahia) on the integration of nursing education, research, and services.

The 9 northeastern states submitted monthly reports to the

Regional Health Statistics Center for the Northeast (CRESNE), using the forms recommended by the Center. The data thus collected were used in compiling a series of bulletins containing useful information for the State Ministries of Health.

Training of health personnel was accomplished through the following courses at the Regional Center for Research and Training in Hygiene and Public Health (CRIEHSP): a 3-month course in administrative and planning techniques, attended by 18 professionals; a 9-month postgraduate course in preventive medicine, for 9 physicians; a 3½-month course in health services administration, for 17 students; a 4½-month course for sanitation inspectors, for 13 students; and an intensive 2-week course on stabilization ponds, for 18 engineers.

## PAHO/RB, WHO/RB

## UNICEF

### BRAZIL-3104, Health Services (São Paulo)

*Purpose:* Improvement of the health infrastructure by means of technical and administrative reorganization of the State Ministry of Health, the agency in charge of planning and administering health activities, with emphasis on executive regionalization and decentralization.

*Probable duration:* 1964; 1969-1971.

*Assistance provided:* Advisory services by Zone V Office staff and personnel of other projects in the country.

*Work done:* The Ministry of Health of the State of São Paulo carried out studies aimed at the preparation of a plan for the technical and administrative reorganization of the health system under its jurisdiction, receiving assistance in the fields of planning, statistics, and administrative methods. The new structure, which was made operative by a decree of July 1969, is based on the principles of centralized policy-making and executive decentralization, regionalization, and integration.

An analysis was made of the organization of the Ministry's Division of Tuberculosis with a view to improving its structure and strengthening its statistics and epidemiological services.

The Organization also cooperated in a rabies control program and in activities in the fields of malaria and smallpox eradication; environmental sanitation, including water supply and air and water pollution control; control of Chagas' disease and schistosomiasis; public health laboratories; medical care services; nursing programs; and human resources.

### BRAZIL-3105, Fellowships

Seventeen short-term and 2 long-term fellowships were awarded.

## WHO/RB

### BRAZIL-3108, Health Services in Rural Areas

*Purpose:* Extension of health and nutrition services to the rural population by means of personnel training and assistance to the activities of the Brazilian Association for Rural Credit and Assistance (ABCAR).

## VIII. PROJECT ACTIVITIES

*Probable duration:* 1969-1973.

*Assistance provided:* Advisory services by Zone V Office staff.

*Work done:* Through a special course and seminar, 100 staff members of ABCAR were given training in food and nutrition and in health and sanitation. In addition, 850 field technicians and 11,500 village leaders were given orientation in the same subjects.

During the first 6 months of 1969 the personnel so trained helped install in rural areas 7,370 domestic and school gardens, 52 small animal farms, 4,440 privies, 300 protected water sources, and 4,092 water filters. They also assisted in rounding up approximately 200,000 persons to receive vaccination.

An important achievement was the establishment of 16 "mini" health posts covering 18 municipalities in Rio Grande do Norte State. The physical facilities were provided by the community, and equipment for rendering first aid and minor treatment and for administering vaccinations was installed. The posts are operated by village youth trained and supervised by the Special Public Health Service Foundation (FSESP) and ABCAR, and paid by the community itself.

### UNICEF

#### **BRAZIL-3110, Health Services in the Southern Region**

*Purpose:* Improvement and expansion of health services in the States of Paraná, Rio Grande do Sul, and Santa Catarina as part of the process of socioeconomic development, for which the Superintendency of Development of the Southern Region is responsible.

*Probable duration:* 1968-1973.

*Assistance provided:* 1 medical officer, and advisory services by Zone V Office staff; a limited amount of supplies; and 1 short-term fellowship.

*Work done:* An agreement was signed with the School of Hygiene and Public Health of the University of São Paulo for the performance of studies on statistics systems.

The Health Division of the Superintendency of Development of the Southern Region (SUDESUL) initiated plans for a survey of human resources available in the health institutions of the Region.

As a first step in the organization of a structural unit, approval was obtained from the Health Ministry of Paraná to establish a planning office, which will have the financial support of SUDESUL.

Action was taken to promote the establishment of a planning unit in the office of the National Social Assistance Institute in Paraná, which will also receive financial aid from SUDESUL.

### PAHO/RB

#### **BRAZIL-3200, Nursing Services**

*Purpose:* Improvement in the administration and operation of nursing services; an increase in nursing personnel; and improvement of the system for training and updating the knowledge of nursing personnel.

*Probable duration:* 1953-1975.

*Assistance provided:* 1 nurse and 2 short-term consultants; 1 grant.

*Work done:* Four seminars were held on nursing services, supervision, and practice and on improvement of field practice for students; they were attended by a total of 247 participants (nurses, physicians, and students). In São Paulo, the Organization extended advisory services for the reorganization of the Rural Training Center in Araraquara, the establishment of a health center, and the implementation of a public health nursing program. In Niterói (Rio de Janeiro) work was done on the reorganization of nursing services in the medical and surgery units, which serve as training and practice facilities for the students. Cooperation was also rendered to the Schools of Nursing of the Universities of São Paulo, Fluminense, Rio de Janeiro, and Alfredo Pinto. In Salvador (Bahia) a study was carried out on the integration of nursing education and services in university hospitals. Assistance continued to be provided in connection with the nursing activity studies on 15 state capitals; the final reports were in preparation.

The Brazilian Nursing Association was given assistance in the organization of congresses and the programming of activities.

Five nurses were assisted with research projects dealing with nursing and with preliminary studies on basic and post-graduate curricula for nurse educators.

### PAHO/RB

#### **BRAZIL-3302, Yellow Fever Laboratory**

*Purpose:* Provision of yellow fever vaccine for the continent-wide program, as well as diagnostic services.

*Probable duration:* 1950-1970.

*Assistance provided:* Equipment and supplies.

*Work done:* The laboratory, in addition to producing 1,200,000 doses of yellow fever vaccine for use in Brazil, maintained a stock for shipment to the countries in the Hemisphere.

### PAHO/RB

#### **BRAZIL-3400, Health Education**

*Purpose:* Reorientation of the health education process in the educational and teaching centers in the country.

*Probable duration:* 1968-1972.

*Assistance provided:* 1 adviser in health education; and 1 long-term fellowship.

*Work done:* The revision of the health education curriculum of the School of Hygiene and Public Health of the University of São Paulo (FAHISP) was brought to conclusion. A diversified course in school health education was planned; the School has scheduled the start of this course for 1971.

At the School of Medical Sciences of the Santa Casa de la Misericórdia in São Paulo, the program of introductory studies in behavioral sciences and health education for students in the Preventive Medicine Department was revised.

A start was made in collecting information on health education resources; and plans were drawn for a project for the exchange of teaching personnel between FAHISP

and the Schools of Public Health of Chile and Puerto Rico.

In the National School of Public Health of Rio de Janeiro, the curriculum of the Department of Social Sciences was revised to include a course leading to a Master's degree in public health.

## WHO/RB

### BRAZIL-3500, Health Statistics

*Purpose:* Establishment or improvement of statistical information systems for the planning, implementation, and evaluation of health programs; and training of personnel.

*Probable duration:* 1959-1963 (AMRO-201); 1964 (Brazil-36).

*Assistance provided:* 1 statistician, and advisory services by Headquarters staff; 2 grants; and 1 short-term and 1 long-term fellowship.

*Work done:* A special committee, appointed by the Ministry of Health, prepared a series of recommendations on minimum statistical requirements of the health sector.

The Epidemiological Research Center, established in late 1968, consolidated its organization in 1969. The center issues a fortnightly epidemiological bulletin which has been designated by the Government as the official source of statistics on notifiable diseases in Brazil.

With financial assistance and technical advisory services from PAHO, the Brazilian Association of Schools of Medicine conducted a seminar on "Community health: statistics as a working instrument," which was attended by 69 participants. The purpose of this seminar was to stress the importance of the study and knowledge of community health problems to medical education, with emphasis on statistical aspects.

The activities of the Regional Health Statistics Center for the Northeast (CRESNE) were analyzed at the second meeting, held in Recife in October, of all the institutions participating in the Center: state ministries of health, the Superintendency of Development of the Northeast (SUDENE), the Special Public Health Service Foundation (FSESP), the Planning, Evaluation, Research and Special Programs Unit, and the Organization. CRESNE initiated the publication of consolidated statistical information for the 9 northeastern states.

The Planning Unit of the Ministry of Health of Rio Grande do Sul was testing the feasibility and effectiveness of a health statistics system for that state; mortality data by causes and age groups were published for the first 9 months of 1969.

The Portuguese version of Volume I of the *International Classification of Diseases*, 8th Revision, was revised.

## WHO/RB

### BRAZIL-3700, Health Planning

*Purpose:* The establishment of health planning systems at the federal, regional, and state levels to operate on an integrated basis and in coordination with the general process of development planning.

*Probable duration:* 1968-1972.

*Assistance provided:* 1 medical officer, and advisory services by Zone V Office staff.

*Work done:* The activities directed to the establishment of health planning systems continued to be carried out on a limited scale, owing to a decision by the Ministry of Health to formulate a health plan and apply it experimentally to certain areas of the country until sufficient experience is acquired to warrant a wider application if the plan proves to be feasible.

The training of personnel in this field continued at the School of Hygiene and Public Health of the University of São Paulo, the National School of Public Health (Rio de Janeiro), the Regional Center for Research and Training in Hygiene and Public Health (CRIEHSP) in Recife, and the State Ministry of Health of Bahia.

## PAHO/RB

### BRAZIL-3701 (-3101 and -3107), Planning for Health Services in the Northeast

*Purpose:* Improvement of health services for the northeastern region, by strengthening the planning process in the states composing this extensive region and by training officials in techniques of planning and administration of services.

*Probable duration:* 1958.

*Assistance provided:* 1 short-term consultant.

*Work done:* The diagnostic stage of the health plan was completed in Paraíba State, and a start was made on collecting basic data for a similar plan in Bahia State.

Assistance was provided in the organization and holding of the first course on administrative and planning techniques for health administrators, conducted by the Regional Executive Centers for the Northeast (Recife). A 6-week specialized course in planning was offered in Salvador, Bahia, for personnel of the State Ministry of Health.

## WHO/UNDP

### BRAZIL-4100, Training Center in Nursing and Midwifery

*Purpose:* Increase in the nursing and midwifery personnel, with a view to provision of adequate maternal and child health care in Brazil and other Latin American countries.

*Probable duration:* 1967-1972.

*Assistance provided:* 1 nurse, 1 consultant in nursing-midwifery, and 2 short-term consultants; 1 grant; and equipment and supplies.

*Work done:* The Center organized refresher courses in Recife and Rio de Janeiro which were attended by a total of 37 nurses and 27 midwives (16% of the target). A seminar for the southern region was attended by 22 nurses and 3 midwives (83% of the target).

In the development of clinical practice areas, 21% of the target was reached; and activities dealing with inservice training of teaching staff and curriculum planning reached 37% of the target.

## PAHO/RB, WHO/RB

**BRAZIL-4200, Nutrition**

*Purpose:* Development of programs to improve the nutritional status of the population through the maximum utilization of local resources and the teaching of good dietary habits; organization of nutrition courses for professional and auxiliary personnel of health, education, and agricultural services; and promotion of applied research.

*Probable duration:* 1960-

*Assistance provided:* 1 medical nutritionist; and 1 long-term fellowship.

*Work done:* With the support of grants from the National Food Commission and foodstuffs from the U.S. Agency for International Development and the Milk Cooperative of Pelotas, a food supplementation program for vulnerable groups was organized by the National Children's Department. About 675,000 infants, preschool children, pregnant women, and nursing mothers were benefited by this program, which made use of mothers' clubs to carry out its work.

To promote an integrated program of nutrition education, curriculum guides were prepared for the training of local workers such as school supervisors, home extension workers, nursing auxiliaries, etc. Similar guides were prepared for introducing nutrition into the primary school curriculum. Several pamphlets were published for use in nutrition and health education of the family.

A study of the regional food habits in Brazil was undertaken, based on the findings of surveys carried out since 1965. This study, when completed, will help orient the nutrition education efforts in the various regions.

With support from the National Food Commission, several applied research studies were initiated, including biological, clinical, and acceptability trials of a protein-rich macaroni; investigation of the influence of protein supplements on lactation in mothers from low-income groups; and analyses of local foods and food preparations.

See also project Brazil-3108.

**WHO/RB****UNICEF****BRAZIL-4201, Nutrition Teaching in Medical Schools**

*Purpose:* Improvement of nutrition teaching in the medical schools through revision of curricula, organization of refresher courses, and provision of teaching materials.

*Probable duration:* 1965-1971.

*Assistance provided:* Advisory services by project Brazil-4200 staff; 1 grant.

*Work done:* The four medical schools (in Botucatu, Brasilia, Salvador, and Fortaleza) participating in the project appointed coordinators for nutrition teaching, who were given orientation in methods and procedures for accomplishing the proposed objectives.

A standard course for final-year medical students was prepared.

The School of Medicine in Botucatu conducted a 50-hour course for final-year students of medicine and veterinary medicine; 100 attended. A similar course held at the School of Medicine in Fortaleza was attended by 83 medical students, 2 physicians, 2 nutritionists, and 9 pharmacists.

**PAHO/RB****BRAZIL-4202, Nutrition Courses (São Paulo)**

*Purpose:* Organization of special courses in public health nutrition at the School of Hygiene and Public Health of the University of São Paulo, for physicians working in the national health services of Latin American countries.

*Probable duration:* 1966-1970.

*Assistance provided:* Advisory services by Zone V Office staff.

*Work done:* Preparatory arrangements for the next course, scheduled for March-April 1970, were completed. A brochure on the course objectives and program was distributed to the health authorities of the Latin American countries.

**BRAZIL-4203, Institute of Nutrition (Recife)**

*Purpose:* Strengthening of the structure and operations of the Institute of Nutrition of the Federal University of Pernambuco, to enable it to better contribute to the solution of regional nutrition problems.

*Probable duration:* 1964-1974.

*Assistance provided:* 1 medical nutritionist; a small amount of chemicals and laboratory equipment; 1 grant; and 1 long-term fellowship.

*Work done:* The most significant achievement of the project was the integration of nutrition activities within the public health services of northeastern Brazil. With assistance from the Superintendency of Development of the Northeast (SUDENE) and PAHO, the Institute developed a model plan for proper diagnosis of protein-calorie malnutrition cases, nutrition rehabilitation work, distribution of food supplements, and nutrition education, as part of the routine activities of the health center. This plan—which was endorsed by the Special Public Health Service Foundation (FSESP), SUDENE, and the Health Ministries of the States of Alagoas, Paraíba, and Pernambuco—was in operation in Pernambuco, which had 4 rehabilitation centers and was preparing to open 6 more. A nutritionist was assigned by the state to supervise the project, and will report to the chief of the health region, under the plan for decentralization of health services. In Alagoas and Paraíba, personnel were trained and the preparations for a similar program were well advanced.

The 6th public health nutrition course laid emphasis on nutrition activities as part of the general health services. It was attended by 23 physicians, veterinarians, and dentists from 7 states of Brazil, and by 4 participants from Venezuela, one of them a PAHO fellow.

The School of Nutritionists, which completed its 12th year of operation, extended its curriculum to 4 full years; 10 students were graduated in 1969, making a total of 174 trained to date.

The Institute's research studies included those on the epidemiology of hypovitaminosis A in the area, on high-protein food supplements and supplementation with synthetic amino acids, and on the relationship of brain development and activity to nutritional status in laboratory animals.

**PAHO/RB, PAHO/OF****Research Corporation****BRAZIL-4500, High Background Radiation Areas**

*Purpose:* Conduct of research on the possible biological effects on human population and plants of high levels of

background radiation due to the presence of radioactive elements in the soil.

*Probable duration:* 1963-

*Assistance provided:* 1 long-term fellowship awarded under project Brazil-3105.

*Work done:* The activities related to measurements of radiation levels in the area of Guarapari (Espírito Santo) were reaching conclusion; they were expected to be finished by 1970. The preliminary data indicate an increase in the total radiation count in individuals in the area. Radiation levels in foods and water appeared to be normal.

#### **BRAZIL-4601, Air Pollution**

*Purpose:* Installation of surveillance stations in Rio de Janeiro, São Paulo, and other leading cities, as part of the Pan American Air Pollution Surveillance Network.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by staff of Zone V Office and of projects Brazil-2100, -2101, and -3101.

*Work done:* The stations in Rio de Janeiro and São Paulo continued to operate normally, supplying data for coordination of the program.

Agreements were signed for the installation of stations in Porto Alegre, Belo Horizonte, and Recife, for which the necessary equipment was provided.

#### **BRAZIL-4602, Toxicology of Pesticides**

*Purpose:* Expansion of the pesticide work of the Biological Institute of São Paulo.

*Probable duration:* 1968-

*Assistance provided:* 1 consultant in toxicology, and advisory services by Zone V Office staff; equipment and materials.

*Work done:* The consultant, who was appointed in August, began work on installation of the laboratory for the study of toxic effects on mammals, as a first step in the development and application of techniques for determining appropriate procedures for the use of pesticides.

#### **WHO/OF**

#### **BRAZIL-4800, Medical Care Services**

*Purpose:* Improvement of medical care services in hospitals operated by public institutions; reorganization of the administration and operation of university hospitals; and improvement in the teaching of hospital administration at schools of medicine and public health.

*Probable duration:* 1966-1972.

*Assistance provided:* 1 medical officer and 2 short-term consultants; 1 grant; and 1 long-term fellowship.

*Work done:* Assistance was given in connection with the medical care courses of the Schools of Public Health in Rio de Janeiro, Belo Horizonte, and Recife. Continuing cooperation was extended to the Brazilian Academy of Hospital Administration and the Catholic University of Rio de Janeiro.

At the Federal University of Pernambuco (Recife), the plan for reorganization of the Pedro II Clinical Hospital

was approved and a start made on its implementation, with respect to both administrative aspects and improvement of the physical plant.

At the University Hospitals of the Federal University of Bahia and the School of Medical Sciences of Guanabara, studies were made of the structure and operation of these institutions, using the methodology adopted in Recife. Two members of the Committee for the reorganization of the Pedro II Hospital in Recife served as consultants in the Hospital in Guanabara.

The intensive care unit of the University Hospital in Belo Horizonte was inaugurated in July.

A course in hospital administration and planning techniques was conducted in Recife for health services staff of the northeastern states.

Fellowships for medical care studies were awarded to personnel of the Ministry of Health, the Special Public Health Service Foundation (FSESP), and the National Social Assistance Institute.

Further progress was made in the integration of services provided by the social security agencies and by the health ministries of the northeastern and southern states.

**PAHO/RB, PAHO/OF      University of Minas Gerais  
(Brazil)**

#### **BRAZIL-5000 (-4803), Rehabilitation**

*Purpose:* Establishment of a plant in the National Social Assistance Institute of Guanabara to manufacture prosthetic devices.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by the Zone V Office staff.

*Work done:* An agreement was signed with the Government, through the Ministry of Labor, providing for the installation of a plant to manufacture prosthetic devices. It was expected to manufacture some 600 devices during the first year.

#### **BRAZIL-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by staff of Zone V Office and of projects Brazil-6200 and AMRO-6000.

*Work done:* An administrative reorganization of the program was carried out with the assistance of the Brazilian Association of Medical Schools, and its activities were consolidated and increased.

A total of 65 letter-agreements were submitted for signature, of which 47 were approved by the authorities of the country. There were 32 medical schools participating in the program.

The schools of medicine requested 14,466 copies of the books entitled *Tratado de patologia, Bioquímica, Fisiologia humana*, and *Manual de farmacologia*.

Three Brazilian professors served on the committees for the selection of textbooks on internal medicine and morphology.

An intensive publicity campaign on the program was conducted through medical journals and periodicals.

#### **BRAZIL-6100, National School of Public Health (Rio de Janeiro)**

*Purpose:* Improvement in the number and quality of the country's public health manpower, by increasing the effectiveness of the National School of Public Health in Rio de Janeiro.

*Probable duration:* 1957-

*Assistance provided:* Advisory services by staff of projects Brazil-4800 and -6200 and AMRO-6100; supplies; and 1 long-term fellowship.

*Work done:* As an outcome of the country's university reform and the administrative reorganization of the Ministry of Health, important changes were made in the School. The Foundation for Specialized Teaching in Public Health, to which the School is attached, was converted into the Health Manpower Foundation.

Courses were offered in general public health, health planning, clinical and public health physiology, and virology.

The School served as headquarters for the preparatory session of the Sixth Conference of Directors of Schools of Public Health of Latin America.

A study was conducted on conditions and needs of the Schools of Pôrto Alegre, Curitiba, Belo Horizonte, and Salvador and arrangements were made for the holding of a meeting of directors of the 7 schools in the country, in 1970, to define a training policy at the national level.

#### **PAHO/RB**

#### **BRAZIL-6101, School of Hygiene and Public Health (São Paulo)**

*Purpose:* Improvement in the number and quality of highly trained public health personnel for the health, education, and research services in the Latin American countries, by strengthening and developing the programs of the School of Hygiene and Public Health of the University of São Paulo.

*Probable duration:* 1958-

*Assistance provided:* Advisory services by Zone V Office staff; and 1 grant.

*Work done:* In addition to its regular undergraduate course, the School offered 3 regular postgraduate courses and 37 special short and advanced training courses. An administrative and teaching reorganization during the year resulted in the start of a fundamental transformation in the structure, organization, curriculum, and programs. Technical assistance was provided in connection with the courses in health education, nursing, medical records, statistics, medical care, and sanitary engineering.

#### **WHO/RB**

#### **BRAZIL-6200, Medical Education**

*Purpose:* Strengthening of the medical education programs at all levels with a view to relating the system of medical education to the country's health needs; improvement of the curricula and programs of study; and promotion of the development of training centers for postgraduate and teaching personnel.

*Probable duration:* 1965-1971.

*Assistance provided:* 1 medical officer, 6 short-term consultants, and 1 secretary; 1 grant; a limited amount of teaching material; and 7 short-term and 1 long-term fellowships.

*Work done:* In order to develop the project for the study and strengthening of medical education institutions, a compilation was made of the laws and standards governing this activity in the country. The situation of 4 university hospitals—in Recife, Bahia, Fortaleza, and Guanabara—was evaluated and plans were made for reforms in 3 of them. The situation of the Schools of Medicine of Recife and Bahia was also studied, and initial work was done on revising the curriculum of the School in Recife.

Negotiations were conducted with the Brazilian Institute of Geography and Statistics and the National Council of University Rectors for the establishment of a unified system of medical statistics.

The Federal Education Council issued a minimum curriculum for undergraduate courses in medicine.

The planning of the manpower program continued to be carried out in cooperation with the manpower units of the Ministries of Planning and Health.

The departments of preventive medicine of the Medical Schools in Brasília, Recife, Bahia, Guanabara, São Paulo, Ribeirão Preto, and Goiás were selected to serve as centers for the development of programs on medical problems and needs of the community. Assistance was given to the departments of preventive medicine in Pernambuco, Guanabara, and Paraíba in the revision of their teaching programs.

A seminar on statistics education was attended by 69 representatives of 25 schools.

The Planning, Evaluation, Research and Special Programs Unit and the Special Public Health Service Foundation (FSESP) cooperated with the departments of preventive medicine in Brasília, Recife, Fortaleza, Pôrto Alegre, Bahia, Guanabara, and Goiás, by providing financial assistance and personnel.

An integrated center for the study of health manpower resources was established by agreement among the Brazilian Associations of Medicine, Dentistry, Nursing, Pharmacy, and Biochemistry; it will conduct studies on human resources in the health sector and advise the Government on the training and utilization of personnel.

Technical assistance was furnished for the conduct of the second laboratory of human relations and medical education, held in Pôrto Alegre in December.

A project was drawn up for assistance to the University of Brasília in the planning of its School of Health Sciences.

#### **PAHO/RB, WHO/RB**

#### **BRAZIL-6202, Pediatric Education**

*Purpose:* Improvement in the number and quality of pediatric personnel in the northeast region, by strengthening

the instruction provided by the Department of Pediatrics of the Federal University of Pernambuco.

*Probable duration:* 1963-

*Assistance provided:* 1 short-term consultant.

*Work done:* The undergraduate courses in medicine were attended by 198 third-year students, 140 fourth-year students, 45 fifth-year students, and 21 interns. The residency program was continued, with 18 students. The short training courses in pediatrics were attended by 48 physicians, 8 nutritionists, 8 nurses, and 15 nursing auxiliaries. The integrated program, offered in conjunction with the Preventive Medicine Department, was conducted for sixth-year medical students. The outpatient services were expanded and special physical facilities constructed. A total of 23,446 external consultations were handled, and 661 patients were admitted. The Departments of Pediatrics and Child Care were combined into one department.

PAHO/RB

UNICEF

### BRAZIL-6203, Training in Microbiology

*Purpose:* Improvement in the number and quality of qualified microbiology personnel for the health, education, and research services in the Latin American countries, by strengthening and developing the programs of the Institute of Microbiology of the University of Rio de Janeiro.

*Probable duration:* 1965-

*Assistance provided:* 1 grant.

*Work done:* Specialized training in microbiology was given to 12 professional workers from Brazil and to 1 from El Salvador and 1 from Peru.

PAHO/RB

### BRAZIL-6204, Teaching of Preventive Medicine

*Purpose:* Planning and organization of a Department of Preventive Medicine at the School of Medicine of the Federal University of Pernambuco.

*Probable duration:* 1967-1971.

*Assistance provided:* Advisory services by project Brazil-6200 staff; 1 grant.

*Work done:* The undergraduate and postgraduate courses in medicine and the undergraduate course in nursing were continued. As a result of the University reform in Brazil, the Department of Preventive Medicine expanded its teaching activities for other schools of the University.

The urban community program continued to be carried out with a group of 273 families in a district near the School, and revisions were made in the rural community program. Further action was taken to integrate the teaching of preventive medicine with that of pediatrics, internal medicine, and obstetrics, in both the instruction courses and the medical care and research programs for urban and rural communities. Advice was furnished in certain studies on mortality among the urban and rural population.

A postgraduate course in preventive medicine for the training of teachers in this field was inaugurated.

The Regional Center for Research and Training in Hygiene and Public Health (CRIEHS) offered training in public

health to 21 medical administrators of regional centers in the northeast, 17 specialists in administrative and planning techniques, and 19 sanitary inspectors.

PAHO/RB

### BRAZIL-6221, Regional Library of Medicine

*Purpose:* Provision of library support for biomedical education, research, and practice in Latin America, using modern communications technology; and training of biomedical librarians at advanced levels.

*Probable duration:* 1967-

*Assistance provided:* 1 scientific director, 1 head librarian, and 11 short-term consultants (one of them made 2 visits); travel and per diem for the members of the Scientific Advisory Committee of the Regional Library; equipment and supplies; and local costs.

*Work done:* In January the Regional Library initiated its interlibrary loan services to all parts of Brazil. Requests for 12,085 items were received from 90 libraries of medical schools, hospitals, and laboratories. The Regional Library was able to take care of 64.7% of these requests, supplying 6,168 items from its own collection and obtaining photocopies of 1,663 items from other libraries in São Paulo; the remaining 4,254 requests were forwarded to the U.S. National Library of Medicine for attention.

Gift and exchange activities were conducted with 188 libraries in Brazil and 363 in other parts of South America. The periodicals collection included holdings under more than 3,607 titles. Emphasis continued to be placed on the development of a carefully selected reference collection, including monographs and indexes.

A monthly information bulletin was widely distributed in both Portuguese and Spanish.

The Second Meeting of the Scientific Advisory Committee of the Regional Library of Medicine was held in São Paulo, Brazil, from 3 to 5 September. The report of the meeting appeared in Document RD 8/16.

PAHO/RB, PAHO/OF Government of Brazil, The Commonwealth Fund, U.S. National Library of Medicine

### BRAZIL-6302, Training of Nursing Auxiliaries

*Purpose:* Increase in the number of nursing auxiliaries, and improvement and updating of the systems for their training.

*Probable duration:* 1963-

*Assistance provided:* 1 nurse; supplies.

*Work done:* In the 17 schools and courses for auxiliaries which are served by the project, 982 nursing auxiliaries were being trained; 10 nurse educators were attending training courses at the Schools of Public Health of Rio de Janeiro and São Paulo.

Negotiations were held with the Federal Education Council to secure authorization to adopt an abbreviated curriculum of 1 academic year in the courses and schools participating in the project, so as to turn out a larger number of auxiliaries



in a shorter time. The Council expressed willingness to permit the application of such a curriculum on an experimental basis. Terms of references were drawn for the group that will prepare the curriculum.

In view of a change in the technical and operational aspect of the program for the training of personnel, a draft revision to the agreement was drawn up in order to permit the effective continuation of the program. A number of additional documents were subsequently prepared in the Ministry of Health for submission by the Government to UNICEF to substantiate a request for financial assistance for priority activities.

Advisory services were rendered in connection with the following activities: courses and schools for auxiliaries in the northeastern states and in Guanabara; planning of the course for nurse educators to be held at the Regional Center for Research and Training in Hygiene and Public Health (CRIEHS) in Recife; courses for visiting nurses from the northeastern states; and a course for nutrition auxiliaries sponsored by the State Ministry of Health and the Institute of Nutrition of Recife.

Cooperation was provided in the planning and conduct of a course for 26 nurse educators and health-service nurses from Paraíba State.

An evaluation was made of the activities carried out in the project from 1963 to 1968.

**PAHO/RB**

**UNICEF**

#### **BRAZIL-6400, Institute of Sanitary Engineering**

*Purpose:* Development of an Institute of Sanitary Engineering with the capacity to: monitor environmental pollutants; compile data required for the design of control systems, reporting such data to official agencies and professional groups; develop a training program to upgrade staff of this and other technical agencies in the country; and compile and publish technical information on sanitary engineering developments, obtained from research and from current literature.

*Probable duration:* 1964-1971.

*Assistance provided:* 1 sanitary engineer and 2 short-term consultants; equipment and supplies.

*Work done:* The Institute went through a major reorganization. A new director, a deputy director, and heads of all major divisions and several sections were appointed.

The routine monitoring of water and air pollution was continued; some 45,000 samples were examined in the laboratory.

The Institute was emerging as a leader in the training of personnel in the new techniques of water treatment. A second course on this subject given in 1969 was highly acclaimed, and two similar courses (in Recife and Porto Alegre) were planned for 1970.

The encouraging results obtained in the research conducted on water filtration and sedimentation portended significant changes in water treatment plant design in Brazil.

**WHO/UNDP**

#### **BRAZIL-6401, Sanitary Engineering Education**

*Purpose:* Advanced training to raise the technical capacity of engineers and other professionals engaged in the field of

sanitary engineering, by means of seminars, applied research, and advisory services to schools of engineering and other institutions.

*Probable duration:* 1965-1971.

*Assistance provided:* 5 short-term consultants, and advisory services by staff of Zone V Office and of projects Brazil-2101, -3101, and -6400; equipment and supplies; and grants for courses and research.

*Work done:* Eight short intensive courses were attended by 220 professionals. At the School of Hygiene and Public Health of the University of São Paulo (FAHISP) a research study on slow filters was completed, a study on waste disposal methods was continued, and one was started on the biological treatment of toxic residues from cassaba flour mills.

Under an agreement signed with the Inter-American Development Bank and the Organization for studies on water meters, an applied research project was initiated in the city of São Paulo with the cooperation of FAHISP, the Water and Sewerage Department, and the Basic Sanitation Technology Center.

A course on activated sludge was held in Brasília (14-25 July), and one on water meters and household connections was given at the University of Minas Gerais, Belo Horizonte (1 to 12 September).

Courses were offered in São Paulo on: water pumping devices (18-23 August), at the School of Engineering of São Paulo University; air pollution problems related to boilers and incinerators (1-6 September), at the Intermunicipal Commission for Water and Air Pollution Control; and on groundwater (17 November-4 December) and waste disposal and urban hygiene (1-12 December), both at the School of Hygiene and Public Health.

The Polytechnic School of the Federal University of Bahia offered a course on stabilization ponds (10-21 November).

The Institute of Sanitary Engineering of Guanabara conducted the following courses in Rio de Janeiro: 1 on fluoridation of water supplies (17-21 November), and 7 on various subjects, for professional and subprofessional personnel, attended by a total of 266 participants. The Institute also offered instruction to 80 civil engineering students of Guanabara University.

**PAHO/RB**

#### **BRAZIL-6500, Veterinary Medical Education**

*Purpose:* Improvement of the teaching of veterinary public health and preventive medicine in the schools of veterinary medicine of the country.

*Probable duration:* 1960-

*Assistance provided:* 2 short-term consultants, and advisory services by staff of Headquarters and project Brazil-0700; 1 grant; 1 long-term fellowship.

*Work done:* The second course on the epidemiology and control of zoonoses, held in Fortaleza, Ceará (19-25 July), was attended by 27 professors from veterinary medicine schools and 2 from the Fortaleza School of Medicine.

The I Meeting of Directors of Schools of Veterinary Medicine of Brazil, held in Belo Horizonte, Minas Gerais (13-17 October), was attended by 11 directors. The discussions

centered on the fundamentals of teaching, curriculum content, and changes brought about by the Law of University Reform. The Brazilian Association of Veterinary Medical Teachers was created during the meeting; its Executive Committee held its first session in November in Rio de Janeiro. The purpose of the Association is to gear the teaching of veterinary medicine to development plans in the country and to the need for increasing manpower resources for teaching, research, and community work.

#### PAHO/RB

#### BRAZIL-6600, Dental Education

*Purpose:* Strengthening of the system of dental education to relate it to the dental health needs of the country; and promotion of the development of training centers for post-graduate and teaching personnel.

*Probable duration:* 1963-1971.

*Assistance provided:* 1 short-term consultant, and advisory services by staff of Headquarters and of project Brazil-6200; supplies; and 1 short-term fellowship.

*Work done:* The Center for Research in Social Dentistry at Pôrto Alegre continued its program of educational research and studies and its work on administrative reform.

The University of Brasilia drew up plans for a course in social dentistry, to be integrated with the medical course.

Assistance was given to the School of Dentistry of the Federal University of Minas Gerais, which began the planning of a program of integrated activities with the State Ministry of Health.

#### PAHO/RB

#### BRAZIL-6601, Public Health Dentistry Education

*Purpose:* Support of the International Center for Dental Epidemiology and Research, at the School of Hygiene and Public Health of the University of São Paulo; training of dentists in specific fields of dentistry; and organization of advanced courses in teaching and research in public health dentistry for members of the faculty.

*Probable duration:* 1958-1970.

*Assistance provided:* Advisory services by staff of Headquarters and of project Brazil-6200.

*Work done:* Research on the administration of fluorides to school children in São Paulo was continued, with the collaboration of the U. S. Public Health Service. Teaching material for programmed courses was distributed to various countries in a Spanish version prepared by members of the faculty of the School of Hygiene and Public Health.

#### BRAZIL-6700, Biostatistics Education and Population Dynamics

*Purpose:* Establishment, at the School of Hygiene and Public Health of the University of São Paulo, of a Center for Teaching and Research on the interrelationship of health and population dynamics and their bearing on the social and economic processes.

*Probable duration:* 1966-1970.

*Assistance provided:* 1 grant; equipment and supplies.

*Work done:* The Center for Population Dynamics Studies (CEDIP), with headquarters at the School of Hygiene and Public Health, continued its research, teaching, and advisory activities.

A number of publications containing the findings of the fertility study in the District of São Paulo were issued, and the reports on the effect of lactation on the regulation of fertility were ready for publication.

The 3rd course on health and population dynamics (October to December) was attended by 35 professionals in various fields.

#### PAHO/RB, WHO/RB

#### BRITISH HONDURAS-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1956.

*Assistance provided:* 1 sanitary inspector, and advisory services by staff of projects AMRO-0200 and -0203; a limited amount of supplies.

*Work done:* Two complete cycles of residual house-spraying were completed, using DDT; 9,060 houses were sprayed in the first cycle and 10,535 during the second (July-December), in the 5 districts in the attack phase.

During the year, 12,194 blood smears were examined and 28 malaria cases (0.23%) were detected, all of them *P. vivax*. By comparison, in 1968, 39 cases (0.32%) were detected among 12,271 blood smears examined.

The El Cayo and Toledo districts, with 13 and 10 cases, respectively, were those principally involved in malaria transmission during 1969; the Stann Creek and Orange Walk districts accounted for only 1 case each.

Sufficient funds were made available to the program during the year, in contrast to 1967 and 1968, when funds were lacking to complete the spraying activities as planned.

#### PAHO/RB

#### UNICEF

#### BRITISH HONDURAS-2200, Water Supplies

*Purpose:* Provision of a sufficient supply of good quality water to the entire population of 7 cities.

*Probable duration:* 1967-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-2203 staff.

*Work done:* The Water Authority was transferred to the Ministry of Communications and Public Works. A new water supply system was inaugurated and 2 distribution networks were extended. A total of 547 household connections were installed in 3 cities.

#### BRITISH HONDURAS-3100, Health Services

*Purpose:* Improvement of the country's basic health services.

*Probable duration:* 1962-1973.

*Assistance provided:* 1 medical officer (PAHO/WHO Country Representative), 3 short-term consultants, and advisory services by staff of projects AMRO-0103, -0703, -3203, -3503, -3603 and -4703; supplies; common services; 1 short-term and 5 long-term fellowships.

*Work done:* The information collected for the formulation

## VIII. PROJECT ACTIVITIES

of the National Health Plan was analyzed, and follow-up measures were considered.

The following immunizations were administered during January-October: smallpox, 6,618; typhoid fever, 2,176 (under 5 years of age); poliomyelitis, 8,740 children under 5 and 20,296 between 7 and 10; and DPT, 7,953. There were 12,035 consultations with expectant mothers and 24,443 with children during January-September. The outpatient clinics were visited by 80,404 persons.

The advisers provided assistance to the programs of nursing, public health laboratories, and medical records.

**WHO/RB**

**UNICEF**

### **BRITISH HONDURAS-6400, Sanitary Engineering Education**

*Purpose:* Training of sanitary engineers, sanitary inspectors, and other auxiliary technical personnel through short intensive courses.

*Probable duration:* 1966-1970.

*Assistance provided:* Advisory services by staff of projects AMRO-0703 and -4703.

*Work done:* A short course on meat handling, consisting of 24 hours of class instruction and 1 day of training in the field, was given for 14 sanitary inspectors (11 health and 3 agriculture inspectors).

### **BRITISH VIRGIN ISLANDS-3100, Health Services**

*Purpose:* Establishment of an integrated health program.

*Probable duration:* 1969-1972.

*Assistance provided:* Advisory services by staff of the Eastern Caribbean Office.

*Work done:* In the first course for assistant nurses, 10 participants were trained. Inservice education was planned for graduate nurses. The housekeeper at the Peebles Hospital received 2 weeks of training in hospital food service.

Construction of sanitary facilities was begun at seven schools. Major sewerage works were completed in Roadtown.

Intensive case-finding on the islands led to improved reporting of venereal disease and helminthiasis cases.

**UNICEF**

### **CANADA-3101, Fellowships**

Two short-term and 2 long-term fellowships were awarded.

**WHO/RB**

### **CHILE-0300, Smallpox Eradication**

*Purpose:* Eradication of smallpox.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* 2,126,000 doses of glycerinated vaccine and 3,950,000 of freeze-dried vaccine were produced; 821,837 vaccinations were performed.

The population of the Department of Arica, bordering on Peru and Bolivia, was vaccinated in mid-year.

### **CHILE-0400, Tuberculosis Control**

*Purpose:* Organization of a demonstration area in the town of La Cisterna, Province of Santiago, in order to obtain epidemiological information; application and evaluation of practical methods of tuberculosis control; and training of medical and auxiliary personnel for the extension of the program to other areas of the country.

*Probable duration:* 1964-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; and 2 short-term fellowships.

*Work done:* During the year, 480,000 photofluorographic examinations, 200,000 bacilloscopies, 145,976 cultures, and 11,194 sensitivity tests were performed.

BCG vaccination is administered to 80% of the infants born in maternity hospitals and to all children in the 1st and 8th grades of the elementary schools. It is estimated that approximately 500,000 BCG vaccinations were administered in 1969.

The follow-up treatment of ambulatory cases continued to be extended to other areas of the country.

A short training course of BCG vaccination and tuberculin tests, conducted with the cooperation of the International Union against Tuberculosis, was attended by 20 nurses, who will in turn train other nurses in the country.

The 2nd intensive clinical-epidemiological course on tuberculosis (3 months) was attended by 16 physicians. In the Department of Tuberculosis of the Bacteriological Institute, 20 laboratory technicians were trained.

**PAHO/RB**

### **CHILE-0600, Venereal Disease Control**

*Purpose:* Organization of a venereal disease control program in which currently recommended techniques will be applied.

*Probable duration:* 1965-1973.

*Assistance provided:* 2 short-term consultants, and advisory services by the PAHO/WHO Country Representative.

*Work done:* The Venereology Center of San Juan de Dios Hospital increased its personnel and now has sufficient staff to perform its work satisfactorily. Serological analysis for syphilis by means of the VDRL reaction is now being done as a routine procedure.

The consultants collaborated in the programs for the investigation of contacts and in the organization of the control activities in the greater Santiago area and the ports of Valparaíso and San Antonio.

**WHO/RB**

### **CHILE-0901, Vaccination against Measles**

*Purpose:* Yearly vaccination of at least 85% of children under 1 year of age and 10% of those from 1 to 5 years, in both urban and rural areas; training of technical and auxiliary personnel in methods of vaccination against measles; and

establishment of a system of registration of activities carried out, for purposes of epidemiological and operational evaluation.

*Probable duration:* 1966-1969.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* 123,140 vaccinations were administered during the first six months, and it was hoped to raise the number to 150,328 by the year's end. This program of vaccination has reduced measles morbidity by 77% and mortality by 87%.

The project is aided by UNICEF, which supplies some of the vaccine used in the program.

#### **CHILE-2100, Environmental Sanitation**

Three short-term fellowships were awarded.

#### **WHO/RB**

#### **CHILE-3100, Health Services**

*Purpose:* Strengthening of administration in the national health services.

*Probable duration:* 1959-1976.

*Assistance provided:* 1 consultant in administrative methods and practices, and advisory services by project AMRO-3606 staff; common services; and 2 long-term fellowships.

*Work done:* Forms and instructions for the evaluation of health programs were designed in 1969; and the activities during the first half of the year were evaluated.

Instructions for the formulation of the 1970 programs were designed and distributed to all districts in the country. Planning workshops were conducted in the health districts of Concepción, Temuco, Valparaíso, and Talca, with the participation of the appropriate technical sections and divisions of the National Health Service (SNS).

The 5th training course for SNS accountants was held.

A total of 1,756 officials (84% of the target) received training in various fields of administration. The task of preparing a comprehensive diagnosis of administrative problems in the SNS was completed, and recommendations were formulated for application on the short, intermediate and long term.

Studies were undertaken on the operation of the Supply Center; areas requiring improvement were determined and activities to be carried out for this purpose were defined. The initial work consisted in systematizing the basic information on programming of requirements, levels of consumption and procurement, and mechanization of budgetary and accounting records.

Plans were drawn for a general inventory of supplies as of 30 November and for the preparation of a new supply catalog. The task of analyzing and classifying 26,000 positions of nursing auxiliaries, administrative staff, and specialized and unspecialized groups was carried to 95% of completion.

#### **PAHO/RB, WHO/UNDP**

#### **CHILE-3101, Fellowships**

Eight short-term and 5 long-term fellowships were awarded.

#### **WHO/RB**

#### **CHILE-3105, Studies of Human Resources and Performance**

*Purpose:* Determination of manpower requirements in relation to social and economic development plans, and formulation of standards for coordination and increased productivity in the health sector.

*Probable duration:* 1968-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; 1 grant; supplies.

*Work done:* The survey on the demand for medical and dental services and the medical care survey were completed, as were the field analyses and the major part of the study of available resources.

The demographic projections and the economic study were again brought up to date.

#### **PAHO/RB**

#### **CHILE-3200, Nursing Services**

*Purpose:* Improvement in the quality of the nursing care given in the health services, and adequate preparation of the professional and auxiliary nursing personnel needed by the country.

*Probable duration:* 1960-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* A total of 178 nurses were recruited, 123 (70%) for rural hospitals and the remainder for Santiago.

Negotiations were resumed for transferring to the universities the schools of nursing financed and operated by the National Health Service in Santiago, Valparaíso, and Concepción.

The following graduate courses were offered: nursing administration (26 students); teaching of nursing (3 students); teaching methods (32); research in nursing (29); administration of nursing care (34); human needs (44); and psychosocial and anthropological studies (16).

Implementation of the national program for training nursing auxiliaries was carried forward under the direction of the zone training centers; 20 students were trained.

The third technical meeting for the study of nursing staff activities within and outside hospitals was held, as was a 4-week part-time course in basic supervision. The program for the inservice training of auxiliaries was continued.

#### **CHILE-3300, Laboratory Services**

One short-term fellowship was awarded.

#### **WHO/RB**

#### **CHILE-3301, Microbiology Center**

*Purpose:* Organization of a microbiology center to provide basic and applied microbiological research services to the health laboratories and training of personnel at all levels.

*Probable duration:* 1966-1972.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

## VIII. PROJECT ACTIVITIES

*Work done:* A 6-week course was conducted for 20 microbiology technicians, pharmaceutical chemists, university professionals, and National Health Service officials. A 1-month training course was held for 22 laboratory auxiliaries from the northern and southern zones of Santiago.

### **CHILE-3701, Research on Needs for Medical Care Services**

*Purpose:* Investigation of the factors underlying the demand for and utilization of medical services: accessibility of services, prevalence and patterns of morbidity and symptom complexes, social characteristics of individuals and groups, and attitudes toward health and medical services.

*Probable duration:* 1968-1970.

*Assistance provided:* Advisory services by project AMRO-3715 staff; 1 grant.

*Work done:* The manual for interviewers, the final questionnaire, and the sampling scheme for this investigation were prepared. Interviewers were trained, field work was carried out, and the code and coding manual were prepared.

The coding and data-processing phase got under way. Analysis of the information was deferred until 1970.

### **PAHO/RB**

### **CHILE-4102, Pediatrics Residencies**

*Purpose:* Development of a program of pediatrics residencies to provide intensive, comprehensive training in clinical and public health aspects and in research and teaching activities.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; 1 grant; supplies; and 1 short-term fellowship.

*Work done:* The activities were carried out in the inpatient and outpatient facilities of the Pediatrics Department of the Roberto del Río Hospital in Santiago, under the immediate supervision of 3 members of its teaching staff who served as permanent clinical consultants.

Six physicians holding PAHO fellowships, including 2 who took up their duties in 1969, continued their residencies under the program.

Resident physicians have been given assignments under the regionalization program to enable them to gain first-hand knowledge of the environment, methods used, and socio-cultural conditions in the provinces. The regional areas covered by this program are Vallenar, Coquimbo, and San Felipe.

### **WHO/RB**

### **CHILE-4103, Clinical and Social Pediatrics Courses**

*Purpose:* Intensive training of pediatricians in current techniques for the diagnosis, treatment, and prevention of the major children's diseases; and training in methods of administration of pediatric hospitals and ambulatory services, with emphasis on the learning and practice of methods for programming these activities as part of the national health plans.

*Probable duration:* 1967-

*Assistance provided:* 1 short-term consultant, and advisory services by Zone VI Office staff; 1 grant.

*Work done:* The 8th clinical and social pediatrics course (5 May-31 July) was attended by 23 professionals, including 22 PAHO fellows from 13 countries of the Americas. The activities were conducted at the Pediatrics Department and related services of the Roberto del Río Hospital.

### **WHO/RB**

### **CHILE-4201, Brain Development in Malnourished Children**

*Purpose:* Investigation of the hypothesis that severe malnutrition during the fetal stage or the first months of life can limit cellular multiplication and development in the cerebral cortex and in other organs of the central nervous system.

*Probable duration:* 1968-1970.

*Assistance provided:* 2 short-term consultants, and advisory services by the PAHO/WHO Country Representative; 1 short-term fellowship.

*Work done:* Eight studies and research projects were completed, and another 5 were under way.

As part of the exchange of personnel between this project and other institutions and countries, a United States research worker visited Chile and 2 Chilean investigators visited the United States and other countries.

### **WHO/RB**

### **CHILE-4300, Mental Health**

*Purpose:* Development and application of community mental-health techniques and procedures in a health district of Santiago, with a view to subsequent application in the rest of the country; and conduct of epidemiological studies on mental disorders.

*Probable duration:* 1965-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; 1 grant; and 1 short-term fellowship.

*Work done:* The central mental health unit and its peripheral clinics in the district attended to 1,800 cases, 430 of which represented first consultations. Emphasis was laid on the prevention and treatment of alcoholism. In this field, direct treatment services were provided and primary prevention was fostered through educational activities in the elementary schools (through the alcoholism information unit) and for the general population (through voluntary groups). Work on the rehabilitation of patients was carried on in one of the peripheral services (Conchalí Red Cross).

In the work with volunteers, a number of groups were trained in the handling of alcoholic patients, and 20 volunteers were given instruction in social work techniques. A course on alcoholism was offered for students of the Professional Training Institute.

The work with key community groups was intensified: a teetotalers' club was organized in Conchalí, and arrangements were made with the Church at Salto to secure its cooperation in the establishment of an alcoholism clinic.

In the field of school mental health, psychometric evaluations of 150 students in the area were performed, and a new course on mental health was offered for primary school teachers.

The unit completed the collection of data on alcoholism in its 3 epidemiological surveys and began the coding and tabulation of the data for analysis.

#### PAHO/RB

#### CHILE-4500, Radiation Protection

*Purpose:* Development of a national program of protection against the hazards of exposure to radiation; and coordination of the programs of clinical research in which radioisotope techniques are used.

*Probable duration:* 1969-1974.

*Assistance provided:* 2 short-term consultants.

*Work done:* A feasibility study was made and a basic agreement for the program prepared.

#### PAHO/RB

#### CHILE-4601, Institute of Occupational Health and Air Pollution Research

*Purpose:* Reduction of the risks of illness and death from work accidents, occupational diseases, and the presence of air pollutants; a search for the most effective ways of adapting man to his work environment; and a study of the effects of air pollution on the health of a group of 400 urban inhabitants (Santiago), by means of a comparison with a control group of 400 rural inhabitants.

*Probable duration:* 1961-1972.

*Assistance provided:* 1 grant; supplies; and 2 short-term fellowships.

*Work done:* Two training courses were conducted: 1 in occupational health, for 24 students (1,080 classroom hours), and 1 for experts in the prevention of occupational hazards, for 22 students (340 hours).

As part of the research on the effects of air pollution on health, a sampling survey was made of 310 urban inhabitants (77.5% of the target), and information was being gathered on the sample of rural population.

During the first half of the year, 647 air pollution measurements were taken.

#### WHO/RB, WHO/UNDP

#### CHILE-4800, Medical Care Services

*Purpose:* Installation, organization, and improvement of emergency and intensive care units at university hospitals in Santiago.

*Probable duration:* 1966.

*Assistance provided:* Advisory services by Headquarters staff; 1 grant; equipment and supplies.

*Work done:* The MacClure Foundation, a private Chilean organization specially devoted to the development of cardiology services, provided funds for the purchase of a monitor and a pacemaker for the intensive care unit of the José

Joaquín Aguirre Hospital in Santiago. The Organization made the arrangements for procurement and shipment of the equipment.

*See also* project AMRO-4816.

#### PAHO/OF

#### MacClure Foundation

#### CHILE-4802, Cancer

*Purpose:* Extension of activities for the control of cervical cancer to the entire susceptible female population in Santiago and subsequently to other large population centers.

*Probable duration:* 1965-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; 1 grant.

*Work done:* From January to October, 54,200 cytological examinations were performed; since the number expected to be performed by the end of the year was 65,000, the yearly goal of 120,000 would not have been reached, owing to budgetary limitations.

The Cytopathology Laboratory had a staff of 8 cytotechnologists, trained in earlier years. Only 1 cytotechnologist was trained during 1969.

Budget shortages also prevented the establishment of regional cancer detection centers for other provinces for which provision was made in the plan for the expansion of the program.

#### PAHO/RB

#### CHILE-5000 (-4801), Rehabilitation

*Purpose:* Implementation of a nation-wide medical rehabilitation program, including the coordination of all available resources; establishment of a rehabilitation center in Santiago, including a prosthetics workshop and facilities for training personnel for the entire country; and establishment of rehabilitation services in several provinces.

*Probable duration:* 1960-1970.

*Assistance provided:* 6 short-term consultants, and advisory services by the PAHO/WHO Country Representative; 1 long-term fellowship.

*Work done:* The Department of Physiotherapy of the Traumatology Hospital of Valdivia was inaugurated with a staff of 4 kinesitherapists and 1 orthopedic technician. Three kinesitherapists were appointed to the staff of the Regional Hospital at Temuco; 2 additional kinesitherapists and 1 orthopedic technician to the Regional Hospital at Concepción; and 5 kinesitherapists and 2 occupational therapists to the Van Buren Hospital at Valparaíso. For the services at Santiago, the number of kinesitherapists was also increased, and the physical medicine and rehabilitation staff and equipment were completed. Authorization was given for the purchase of ultrathermic, electrotherapy, and infra-red therapy equipment for the Santiago and provincial hospitals.

The Rehabilitation Commission scheduled a study of existing conditions for the purpose of proposing measures to the Ministry of Public Health for the rehabilitation of the handicapped, using the services of all public institutions.

In the 2-year course for instructors of deafmute children, 13 students enrolled in 1968 completed their 2nd year and 21 began their studies in April 1969.

## WHO/UNDP

### CHILE-6000, Medical Textbooks and Teaching Materials

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* All 5 medical schools in the country were participating in the program; they were sent 645 copies of the *Tratado de patología*, 197 of *Bioquímica*, 320 of *Fisiología humana*, and 420 of *Manual de farmacología*. Of the first three, 437, 11, and 52 copies, respectively, were sold during the year. A start was made on the distribution of the *Manual de farmacología*.

Information was gathered on histology, embryology, surgery, psychiatry, obstetrics, and gynecology with a view to the establishment of expert committees and the recommendation of textbooks on those subjects.

### CHILE-6100, School of Public Health

*Purpose:* Strengthening of the School of Public Health of the University of Chile, and expansion of the facilities for training students from other countries.

*Probable duration:* 1958-

*Assistance provided:* 1 short-term consultant.

*Work done:* Courses were given on public health (26 students), administration of nursing and midwifery services (18), health education (24), teaching of health (27), occupational health (18), maternal and child health (6), as well as the 4th course on health and population dynamics (25 students) and the Latin American course on biology of reproduction (8). Two courses in administration were also conducted for 49 medical directors from the National Health Service (SNS). Of the 201 students enrolled in all these courses as of 31 October, 46 (including 34 PAHO fellows) were from other countries.

According to a study made in 1969, 147 research projects on a wide variety of subjects were completed or in progress during 1967-1968. Studies were being made to define a policy for research, the available budget for this purpose being 10 times as large as those for earlier years. These activities, some of which are part of international research projects, were expanded with the assistance of contributions by AID and the Organization.

The School took part in the 2nd professional training seminar and in the national convention of the Chilean Medical Association, at which the future structure of the SNS was discussed. A program of weekly forums was started for the exchange of views on community problems. By virtue of an agreement signed with the School of Philosophy and Educa-

tional Sciences, a series of study sessions were held for the purpose of improving the pedagogical techniques of the faculty.

As part of the new structure of the University of Chile, the School of Public Health, together with 5 professorships in preventive medicine, set up the Department of Public Health and Social Medicine. As a result, the graduate courses were enriched by the experience of qualified instructors in the latter fields.

## WHO/RB

### CHILE-6200, Medical Education

*Purpose:* Expansion and strengthening of medical education by means of training programs in preventive and social medicine and improved pedagogical approaches.

*Probable duration:* 1962-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; 1 grant; 2 short-term and 2 long-term fellowships.

*Work done:* Department "E," on Preventive and Social Medicine, was made the Central Area Unit of the Department of Public Health and Social Medicine of the School of Medicine of the University of Chile; it will at the same time serve as a basis for the sections on psychosocial sciences, epidemiology, and medicine of the Teaching-and-Service Unit of the Central Area of Santiago.

Active assistance was given in planning the instruction in the Central Area in accordance with a revised curriculum based on a new orientation.

Instruction offered during the year included an orientation course in medical anthropology, attended by 36 first-year medical students (72 hours); courses in psychology, medical sociology, and epidemiology, for third-year students; and a course in preventive and social medicine, attended by 48 sixth-year students. In the program of rural internships, 22 seventh-year medical students completed a 3- to 4-week period of practice in outlying hospital areas, under adequate supervision.

## PAHO/RB

### CHILE-6201, Training in the Medical Use of Radioisotopes

*Purpose:* Training in the clinical application of radioisotopes and in radiation protection.

*Probable duration:* 1962-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; supplies.

*Work done:* The 12-month training course on the medical use of radioisotopes began on 5 May, with 5 physicians (including 4 PAHO fellows from other countries) in attendance.

## PAHO/RB

### CHILE-6400, Sanitary Engineering Education

*Purpose:* Expansion and strengthening of sanitary engineering education at the School of Physical Sciences and

Mathematics and the School of Public Health, both of the University of Chile; and improvement in the technical training of civil engineers working in the field of sanitary engineering.

*Probable duration:* 1965-1970.

*Assistance provided:* 5 short-term consultants (2 of them on 2 different missions each), and advisory services by staff of Headquarters and of projects AMRO-2106 and -2114; grants; and supplies.

*Work done:* The Sanitary Engineering Section of the Department of Civil Engineering of the School of Physical Sciences and Mathematics offered 4 intensive short courses on industrial liquid wastes, steel pipes, water fluoridation, and training of filtration plant operators; and 2 seminars, 1 on industrial hygiene and 1 on sanitary engineering in disasters and emergencies. Total attendance at these activities was 382.

The School of Public Health organized a course on waste disposal, held in Antofagasta and attended by 39 participants.

Equipment and supplies were furnished to strengthen the laboratories and the research program.

The following research projects were under way: basic design data for water supply and sewerage systems (the population projections were completed and work was continued on the computerized calculations in sewerage networks); evaluation of the influence of water filtration rates; stabilization ponds (construction stage); settling basins; and asbestos-cement pipes. The studies on waste disposal and filtration rates in small plants were completed.

#### WHO/RB

#### CHILE-6500, Veterinary Medical Education

*Purpose:* Strengthening of the teaching programs in veterinary medicine, with special attention to public health and preventive medicine, at the University of Chile.

*Probable duration:* 1966-1971.

*Assistance provided:* 2 short-term consultants, and advisory services by Headquarters staff; supplies; and 1 long-term fellowship.

*Work done:* A short-term consultant made an evaluation of the teaching practices in veterinary medicine and drew up recommendations for improvements.

A second consultant prepared recommendations for improving the audiovisual instructional material currently in use.

The Chief of the Zoonoses Section of the National Health Service participated in the Seminar on Rabies held in Lima, Peru. Two veterinarians of the Service attended the course on preparation of antigens and vaccines for brucellosis held at the Pan American Zoonoses Center.

#### PAHO/RB

#### CHILE-6600, Dental Education

*Purpose:* Development of a program for the teaching of preventive and social dentistry at the School of Dentistry of the University of Concepción.

*Probable duration:* 1965-1970.

*Assistance provided:* 2 short-term consultants; 1 grant.

*Work done:* The Department of Preventive and Social Medicine of the School of Dentistry planned the courses in biostatistics, general epidemiology, and public health dentistry, which were given as part of the 1st, 3rd and 4th year programs and were attended by 52, 36, and 31 students, respectively. Following a diagnosis of the situation in which the current objectives, available resources, and number of students were taken into account, the consultants and the pertinent authorities examined and redefined the curriculum of the School.

With funds provided by the W. K. Kellogg Foundation, equipment was purchased for the comprehensive clinical service envisaged in the community dental care program to be carried out as part of this project.

#### WHO/RB

#### CHILE-6700, Population Dynamics

*Purpose:* Coordination and support of teaching, research, and extension activities at the School of Public Health of the University of Chile in the field of interrelationships of health and demography.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; 1 grant.

*Work done:* The advisory group for the project, consisting of 23 professors from the School of Medicine of the University of Chile and multidisciplinary teams, was organized. The 4th course on health and population dynamics (3-1/2 months) was conducted at the School of Public Health. The Organization collaborated in the Latin American course on biology of reproduction, the course for *licenciados* in public health, 2 courses in family planning, 2 in demography, and in the teaching of preventive and social medicine.

Research was continued on fertility and abortions, the impact of family planning programs, psychosocial consequences of the use of contraceptives, and the expected role of the midwife.

#### PAHO/RB

#### COLOMBIA-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1957-

*Assistance provided:* 2 medical officers, 1 sanitary engineer, 1 entomologist, 4 sanitation inspectors, 1 short-term consultant; supplies; and 1 short-term and 3 long-term fellowships.

*Work done:* At the end of 1969 the malarious area of Colombia was divided as follows:

	Population	%	Area (km <sup>2</sup> )	%
Total	12,462,645	100	970,849	100
Consolidation phase	8,579,794	68.8	114,832	11.8
Attack phase	3,677,070	29.5	831,391	85.7
Preparatory phase	205,781	1.7	24,626	2.5

During the 21st spraying cycle, carried out in the first



half of the year, 397,427 houses were sprayed, with 1,813,709 inhabitants of 13,852 localities protected; 63,898 houses were left unsprayed for want of insecticide, so that only 86.2% of the target was reached. The 22nd cycle began in July; according to estimates, 464,692 houses in 15,696 localities were to be sprayed. By October, 321,453 houses (71.4% of the target) had been sprayed. In addition, 4 quarterly sprayings were performed in selected areas.

In consolidation-phase areas it was necessary to spray 43,164 houses up to October. During the year, 767,866 blood smears had been examined, with 39,435 (5.8%) found to be positive. The general situation was found to have deteriorated since the previous year, for while the number of slides examined declined, the number of positives rose. The slide positivity rates for consolidation and attack-phase areas in 1969 were 1.2% and 9.8%, respectively. Of the number of slides examined 268,428 (35.0%) came from the network of reporting stations.

The concentration of cases in certain areas was increasingly evident: about 80% of the cases in the country were detected in 6 of the 23 departments and 2 of the 4 intendencias.

The problems in jungle areas under colonization, the inhabitants' resistance to the attack measures, and excessive turnover in personnel were the greatest obstacles to the campaign.

Collective treatment began in August in the Lower Cauca-Nechí region, embracing the municipalities of Cáceres, Zaragoza, and Caucasia. The area has some 25,000 inhabitants and is characterized by a high rate of endemic malaria and conditions which hamper the progress of any attack measure. After 7 fortnightly cycles the slide positivity rate was found to have fallen from 40.1% in the 1st to less than 10% in the 7th; 80% of the population continued to accept the antimalaria drugs. Some cases of *Plasmodium falciparum* which were resistant to the normal dose of chloroquine were successfully treated by other means.

PAHO/RB, PAHO/SMF

UNICEF

#### COLOMBIA-0300, Smallpox Eradication

*Purpose:* Eradication of smallpox from the country by vaccinating 80% of the population over a period of 4½ years.

*Probable duration:* 1967-1971.

*Assistance provided:* Advisory services by the medical officer assigned to project AMRO-0304; equipment and supplies.

*Work done:* A total of 3,280,096 persons were vaccinated, 700,003 for the first time. The coverage (from 1967) was 63.7% of the total population. A survey was made of 303,439 persons vaccinated for the first time and 312,120 revaccines; the proportions of takes were 90.8% and 79.0%, respectively. The morbidity rate has remained at zero since 1967. The program continued to be integrated with other immunization activities such as DPT, BCG, and poliomyelitis vaccination programs.

WHO/RB

#### COLOMBIA-0400, Tuberculosis Control

*Purpose:* Implementation of a national tuberculosis control program, beginning with a verification area in the Girardot Health District, which includes 12 municipalities of the Departments of Cundinamarca and Tolima.

*Probable duration:* 1966-1970.

*Assistance provided:* Advisory services by the medical officer assigned to project Colombia-3100; 4 short-term fellowships.

*Work done:* Action continued on integration of the tuberculosis control programs into the regular activities of the health services. Further inspection visits were made to all the programs and the Girardot Pilot Center.

The nation-wide BCG vaccination campaign was started in August. A new statistical form was tested. Personnel training activities were continued.

PAHO/RB

UNICEF

#### COLOMBIA-2102, Water Quality Studies

*Purpose:* Conservation and optimum use of the water resources of the Bogotá Savannah and the Ubaté and Chiquinquirá valleys by means of activities including planning, financing, construction, and administration of facilities for the development and conservation of existing water resources.

*Probable duration:* 1969.

*Assistance provided:* Advisory services by the engineer assigned to project Colombia-3100.

*Work done:* The Government established an Autonomous Regional Corporation for the Bogotá Savannah and the Ubaté and Chiquinquirá valleys (CAR) to deal with problems involved in the utilization of material resources and development and improvement of water sources in the region.

The CAR initiated activities aimed at assessing the size of the problem of pollution of the Bogotá River and its tributaries by means of samplings. It was also building wastewater treatment facilities and water supply works for regions and communities, and was preparing a survey to determine the location of industrial plants and the volume of wastewater they produce. In addition, the CAR was performing a groundwater survey and drawing up a legislative bill on pollution control.

#### COLOMBIA-2200, Water Supplies

*Purpose:* Implementation of the national water supply program, including the planning, design, financing, construction, and operation of municipal water supply services.

*Probable duration:* 1960.

*Assistance provided:* 1 sanitary engineer, 2 short-term consultants, and advisory services by the consultant in administrative methods assigned to project Colombia-3100 and by Zone IV Office staff; 2 short-term and 1 long-term fellowships.

*Work done:* The National Municipal Development Institute (INSFOPAL), the agency responsible for urban water and sewerage programs, was transferred to the Ministry of Public Health and was reorganized. A Basic Rural Sanitation Division established in the National Institute for Special Health

Programs (INPES) was made responsible for all water supply and waste disposal activities in towns with less than 2,500 inhabitants.

In the rural program, 93 water supply facilities to serve 57,000 persons were completed, as were 172 small water systems serving 4,656 persons.

INSFOPAL completed 99% of its water supply program and 99.6% of its sewerage program; 105 construction projects were under way.

The Cúcuta Municipal Services, with assistance from the Organization, began a study of filter beds with a view to expanding the capacity of the treatment plant. The National University and the Bogotá Water Supply Company conducted research on the use and operation of water meters for household connections.

The Ministry of Public Works prepared a national water fluoridation program.

## WHO/RB

### COLOMBIA-2300, *Aedes aegypti* Eradication

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1951-

*Assistance provided:* 1 sanitary inspector, and advisory services by project Colombia-0200 staff; supplies.

*Work done:* Treatment of the 16 localities found to be reinfested was carried forward, as was verification in the areas most exposed to reinvasion by *A. aegypti*. The only remaining positive localities were 2 in La Guajira and Cúcuta (on the border with Venezuela) and the ports of Cartagena and Barranquilla. A total of 21,504 houses were treated, and 149,940 inspected.

Two training courses for field personnel were conducted.

## PAHO/RB

### COLOMBIA-3100, Health Services

*Purpose:* Extension of the coverage of health services, and improvement of their structure and operation.

*Probable duration:* 1951-

*Assistance provided:* 2 medical officers (including the PAHO/WHO Country Representative), 1 engineer, 1 adviser in administrative methods, secretarial services, and 5 short-term consultants; supplies; common services; and 14 short-term and 4 long-term fellowships.

*Work done:* The National Health Council, the advisory agency at the ministerial level responsible for coordinating the activities of the health institutions, continued its normal activities. The program for the supervision of the team of physicians and nurses responsible for sectional health services was carried out.

A program for the determination of health-care levels was prepared as a basis for establishing a system of regionalization.

Plans were drawn up for a national campaign to administer BCG vaccination to persons under 15 years of age and DPT to children under 8.

A 3-year plan of hospital investments was prepared on the basis of a survey of the country's resources; the plan was

approved by the President of the Republic and was awaiting consideration by the Legislative Branch.

In the Valle del Cauca Department, preliminary studies were made for the establishment of a system of program budgeting.

A total of 730 health promoters (81% of the target) were trained with a view to extending the services, especially those for maternal and child care, to the rural areas.

## PAHO/RB, WHO/RB, WHO/UNDP

UNICEF

### COLOMBIA-3301, National Institute of Health (Carlos Finlay)

*Purpose:* Increase and diversification of the production of biologicals, in order to supply the country's requirements and export part of the output to neighboring countries; and promotion of epidemiological research, public health laboratory activities, standardization of techniques, and training in laboratory procedures.

*Probable duration:* 1950-

*Assistance provided:* 1 laboratory consultant; 1 grant; and supplies.

*Work done:* The production of biologicals through October was as follows: freeze-dried smallpox vaccine: 7,586,500 doses; yellow fever vaccine: 1,269,300 (481,750 doses distributed abroad); BCG intradermic vaccine: 3,666,100 doses; BCG oral vaccine: 57,815 doses; typhoid vaccine: 247,620 doses; DPT vaccine: 1,661,389 individual doses; rabies vaccine for human use: 35,635 14-dose treatments; and rabies vaccine for canine use: 197,027 doses. Production exceeded the target in every case except that of typhoid vaccine, in which the output was only 18% of the target.

In the area of yellow fever diagnosis, all of the scheduled examinations and research were carried out. In regard to Chagas' disease, leishmaniasis, Venezuelan equine encephalitis, and leprosy, 80% of the scheduled research work was performed.

Inservice training in the production of biologicals was provided to 3 professionals. The new building was almost completed by the end of the year.

## PAHO/RB

### COLOMBIA-4101, Clinical and Social Pediatrics

*Purpose:* Organization of yearly social pediatrics courses for professors of pediatrics and for physicians and other personnel having responsibilities for the conduct of maternal and child health programs.

*Probable duration:* 1964-1970.

*Assistance provided:* 1 short-term consultant, and advisory services by the medical officer assigned to project Colombia-4900; supplies.

*Work done:* The V Latin American Course in Clinical and Social Pediatrics, held from 1 September to 24 November, was attended by 24 students, including 11 PAHO fellows: 2 from Brazil, 1 from Ecuador, 1 from Guatemala, 2 from Haiti, 1 from Nicaragua, 1 from Panama, 2 from Peru, and 1 from Venezuela.

## WHO/RB

UNICEF

**COLOMBIA-4200, Nutrition**

*Purpose:* Improvement of the nutritional status of the population through the coordination of resources and activities of various official, semiofficial, and private agencies, especially in the fields of health, agriculture, education, and community action.

*Probable duration:* 1962-

*Assistance provided:* Advisory services by project AMRO-4204 staff; 1 long-term fellowship.

*Work done:* The following studies were carried out: 32 anthropometric surveys, 9 surveys on aspects of nutrition, 3 on nutrition education, 7 biochemical studies, 4 surveys on clinical nutrition, and 1 on the reliability of basic information concerning the activities of the integrated applied nutrition program. A population census was also taken.

The National Institute of Nutrition offered university-level instruction to 384 students of medicine and biology, nurses, and nutritionists-dietitians (1,989 classroom hours). Various national institutions offered intermediate-level training to 1,662 students (965 hours). Inservice training at the professional level was given to 152 physicians, agronomists, veterinarians, nurses, and nutritionists-dietitians (432 hours), and at the intermediate level to 2,203 teachers, education supervisors, and others (2,482 hours).

As part of the community education activities, 84 15-minute television programs—49 for the general public, 28 for mothers, and 7 for schoolchildren—and 358 radio programs were broadcast; 75 articles were published in the press and a course of 7 nutrition lessons was given to 7,000 elementary schoolteachers. Nutrition training was provided to 2,655 organized community groups (65,292 persons and 21,752 hours).

In its supplementary feeding program, the Government, working through health and education agencies and with the cooperation of CARE, CARITAS, and other institutions, provided snacks and lunches for 7,863 schoolchildren (1,534,484 rations); food aid to 67,045 persons (551,099 rations); lunches to 28,853 preschool and school-age children (2,738,974 rations); breakfasts, snacks, and lunches to 62,524 persons (5,488,863 rations), and complete meals to 1,972 preschoolers, schoolchildren, and elderly persons (1,217,431 rations).

A total of 765 undernourished pre-school age children were given meals at the 18 nutritional rehabilitation centers in operation.

The central farms of the 13 departments where the applied nutrition program was being carried out continued to operate on a normal basis. Loans were granted for various farming and cattle-raising activities.

**WHO/RB****UNICEF****COLOMBIA-4202, Nutrition Training Center**

*Purpose:* Conduct of training courses for senior professional staff of official agriculture and livestock agencies of the Latin American countries, and strengthening of applied nutrition programs and the teaching of human nutrition in agricultural universities.

*Probable duration:* 1968-1970.

*Assistance provided:* Advisory services by staff of projects Colombia-3100 and AMRO-4204.

*Work done:* The 2nd international course in food economics and applied nutrition was held from 3 February to 28 June. It was attended by 29 students and included 1,240 hours of instruction (380 of field practice). The subjects taught were: economic development and underdevelopment, community development and nutrition, and solution of food and nutrition problems.

**FAO, UNICEF****COLOMBIA-4500, Radiation Protection**

*Purpose:* Initiation of a radiation-protection service at the national level, with a view to dealing with the general problem of exposure of workers and the general public to ionizing radiations.

*Probable duration:* 1967-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; supplies.

*Work done:* The collection of samples of air and milk for examination continued. An analysis laboratory was being installed, and a program of activities was designed for 1970.

A Colombian engineer completed his specialized studies in health and radiophysics in Puerto Rico.

**WHO/RB****COLOMBIA-4601, Air Pollution**

*Purpose:* Organization and establishment of a national occupational health unit, and installation of air sampling stations in the major cities of the country.

*Probable duration:* 1967-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* Approval was given to plans for the installation of a national air-pollution network to consist of 19 stations in the six largest cities. The purchase orders for the equipment were prepared. The network will be financed with contributions from the national and municipal authorities and from the Organization.

The program for standardized sampling was carried forward, and advisory services continued to be extended to industrial plants and municipalities for activities related to the project.

This program gathered renewed momentum during the second half of the year, thanks to the leadership provided by the Chief of the Sanitation Division of the Ministry of Public Health.

**COLOMBIA-4900, Health and Population Dynamics**

*Purpose:* Extension of maternal and child health and family planning services to rural areas.

*Probable duration:* 1968-1970.

*Assistance provided:* 1 medical officer and 1 short-term consultant; supplies; and local costs.

*Work done:* Maternal and child care services began to be provided in some 300 local health agencies. The 143 phy-

sicians, 149 nursing auxiliaries, and 730 rural health promoters trained represented 71%, 62%, and 81%, respectively, of the targets for the year.

**PAHO/OF****AID****COLOMBIA-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* An administrative system headed by a responsible official was established in each of the participating schools. Approximately 80% of the copies ordered of the 3 books—*Tratado de patología*, *Bioquímica*, and *Fisiología humana*—were sold.

**COLOMBIA-6100, School of Public Health**

*Purpose:* Expanding and improving the quality of the instruction at the School of Public Health of the University of Antioquia, in Medellín, in order to adequately prepare the professional public health personnel needed by the country.

*Probable duration:* 1964-

*Assistance provided:* 1 short-term consultant, and advisory services by the PAHO/WHO Country Representative; supplies; and 1 short-term fellowship.

*Work done:* A 5-year plan of activities was drawn up. It was designed to increase the number of instructors so that they can work on a more suitable schedule enabling them to devote more time to research.

A start was made on the construction of a new building, expected to be completed in 1970.

Fourteen regular courses were conducted for 338 students, 18 from abroad. Eight research projects in various public health fields were in progress. Advisory services were extended to 17 programs of various kinds.

The School of Public Health assumed responsibility for undergraduate instruction in preventive medicine at the School of Medicine of the University of Antioquia.

**WHO/RB****COLOMBIA-6200, Health Manpower Studies (Dentistry)**

*Purpose:* Study of manpower requirements for health activities in the field of dentistry.

*Probable duration:* 1964-1968; 1969.

*Assistance provided:* Advisory services by project AMRO-4409 staff; 1 grant.

*Work done:* The questionnaires were prepared and tested

for surveys of physical resources available in governmental agencies and for a census of dentistry personnel throughout the country. The census began to be taken.

**PAHO/RB****COLOMBIA-6201, Continuing Medical Education**

*Purpose:* Establishment of a system for instituting a continuing review and revision of the medical education curriculum in order to keep it in line with the country's needs; development of a teacher-training program, particularly in the basic sciences and for professionals practicing in the rural areas or remote communities; promotion and implementation of a program of continuing medical education; and provision of periodic technical information.

*Probable duration:* 1965-1972.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; 1 grant; and 2 short-term and 2 long-term fellowships.

*Work done:* A seminar was held to analyze the programs of study of the medical schools, and another was conducted to consider a system for instituting a review of the medical education curriculum and adapting it to the country's needs. By the year's end all of the schools had a standing committee on curriculum and there were plans for establishing a national committee.

A total of 140 professors and 550 physicians attended the 45 seminars on continuing medical education that were held. Eighteen physicians were trained in special programs.

The monthly *Carta médica* was issued regularly and distributed to 5,000 physicians (target 4,000). Several other publications were also distributed.

The III Colombian Laboratory of Human Relations and Medical Teaching, held in Bogotá, was attended by 24 participants.

**PAHO/RB, WHO/RB****COLOMBIA-6203, Center for the Teaching of Pathology**

*Purpose:* Training of pathologists for service as teachers, to be offered, on a rotating basis, at the departments of pathology of the Schools of Medicine of the University of Valle, the National University, and the University of Antioquia.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; 1 grant.

*Work done:* The organizational problems having been solved, the first 3 fellows were admitted and conducted their programs, with highly satisfactory results.

The coordinating committee met regularly and approved the programs of the fellows, the allotment of funds, and plans for extending the project to other areas of instruction.

**PAHO/RB**

**COLOMBIA-6204, Experimental Studies on Health Services**

*Purpose:* Experimental study of a system for the delegation of responsibilities to auxiliary personnel.

*Probable duration:* 1967-1970.

*Assistance provided:* 2 short-term consultants and advisory services by the PAHO/WHO Country Representative; local costs.

*Work done:* The experimental study was started in 1968 but was delayed by a number of problems. In 1969 a new plan of operations was formulated and a project to evaluate the study was prepared. The budget was adjusted, and the relevant agreements were signed.

Manuals were prepared for the training of personnel and this activity was initiated.

PAHO/OF

AID

**COLOMBIA-6300, Nursing Education**

*Purpose:* Improvement in the nursing care provided in the health services, through the establishment of continuing education programs in administration and supervision, in-service training, and training in specialized fields.

*Probable duration:* 1968-1970.

*Assistance provided:* 2 short-term consultants; supplies; and 2 short-term fellowships.

*Work done:* Following the evaluation of the basic curriculum of the School of Nursing of the National University in Bogotá (1968), a seminar on the evaluation of students was held for the School's faculty. At the School of Nursing in Medellín, an evaluation of the teaching program was completed.

A basic document outlining a plan for assistance to schools of nursing in Colombia was prepared and approved.

PAHO/RB

**COLOMBIA-6400, Sanitary Engineering Education**

*Purpose:* Improvement in the technical training of professional personnel engaged in sanitary engineering; promotion of research; and expansion and diversification of sanitary engineering education in the regular civil engineering courses at the National University, the University of the Andes, the University of Antioquia, and the University of Valle.

*Probable duration:* 1964.

*Assistance provided:* 4 short-term consultants, and advisory services by project AMRO-2400 staff; 1 grant; and supplies.

*Work done:* Three short courses in sanitary engineering were attended by 59 engineers. At the University of Valle (Cali), 12 engineers elected to pursue a degree in sanitary engineering; and at the National University 8 completed the postgraduate course in this subject. Assistance was provided in the organization and conduct of 2 intensive courses.

The National University and the Bogotá Water Supply Company completed the laboratory and field work for an investigation on the use and operation of household water meters. Renewed emphasis was placed on research into the filtration properties of natural sands.

PAHO/RB

**COLOMBIA-6500, Veterinary Medical Education**

*Purpose:* Improvement of the teaching of public health and related subjects in the schools of veterinary medicine in the country.

*Probable duration:* 1969.

*Assistance provided:* 1 short-term consultant, and advisory services by staff of Headquarters and of projects AMRO-0700 and -0800; 1 short-term fellowship.

*Work done:* Instruction was given in the principles and practices of food hygiene and in the epidemiology of foot-and-mouth disease and the zoonoses. The program was prepared for a graduate course on the last-mentioned subject, to be offered in 1970.

A professor of anatomy of the University of Antioquia (Medellín) was awarded a short-term fellowship.

PAHO/RB

**COLOMBIA-6600, Teaching of Preventive Dentistry**

*Purpose:* Establishment of a Department of Preventive Dentistry in the School of Dentistry of Antioquia University, Medellín; integration of the teaching of preventive medicine and preventive dentistry at the National University in Bogotá; establishment of a general dental research center; and strengthening of the dental education and dental public health programs.

*Probable duration:* 1961-1971.

*Assistance provided:* 2 short-term consultants, and advisory services by AMRO-4409 staff; 1 long-term fellowship.

*Work done:* At Antioquia University, a new section of the building to house the Department of Preventive Dentistry was completed. In the School of Dentistry, a lecture on dental caries, by experts in this field, was attended by more than 2,000 dentists. Courses were also given on dental therapeutics and preventive orthodontics, for dentists engaged in this specialty.

The first group of students who studied under the new curriculum received their degrees. Assistance was provided in the survey on the training of auxiliary personnel and in the studies of manpower and education resources, offered under the supervision of the Ministry of Public Health. The studies to assess the effectiveness of fluoridated table salt in the prevention of dental caries were continued. A course on simplified dental equipment was offered in November for 60 professors, general dentists, and equipment manufacturers.

At the National University, the structural scheme for the new Department of Preventive Dentistry was drawn up; teaching activities continued normally.

At the University of Valle a study was made of dental conditions in the Cauca Valley region, with the assistance of the School of Public Health of Antioquia University. A program for public health dentists was instituted at the latter University.

PAHO/RB

**COSTA RICA-0200, Malaria Eradication**

*Purpose:* Eradication of malaria.

*Probable duration:* 1956.

*Assistance provided:* 1 medical officer and 2 sanitary inspectors; supplies.

*Work done:* In the 3rd half-yearly cycle of the Three-Year Plan, 68,123 houses were sprayed, completing the coverage of the entire area in the attack phase. In the 4th spraying cycle (July-December) 69,299 houses (the scheduled number) were sprayed. In the program of collective treatment, a coverage of more than 94% of the population was attained. Monthly epidemiological evaluations covered more than 75% of the localities in the malarious areas, with a monthly average of more than 3% of the population included in the sample. During the year, 202,362 blood smears were examined and 688 cases were detected in the country.

The slide positivity rates and the number of localities found to be positive were substantially lower than in the two previous years, as shown below:

	1967	1968	1969
No. of cases	4,443	1,191	688
Slide positivity	2.71%	0.84%	0.34%
Positive localities	614	369	194

**PAHO/SMF, WHO/RB**

**UNICEF**

**COSTA RICA-2100, Environmental Sanitation**

*Purpose:* Planning and implementation of environmental sanitation programs, including water and air pollution control, solid wastes disposal, industrial hygiene, vector control, food hygiene, and training of auxiliary personnel.

*Probable duration:* 1969.

*Assistance provided:* 1 sanitary engineer, and advisory services by Zone III Office staff.

*Work done:* A program for the installation of latrines was formulated and put into operation; 1,728 latrines were constructed, 290 sewer connections were made, and 282 septic tanks were built.

Upon enactment of the necessary legal regulations and provision of the required equipment, the Ministry of Public Health launched a program for the inspection of motorized passenger vehicles, with regard to their comfort and safety, the health of the drivers, and damage caused by exhaust fumes, particularly from Diesel-powered vehicles. Initial steps were taken for the installation of an air sampling station in the city of San José. Preliminary advice was given in connection with the health problems that might be caused by a fishmeal plant in the port of Puntarenas.

**PAHO/RB**

**COSTA RICA-2200, Water Supplies**

*Purpose:* Planning, construction, maintenance, and administration of public water supply and sewerage systems in urban and rural communities of the country.

*Probable duration:* 1960-1970.

*Assistance provided:* Advisory services by staff of Headquarters, Zone III Office, and of project Costa Rica-2100; 1 short-term fellowship.

*Work done:* The construction of facilities necessary to increase the water supply of the San José metropolitan area by 500 liters per second was continued and was 70% com-

plete by the end of the year. It was anticipated that two of the new storage tanks for the system would be placed in service in early 1970. The preliminary activities for starting a fluoridation program for the San José water supply system were continued. An emergency plan for improving the water supply in the port of Limón was initiated; this city is included in the 5-city plan submitted to the Inter-American Development Bank for possible financing.

In the rural areas, 12 water supply systems were completed, bringing the number of completed systems to 38 out of a total of 68 called for by the program. Eighteen systems were under construction, and the designs for the other 12 had been completed.

**PAHO/RB**

**COSTA RICA-3100, Health Services**

*Purpose:* Preparation and implementation of a National Health Plan as part of the national economic and social development plan; and improvement and extension of health services in the Provinces of Guanacaste, Puntarenas, part of San José, Alajuela, and Heredia.

*Probable duration:* 1959.

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative), 1 short-term consultant, and advisory services by Headquarters and Zone III Office staff; supplies; common services; and 13 short-term and 4 long-term fellowships.

*Work done:* An Executive Decree was issued dividing the country into 19 health districts, each of which is to operate as a health program area under local and decentralized technical-administrative jurisdiction. The Puriscal District was selected as a model for the initial implementation of basic health programs.

The Ministry of Public Health was being reorganized into 5 divisions. As part of the planning process, activities were programmed in the fields of maternal and child health, sanitation, nutrition, immunizations, laboratories, nursing, and medical care. Other basic activities such as communicable disease control were programmed by specific units at the central level. Actual implementation, however, is being conducted increasingly as an integral part of the regular programs of health units.

During the first half of the year 15,224 sanitary inspections were made of 3,045 food-dispensing establishments, 1,728 latrines were constructed, 282 septic tanks were installed in rural areas, and 290 sewer connections were made. Sanitary disposal of solid wastes was available to 34.7% of the rural and 53.1% of the urban population. Twelve rural water supply systems were built, and 85 household wells were drilled. Potable water was available to 54% of the rural population.

A total of 231,014 schoolchildren were treated for parasites. A daily average of 28,583 preschool-age children and 895 expectant mothers were receiving food supplements and nutrition education in 136 nutrition centers, 13 of which were opened during the year. The health services contributed to the malaria eradication program by taking 4,327 blood smears. One thousand houses (22.4% of the target) were inspected for *Aedes aegypti* in the port of Puntarenas.

## VIII. PROJECT ACTIVITIES

Between January and September, 14,750 persons were vaccinated against smallpox, 41,200 against poliomyelitis, and 86,095 against measles. Another 124,000 children under 5 years of age were vaccinated against poliomyelitis in October because of an outbreak which by November had produced 79 cases of the disease. Up to June, 29,173 preschoolers were vaccinated with DPT and 12,551 newborn infants with BCG.

At the family planning centers, 7,186 women from 15 to 45 years of age were examined and given the Papanicolaou test for cervical cancer.

During the first half of the year, 31,101 prenatal consultations were attended to, as were 20,406 deliveries, and 111,898 health consultations of preschool-age children.

Up to June, 6,721 dogs were destroyed and 8,568 were vaccinated in the rabies control program.

Training was given to 394 workers, including 177 professionals and technicians and 117 auxiliaries.

### PAHO/RB, WHO/RB

### UNICEF

#### COSTA RICA-3101 Fellowships

Four short-term and 9 long-term fellowships were awarded.

### WHO/RB

#### COSTA RICA-3300, Laboratory Services (1967-1969) PAHO/RB

The original purpose was the modernization of methods and techniques in use in the laboratories of the Ministry of Public Health and the training of professional personnel in applied chemistry, applied bacteriology, and drug control. In 1968 the national authorities decided to include as part of its purpose the development of the Department of Laboratories to serve as a normative unit; the regionalization of laboratory services; and extension of coverage. The Organization provided a short-term consultant in 1967, another in 1968, and supplies in 1969, as well as advisory services by staff of Headquarters and of projects Costa Rica-3100 and AMRO-3303, and equipment for 5 laboratories. The two main parts of the original purposes were largely accomplished in 1967 and 1968 with the establishment of standards and uniform procedures, the local training of 26 persons in uniform techniques, and the training abroad through fellowships (charged to other projects in Costa Rica) of 9 professionals in the fields included in the program. In addition, a large-scale measles vaccination campaign was planned and carried out.

In 1968, a "Handbook of Technical Standards for Local Health Unit Laboratories" was prepared and put into use. Seventeen hospital laboratories and 10 clinics of the Costa Rican Social Security Fund had professionals as their directors as a result of the support extended by the Association of Microbiologists to the effort to provide professional management for important laboratories in Costa Rica. A set of preliminary draft regulations for the Department of Laboratories and the national laboratory systems was prepared and was being considered. The local laboratories provided 23.8% more service during the first half of 1969 than in the corre-

sponding part of 1968. The Government proposes to negotiate a 4-year extension of the project with a view to accomplishing goals not completely attained.

#### COSTA RICA-4200, Nutrition

*Purpose:* Improvement in the nutritional level of mothers and children, as well as the family in general, through coordinated action by the Ministries of Public Education, Agriculture and Animal Husbandry, and Public Health.

*Probable duration:* 1960.

*Assistance provided:* 1 dietitian, and advisory services by project AMRO-4203 staff.

*Work done:* This project was serving 225 schools in communities located in 6 of the 7 provinces of the country, and covered 54,079 children in rural and semirural areas, including an estimated 25,660 under 5 years of age.

The total production of the 225 school gardens in 1969 was estimated at 1 million pounds, with an approximate value of \$60,000. This activity has yielded three favorable results: use of the products in the school lunchroom; the growing of vegetables in 180 schools in districts close to the project area; and the establishment of 2,500 family vegetable plots.

The planting of fruit trees was emphasized in all schools, resulting in the planting of 1,000 trees.

The poultry program is aided by a financial contribution from the Ministry of Agriculture and technical advice of the School of Agriculture of the University of Costa Rica. Poultry was distributed to schools, farmers, and 4-H clubs as a means of helping to increase the supply of meat products in the rural areas.

The school lunch program was serving the 54,079 children covered by the project. In addition to vegetables grown in the school gardens, milk supplied by CARE was provided.

The national committee for the project, composed of representatives of the participating Ministries, submitted a budget request to the Legislative Assembly for continuing the program in 1970-1971. UNICEF undertook to contribute seeds, insecticides, and fertilizers in 1970.

By the end of 1969, the purposes of the project had, in general, been reached to a substantial degree. The schools and communities served had responded with interest and dedication to the agricultural work and to the plans for using the products grown. However, in order to achieve complete results, it will be necessary to intensify the technical advisory and supervisory services so as to promote more nutrition education in schools, health units, and the community in general.

### WHO/RB

### UNICEF

#### COSTA RICA-4700, Food and Drug Control

*Purpose:* Study of problems relating to food and drug control, and establishment of drug-use standards.

*Probable duration:* 1967-1971.

*Assistance provided:* 1 short-term consultant (charged to 1968 funds), and advisory services by Headquarters and Zone III Office staff and by the PAHO/WHO Country Representative.

*Work done:* The proposed study was made, and the recom-

mendations in the relevant report were being considered by the Government. The Ministry of Public Health was studying plans for a reorganization of its food and drug control structure.

To improve the Ministry's control activities, the organization provided assistance (under another project) for the training of 3 of its officials: 2 laboratory workers and the Chief of the Food Control Department.

#### **COSTA RICA-4800, Medical Care Services**

*Purpose:* Extension of the coverage of medical care services, at the same time promoting their coordination; improvement in ambulatory care in an effort to meet the need for outpatient consultations; more effective utilization of available hospital beds; and training of auxiliary personnel in medical care and professional personnel in the administration of those services.

*Probable duration:* 1967-1970.

*Assistance provided:* Advisory services by staff of Headquarters and of project AMRO-4803 and by the PAHO/WHO Country Representative.

*Work done:* The Costa Rican Social Security Fund (CCSS) opened a new institution, the Hospital México, with 650 beds and ample facilities for general and specialized care. Bids were requested for the construction of the Nicoya Hospital. The CCSS reached an agreement with the Ministry of Public Health and the Social Welfare Board of San José on financing of the Pavas Psychiatric Hospital.

During the first half of the year, 10 new nutrition centers and 1 health unit were equipped and work was begun on the construction of 13 nutrition centers and 9 health units. A total of 1,704,602 consultations were held, representing an increase of 22% in the number per 1,000 inhabitants. Up to June, 91,945 patients (107 per 1,000 inhabitants) were discharged from the country's hospitals. The number of discharges per bed rose to 27.6. The number of persons insured under Social Security increased to 37.9% of the population in 1969.

Forty-one auxiliary nurses were trained in nursing care, and 7 hospital officials in statistics and medical records.

#### **COSTA RICA-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* Seventy-five copies each of 2 textbooks, *Tra-tado de patología* and *Bioquímica*, were made available for cash sale to students at the School of Medicine of the University of Costa Rica; 74 copies of the former book and 30 of the latter were sold. An additional 140 copies of *Fisiología humana* and 100 of *Manual de farmacología* were supplied to the School.

The School was represented on one of the expert committees appointed to analyze the quality of medical textbooks and medical teaching.

#### **COSTA RICA-6300, Advanced Nursing Education**

*Purpose:* Improvement in professional nursing education by means of a cooperative program between the University of Costa Rica and the School of Nursing.

*Probable duration:* 1959-1971.

*Assistance provided:* Advisory services by Headquarters and project AMRO-3203 staff and by the PAHO/WHO Country Representative.

*Work done:* The Nursing Association, with the assistance of the Ministry of Health, the University of Costa Rica, the Costa Rican Social Security Fund, and the Medical Association, was conducting a study on needs and resources in the fields of nursing care and education; and on the role of the nurse in society and in health programs. The study was 65% complete by the year's end. The governing board of the School of Nursing was reviewing the existing regulations with the aim of modernizing the School.

Technical supervision over the work of the School continued to be exercised through the curriculum committees established in 1968. The student selection committee held regular meetings and its program was put into operation.

An inservice training program on the teaching-learning process and on the nursing care plan was offered to instructors. Retraining in maternal and child health was arranged for 37 nurse-midwives from nursing services and from the School. Twenty-five nurses, 14 of them instructors at the School, were taking general courses at the University. The basic program was revised, particularly in its maternal and child health aspects. The postbasic program in nursing-midwifery was temporarily discontinued in 1969 pending its revision in line with the recommendations of the seminar held in 1968 to evaluate the course. The School of Medicine was awaiting the results of the study being done by the Nursing Association as a basis for preparing the advanced program of nursing education.

#### **COSTA RICA-6400, Sanitary Engineering Education**

*Purpose:* Improvement in the teaching of sanitary engineering at the University of Costa Rica, and advanced training of professional staff engaged in sanitary engineering programs.

*Probable duration:* 1965-1972.

*Assistance provided:* Advisory services by staff of projects Costa Rica-2100 and AMRO-2103, and -2203; 1 grant; and 1 short-term fellowship.

*Work done:* A program was drawn up for a short course on standards for the design of water supply systems. The course is scheduled for 1970.

#### **PAHO/RB**

#### **COSTA RICA-6700, Biostatistics Education**

*Purpose:* Training of intermediate-level personnel in statistics and medical records of hospitals and health centers.



## VIII. PROJECT ACTIVITIES

*Probable duration:* 1966-1971.

*Assistance provided:* Advisory services by staff of Headquarters and projects AMRO-3503 and -6707 and by the PAHO/WHO Country Representative; 1 grant.

*Work done:* The fourth course on medical records (14 April-29 August) was attended by 17 hospital and health-center officials: 1 Brazilian, 7 Costa Ricans, 2 Salvadorians, 1 Guatemalan, 1 Honduran, 4 Mexicans, and 1 Nicaraguan. The course included 391 hours of theory and 300 of supervised practice. Five Costa Rican establishments made available their archives services for the practice sessions. Diplomas were awarded to 14 participants, and certificates to 3. An official was assigned to coordinate logistical and teaching arrangements and assist the participants, especially those from abroad.

### WHO/RB

#### CUBA-0100, Communicable Disease Control

*Purpose:* Reduction of communicable-disease morbidity and mortality in the rural areas through specific immunization, and integration of vaccination programs into the health services as a continuing activity.

*Probable duration:* 1967-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-0102 staff.

*Work done:* Vaccination activities were being conducted as a regular program within the general structure of the health services.

Between January and June 339,643 children (1 to 14 years of age) were vaccinated against tetanus, 236,675 (1 to 9 years) against diphtheria, 125,664 (1 to 5 years) against pertussis, and 9,435 (1 to 2 years) against smallpox. The average proportion of attainment of the target was 25%.

### UNICEF

#### CUBA-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1959-1971.

*Assistance provided:* Advisory services by staff of Headquarters, Zone II Office, and project AMRO-0200, and by personnel assigned to other projects in the country; anti-malaria drugs, microscopes, supplies; and travel and per diem for personnel giving advisory services to the project.

*Work done:* Three cases of malaria were found among 746,827 slides examined; one was a relapse, one an imported case, and one a case of induced malaria.

The program was reviewed at the end of November with the assistance of an evaluation team comprising experts in epidemiology, logistics, administration, and other aspects of the eradication campaign.

### WHO/RB

### UNICEF

#### CUBA-0300, Smallpox Eradication

*Purpose:* Maintenance of an adequate level of protection against smallpox through systematic vaccination of the popu-

lation, and consolidation of the smallpox surveillance services in order to prevent the introduction of the disease into the country.

*Probable duration:* 1967; 1969-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; equipment and supplies.

*Work done:* An operational plan for the project was prepared and the vaccination activities were programmed.

### WHO/RB

#### CUBA-0400, Tuberculosis Control

*Purpose:* Revision of the national standards for the program to reduce tuberculosis morbidity.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-0402 staff; 2 short-term fellowships.

*Work done:* An operational program was prepared for 1970. It includes organization of a demonstration area, preparation of freeze-dried BCC vaccine, and a course in tuberculosis epidemiology, bacteriology, and control.

### PAHO/RB

#### CUBA-0700, Zoonoses Control

*Purpose:* Formulation within the veterinary public health services of programs for the control and prevention of the zoonoses, in particular rabies, brucellosis, and bovine tuberculosis.

*Probable duration:* 1969-

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters and project AMRO-0702 staff; 1 short-term fellowship.

*Work done:* The health and agricultural authorities reviewed the veterinary public health activities in the country and drew up plans for future programs. A nation-wide program for the control of rabies was prepared.

The programs for the control of brucellosis and bovine tuberculosis reduced the level of infection to an all-time low, and there were good prospects of achieving eradication in the near future. No human cases of rabies were reported in 1969.

One short-term fellow studied rabies vaccine production and control at the Pan American Zoonoses Center; another studied procedures for the investigation of vesicular diseases at the Pan American Foot-and-Mouth Disease Center; and two short-term fellows attended a course on brucellosis laboratory techniques held in Mexico.

### PAHO/RB

#### CUBA-2100, Environmental Sanitation

*Purpose:* Strengthening of activities designed to improve environmental health conditions, with emphasis on the systems of collection, transportation, and disposal of solid wastes in urban communities, use of pesticides, and vector control studies.

*Probable duration:* 1969-1973.

*Assistance provided:* 3 short-term consultants.

*Work done:* One of the consultants submitted a plan for the improvement of sanitation conditions in the city of Havana, and the other 2 presented recommendations on the use of pesticides, including laboratory facilities, techniques, equipment and supplies, and the training of personnel at home and abroad.

**WHO/RB**

### **CUBA-2200, Water Supplies**

*Purpose:* Strengthening of the national water supply program in urban and rural areas; and planning, implementation, and administration of the installations provided for in the national program.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by project AMRO-2102 staff.

*Work done:* The National Water Resources Institute was made a part of the Agriculture Department, which regulates the use of water for urban supply, irrigation, and electric power generation. One of the chief concerns of the Department is preserving the potable qualities of the water at the source of supply for metropolitan Havana, where 40% of the country's urban population resides. The Organization was requested to provide a short-term consultant in 1970 to advise in this regard.

### **CUBA-2300, Aedes aegypti Eradication**

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1952-1973.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; supplies.

*Work done:* In the pilot program for the Province of Havana, 1,305 localities were inspected, of which 1,055 were found to be positive and 980 were treated. In 957 verifications, 699 yielded negative and 258 positive results.

**PAHO/RB**

### **CUBA-3100, Health Services**

*Purpose:* Strengthening the administration of general health services.

*Probable duration:* 1959-1970.

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative) and 2 short-term consultants; supplies; common services; and 9 short-term and 5 long-term fellowships.

*Work done:* Assistance was given in the organization of a course in hospital administration, to be offered in March 1970, and in the examination of problems relating to personnel training programs. A plan for the conduct of medical and clinical records courses was prepared.

Four seminars and 2 intensive courses were offered to improve the quality of nursing personnel.

**WHO/RB, WHO/UNDP**

**UNICEF**

### **CUBA-3300, Laboratory Services**

*Purpose:* Development of the production laboratories of the National Institute of Health to the point of achieving self-sufficiency in the supply of biologicals for the country.

*Probable duration:* 1968-1972.

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters and Zone II Office staff and by the PAHO/WHO Country Representative; equipment and supplies.

*Work done:* The project was completely revised as a preliminary to submission of a request for assistance from the United Nations Development Program.

The consultant gave assistance in connection with plans to organize facilities required for the production of 2 million doses of freeze-dried BCG per year.

Plans were made for providing assistance in improving the technical conditions and capability of laboratories in hospitals and polyclinics and of regional and provincial laboratories.

**WHO/RB**

### **CUBA-4200, Nutrition**

*Purpose:* Gradual improvement in the nutritional level of the population.

*Probable duration:* 1965-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; supplies; and 1 long-term fellowship.

*Work done:* An experimental demonstration area was established in the Municipality of Alquizar, Havana Province. Three postgraduate courses (1,400 classroom hours) for physicians were conducted.

Food production was increased.

Plans were made for conducting a national nutrition survey with the assistance of the Institute of Nutrition of Central America and Panama and for doing research on goiter and diabetes.

**WHO/UNDP**

**FAO, UNICEF**

### **CUBA-4600, Industrial Hygiene**

*Purpose:* Strengthening of the national industrial hygiene programs.

*Probable duration:* 1969-1971.

*Assistance provided:* Advisory services by staff of projects AMRO-2102 and -2114; supplies; and 3 short-term fellowships.

*Work done:* Three air-sampling stations were installed in Havana and Matanzas to determine the scope of the air-pollution problem in these cities.

A total of 152 motorized sanitary brigades were established to carry on health protection activities in the country's sugar-processing plants.

**PAHO/RB**

**CUBA-6100, School of Public Health**

One short-term fellowship was awarded.

The activities usually described in this project are reported under project Cuba-6200, the School of Public Health having been made a part of the School of Medicine of the University of Havana.

**WHO/RB****CUBA-6101, Training of Health Personnel**

The activities usually described in this project are reported under project Cuba-6200, as envisaged in a project under consideration which covers the training of all health personnel.

**UNICEF****CUBA-6200, Medical Education**

*Purpose:* Strengthening of medical education, with emphasis on preventive and social aspects of medicine; and increase in the supply of reference material in the Medical Library.

*Probable duration:* 1965-

*Assistance provided:* Advisory services by Headquarters and project AMRO-6216 staff; supplies; and 1 short-term and 1 long-term fellowship.

*Work done:* A behavioral sciences seminar was held at the University of Havana (see project AMRO-6223) with the Organization's assistance.

A basic plan was discussed for expanding the scope of this project to include, along with the training of medical, paramedical, and auxiliary personnel, the training of stomatologists, sanitary engineers, veterinarians, nurses, biostatisticians, laboratory technicians, X-ray technicians, etc. The project as expanded would include also the scheduling of seminars and courses on medical school administration, definition of objectives, curriculum design, integration of basic sciences instruction, epidemiology, hygiene, health administration, and the behavioral sciences.

**PAHO/RB****CUBA-6400, Sanitary Engineering Education**

*Purpose:* Improvement in the teaching of sanitary engineering at the University of Havana and in the technical training of professional personnel engaged in the national environmental sanitation programs.

*Probable duration:* 1966-1972.

*Assistance provided:* Advisory services by Headquarters and project AMRO-2102 staff; supplies.

*Work done:* The program was designed for a short intensive course on fluoridation of water supplies, which was scheduled for 1970. The list of equipment and materials needed for the course was also prepared.

**WHO/RB****CUBA-6500, Veterinary Medical Education**

*Purpose:* Improvement of the teaching of veterinary medicine, with special reference to public health and preventive medicine.

*Probable duration:* 1969-

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters and project AMRO-0702 staff; equipment and supplies.

*Work done:* The School of Veterinary Medicine reorganized the teaching program in epizootiology, public health, and preventive medicine. The School authorities undertook a review of the curriculum in the light of national health and agricultural development programs.

**PAHO/RB****DOMINICAN REPUBLIC-0200, Malaria Eradication**

*Purpose:* Eradication of malaria.

*Probable duration:* 1952-

*Assistance provided:* 1 medical officer; antimalaria drugs; and 1 short-term fellowship.

*Work done:* Transmission was interrupted in almost all the malarious area, except in the border region.

During the 1st spraying cycle, carried out from January to June, 71,818 houses were sprayed and in the 2nd, 64,371 houses. A total of 629,695 blood smears were examined, of which 124 were found positive (105 in attack areas, 11 in consolidation areas, and 8 in maintenance areas).

The XVI Meeting of Directors of National Malaria Eradication Services of Central America, Mexico, Panama, and the Caribbean was held in October in Santo Domingo.

**PAHO/RB****UNICEF****DOMINICAN REPUBLIC-0400 Tuberculosis Control**

*Purpose:* Reduction of tuberculosis morbidity and mortality, by means of a better assessment of the problem and better organization of the services offered through the basic units.

*Probable duration:* 1963-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* Tuberculosis control resources in clinics and hospitals were coordinated and utilized for practice teaching, particularly in the capital, where better coordination of the two schools of medicine with the Central Tuberculosis Clinic was achieved. Tuberculosis clinics were established in 4 hospitals. A total of 79,743 persons (60% of the target) were vaccinated; these vaccinations, added to the ones performed in the 4 preceding years, raised the total number of persons vaccinated under the program to 400,000 (20% of the target). For financial reasons, only 700 patients (23.3% of the target) were treated.

Fellowships were awarded to 2 physicians from the Division of Tuberculosis, for advanced training in epidemiology, diagnosis, treatment, and records.

**DOMINICAN REPUBLIC-2200, Water Supplies**

*Purpose:* Provision of water supply facilities for 62% of the urban and 25% of the rural population and of sewerage facilities for 14% of the urban population; and integration into the National Water Supply and Sewerage Institute (INAPA) of 40% of the systems currently administered by the municipalities, over a period of 4 years (1969-1972).

*Probable duration:* 1962-1970.

*Assistance provided:* 1 sanitary engineer, and 5 short-term consultants; 4 short-term and 2 long-term fellowships.

*Work done:* The first stage of the study of the rate schedule for the systems operated by INAPA was concluded (100% of the target), with the cooperation of 2 consultants.

The areas of financial services and personnel administration were examined with the assistance of 2 consultants, and 60% of the recommendations made by PAHO to INAPA were implemented (100% of the target).

Sixty-seven projects for rural water supply systems (100% of the target) and 4 for urban systems (70%), to serve a total of 121,800 persons, were prepared. With financial assistance from the Inter-American Development Bank, 17 rural water services were constructed and 25 were in an advanced stage of construction; these will serve 50,400 persons (65%). In addition, 1 water supply and 1 sewerage system were under construction for a population of 24,000 inhabitants.

With the help of a loan from the U.S. Agency for International Development, 14 wells were drilled and these substantially improved the water service for some 100,000 inhabitants of the city of Santo Domingo (100%).

Using its own resources, INAPA constructed 3 water supply systems and overhauled another in urban areas, providing benefits to 35,740 persons (100%).

Six short courses, including one in which 3 consultants served as instructors, were attended by a total of 87 students (86%).

**PAHO/RB, PAHO/CWSF**

**DOMINICAN REPUBLIC-3100, Health Services**

*Purpose:* Development of the country's health services on the basis of regionalization and integration of services in areas and regions given priority status.

*Probable duration:* 1953-1970.

*Assistance provided:* 2 medical officers (one of them the PAHO/WHO Country Representative), 1 sanitary engineer, 1 consultant specialized in administrative methods, 1 statistician, 2 nurses, and 2 short-term consultants (one gave advisory services in 1968 but 1969 funds were charged); supplies; common services; 6 short-term and 10 long-term fellowships.

*Work done:* Three new hospitals and 10 rural clinics were placed in operation. Advisory services were extended to 12 hospitals and 6 health centers for the purpose of improving their organization, particularly in the areas of management, nursing, statistics, supplies, and accounting. In the fields of organization of services and extension of coverage, 60% of the year's target was attained.

The construction and training activities to be carried out in

1970 with the help of a \$7.2 million loan were planned through a committee of the Ministry of Public Health and Social Welfare, with the assistance of the U. S. Agency for International Development and the Organization. Physical inventories were taken in 8 hospitals, and surveys of consumption were made in 5 establishments. Cost analyses of services were made in 9 hospitals. The Ministry issued a booklet describing the results obtained and the methods followed.

The studies on the allocation of itemized budgets to each hospital were completed.

A committee was established to review the hospital regulations and bring them up to date.

Work was continued on the integration of tuberculosis, milk distribution, and sanitary inspection services in priority areas (60% of the target).

Sanitation activities also were continued, with 1,798 latrines installed during the year. Three courses on general administration, hospital administration, and hospital costs (175 hours of theory and 152 of practice) were attended by a total of 62 participants. Inservice training was received by 15 hospital directors, 20 nurses, 210 auxiliaries in various fields, 58 administrative workers, and 300 other persons.

**PAHO/RB, PAHO/OF, WHO/RB, OAS, UNICEF  
WHO/UNDP**

**DOMINICAN REPUBLIC-3300, Laboratory services**

*Purpose:* Organization of public health laboratories and laboratories for clinical diagnosis in hospital, and of five regional laboratories; establishment and standardization of procedures; and training of the necessary personnel.

*Probable duration:* 1968-1970.

*Assistance provided:* 1 medical officer (from 1 December), 1 short-term consultant (charged to 1968), and advisory services by project Dominican Republic-3100 staff.

*Work done:* A start was made on decentralization of laboratory analyses for outpatients departments of hospitals in the capital, which were formerly being done at the Laboratory of the Health Center. The personnel of this laboratory that was thereby made available for other work was being assigned to hospital laboratories. The space in the National Laboratory assigned to the serum plant, for which the equipment was donated 2 years previously, was being remodeled. In the National Laboratory, the administrative procedures involved in rabies diagnosis were improved.

**PAHO/RB**

**DOMINICAN REPUBLIC-4200, Nutrition**

*Purpose:* Gradual improvement in the nutritional status of the population, as part of an integrated effort to raise the health levels of the country.

*Probable duration:* 1967-1972.

*Assistance provided:* 1 medical officer and 1 nutritionist.

*Work done:* A national nutrition survey was conducted to gauge the extent of the principal nutrition and food problems affecting the most vulnerable population groups, with a view to determining measures for their solution. The survey was

## VIII. PROJECT ACTIVITIES

assisted by the Institute of Nutritional Sciences of Columbia University (New York) and the Williams-Waterman Fund Research Corporation.

A Nutrition Department was established in the National Public Health Laboratory and received equipment and reagents as part of a grant from the Williams-Waterman Fund. The Department performed all the biochemical examinations in the nutrition survey and will continue to carry out special studies, such as the investigation of a new high-protein nutritional source based on peanut meal; research on the enrichment of cereals, and other investigations.

The Nutrition Division of the Ministry of Public Health and Social Welfare was further strengthened through the inservice training of one medical officer and 4 nutrition auxiliaries.

The program of supplementary feeding of mothers and children attained a coverage of 117,749 persons, including 11,050 pregnant women (110% of the target), 12,257 nursing mothers (122%), 35,000 infants under 1 year (100%), and 59,442 children from 1 to 5 years (99%). A monthly ration of 560 gm of cow's milk was given to children under 1 year, and of 3 pounds of skimmed powdered milk per person to the rest of the group. Food supplements for patients in institutions were provided in 80% of the hospitals operated by the Ministry, with an average of 8,000 patients served. In the improvement of institutional food services, work was carried on in 3 hospitals of the National District (1 general, 1 maternity, and 1 pediatrics hospital).

Educational material on food and nutrition was prepared and published for use in maternal and child care activities and in the training of intermediate-level personnel.

Coordination was maintained with voluntary agencies and international institutions active in the nutrition field, especially the U.S. Agency for International Development, Food for Peace, CARE, Caritas, and the World Food Program.

Two theoretical and practical courses (60 hours each) were conducted for a total of 33 persons in charge of nutrition services in hospitals of Health Regions I and II. The medical and nursing staff of 34 local health services continued to receive guidance and supervision in the program of maternal and child nutrition.

**WHO/RB**

### **DOMINICAN REPUBLIC-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967.

*Assistance provided:* Advisory services by staff of Zone II Office and of projects Dominican Republic-3100 and AMRO-6000.

*Work done:* An administration office for the distribution of textbooks was organized in the School of Medicine of the Pedro Henríquez Ureña University. Twenty copies of the *Tratado de patología*, 20 of *Fisiología humana*, and 18 of *Bioquímica* were ordered and received by the School and placed on sale or offered for rental by the students.

### **DOMINICAN REPUBLIC-6200, Medical Education**

*Purpose:* Strengthening of medical education, with emphasis on the teaching of preventive medicine.

*Probable duration:* 1962-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; and 1 long-term fellowship.

*Work done:* The teaching of public health at the University of Santo Domingo was expanded in terms of hours of instruction and subjects taught. Practical instruction of the medical students, particularly in pediatrics and obstetrics, was improved through the utilization of the Pediatrics Hospital and the Maternity Hospital in the capital.

At the Pedro Henríquez Ureña University, the faculty for teaching public health subjects in the following year (4th year) was appointed.

**WHO/RB**

### **DOMINICAN REPUBLIC-6300, Nursing Education**

*Purpose:* Training of professional nurses and nursing auxiliaries in keeping with the needs of the services and with the socioeconomic resources of the country.

*Probable duration:* 1958-

*Assistance provided:* 1 nurse, 1 short-term consultant, and advisory services by project Dominican Republic-3100 staff; 2 long-term fellowships.

*Work done:* The level of training of the teaching staff was improved through a seminar on the planning of teaching programs, a course in nursing administration, a bacteriology seminar, and attendance at seminars offered abroad on population dynamics, health planning, and midwifery education.

The National School of Nursing and the School of Nursing of the Madre y Maestra Catholic University had a combined enrollment of 156 students (78 in each). The former graduated 18 nurses during the year.

The U. S. Agency for International Development cooperated in the project by awarding three 1-year fellowships.

**PAHO/RB, PAHO/OF**

**OAS**

### **DOMINICAN REPUBLIC-6400, Sanitary Engineering Education**

*Purpose:* Revision and improvement of sanitary engineering instruction offered as part of the regular civil engineering courses; and technical improvement of the professional and subprofessional personnel engaged in sanitary engineering programs, through short intensive courses on specific subjects.

*Probable duration:* 1969-1975.

*Assistance provided:* 3 short-term consultants, and advisory services by staff of projects Dominican Republic-3100 and AMRO-2102.

*Work done:* At the National Water Supply and Sewerage Institute, a short (2-week) intensive course on low-cost design of water supply systems was planned and conducted. There were 25 participants.

**WHO/RB**

**DOMINICAN REPUBLIC-6600, Dental Education**

*Purpose:* Establishment of a new curriculum for the School of Dentistry of the University of Santo Domingo, including the preventive and social aspects of dentistry.

*Probable duration:* 1965-

*Assistance provided:* 1 short-term consultant.

*Work done:* The curriculum of the School of Dentistry was revised, with greater importance given to preventive and social dentistry; and the course in oral surgery and other integrated courses were reorganized. Assistance was given in the reorganization of the plan of studies of the School's Department of Dental Materials.

**WHO/RB**

**ECUADOR-0100, Communicable Disease Control**

*Purpose:* Significant reduction in the risks of illness and death from communicable diseases; incorporation of control activities into the general health programs; and cooperation in the organization of the National Division of Epidemiology.

*Probable duration:* 1967-1971.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by staff of project AMRO-0104; 2 short-term fellowships.

*Work done:* There were epidemic outbreaks of poliomyelitis and equine encephalomyelitis in children under 6 years of age. To combat the poliomyelitis epidemic, 207,079 infants under 1 year (94.5%) were vaccinated, along with 421,353 preschool-age children (78.6%). To control the encephalomyelitis outbreak, the entire populated part of the coastal region was sprayed from the air with 90% malathion, with the cooperation of the U.S. Agency for International Development and U.S. National Communicable Disease Center.

A total of 27,081 children under 6 years (89.2%) were vaccinated against diphtheria, pertussis and tetanus (3 doses).

The technical and administrative organization of the Division of Epidemiology was carried forward; and action was continued on the incorporation of vaccination activities into the programs of the 47 health centers.

**PAHO/RB**

**ECUADOR-0200, Malaria Eradication**

*Purpose:* Eradication of malaria.

*Probable duration:* 1956-

*Assistance provided:* 1 medical officer and 2 sanitary inspectors; antimalaria drugs; and 1 long-term fellowship.

*Work done:* From February to July, 308,631 sprayings (96.0% of the scheduled number) were performed. The 2nd cycle for the year, to be completed in January 1970, was started in August, with a goal of 352,330 house sprayings. Up to November, 233,046 houses had been sprayed.

Until September, 421,650 slides were examined, with 50,957 of them found positive. The epidemiological picture continued to show a high incidence, but a decline began in the third quarter of the year.

A seminar was held in October for personnel of the general health and malaria eradication services, to coordinate their activities.

**PAHO/SMF, WHO/UNDP**

**UNICEF**

**ECUADOR-0300, Smallpox Eradication**

*Purpose:* Maintenance of the country's smallpox-free status, through vaccination of not less than 80% of the population in a 5-year period.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by project AMRO-0304 staff; supplies; and 2 short-term fellowships.

*Work done:* A total of 929,413 persons were vaccinated, with 95.5% of takes recorded among those vaccinated for the first time. There were no cases of the disease. From the beginning of the campaign (January 1967) 2,155,400 persons (36.1% of the country's present population) had been vaccinated.

Although the vaccination program is essentially vertical, the horizontal phase was steadily expanded through the regular health services in the 15 provinces where it operates. The vertical program included also BCG vaccination and, in special situations, poliomyelitis immunization. The horizontal program included DPT, BCG, poliomyelitis, and typhoid vaccination as regular activities and measles immunization in certain cases.

**WHO/RB**

**ECUADOR-0400, Tuberculosis Control**

(1966-1969) PAHO/RB, WHO/UNDP

The purpose was the control of tuberculosis in the country. The Organization provided 1 medical officer directly assigned to the project (2 months); advisory services by Headquarters staff (1968 and 1969), by the PAHO/WHO Country Representative, and by personnel of projects AMRO-0404 and -0702; and 2 short-term fellowships.

In 1968 a manual of procedures, approved by the Technical Advisory Committee on Tuberculosis and reflecting WHO policy on tuberculosis control, was prepared; a standard system of forms and basic records procedures and statistical reports was designed; and tuberculosis control activities began to operate in all 13 health centers in Manabí Province.

In 1969 the tuberculosis control system in use in hospitals and clinics of the Ecuadorean Tuberculosis League was revised to place greater emphasis on prevention of the disease. From January to October 345,005 persons under 15 years of age (51.5% of the target) were vaccinated with BCG. Two short-term fellowships were awarded for training in tuberculosis control techniques.

**ECUADOR-0500, Leprosy Control**

*Purpose:* Reduction of the risk of contracting leprosy and prevention of the disabilities caused by the disease; development of control methods in keeping with local conditions.

*Probable duration:* 1968-1972.

## VIII. PROJECT ACTIVITIES

*Assistance provided:* Advisory services by Headquarters staff and by the PAHO/WHO Country Representative; supplies; and 1 long-term fellowship.

*Work done:* Between January and September, 44,345 dermatological examinations (38% of the target) were performed, and 101 new cases of leprosy were detected.

As part of the control work and patient treatment, 1,815 clinical examinations were conducted and 63,899 DDS tablets (100 mg) were distributed.

Up to 31 December 1968, 1,563 patients (98.6% of registered cases) and 3,362 contacts of patients (62.5%) were under surveillance.

### PAHO/RB

#### ECUADOR-0600, Treponematoses Control

*Purpose:* Reduction of the risk of contracting venereal diseases, and of the incidence of early and congenital syphilis.

*Probable duration:* 1969-1973.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-0104 staff.

*Work done:* The technical and administrative structure of the Venereal Disease Control Section of the National Epidemiological Division was organized. A manual of procedures was prepared for use in the antivenereal clinics of Quito and Guayaquil; and two investigators were trained for the tracing of contacts.

The antivenereal clinics performed serological tests on 42,947 persons, 8.7% of the reactions being positive.

#### ECUADOR-0900, Plague Control

*Purpose:* Organization of a plague control program in endemic areas of the country.

*Probable duration:* 1965-1972.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-0104 staff; supplies.

*Work done:* There were 23 cases: 16 in the Province of Chimborazo, 3 in Guayas, 2 in Loja, and 2 in Manabí. No deaths were reported.

In active foci and in the potential endemic area, delousing operations were carried out in 62,123 houses (36.5% of the target), and deratting in 271,642 (79.8%).

Work was started on the serologic investigation of convalescents and rodents, with a view to selecting localities where control activities should be carried out. The control system was adjusted on the basis of epidemiological data.

### WHO/RB

#### ECUADOR-2100, Environmental Sanitation

*Purpose:* Improvement of environmental sanitation conditions in the country's urban and rural areas.

*Probable duration:* 1968-

*Assistance provided:* 1 sanitary engineer, 3 short-term consultants, and advisory services by project AMRO-2104 staff.

*Work done:* The garbage disposal service was improved in

17 cities. Eighty-nine wells, with hand-operated pumps, were installed to serve a population of 24,000 persons; and 2,700 latrines for 10,200 inhabitants were installed.

In connection with the development of the Guayas River Basin, studies on water-quality control and epidemiological studies for establishing an over-all health program were begun; and a plan of operations was prepared.

### WHO/RB

#### ECUADOR-2200, Water Supplies

*Purpose:* Implementation of a national water supply and sewerage program, and expansion of the systems in Quito and Guayaquil.

*Probable duration:* 1961-

*Assistance provided:* 1 short-term consultant, and advisory services by project Ecuador-2100 staff; travel and per diem of staff who gave advisory services to the project.

*Work done:* With financing obtained from the Inter-American Development Bank (IDB) and the participating municipalities, 15 water supply systems to serve 609,119 inhabitants, and 3 sewerage systems to serve 95,050 persons, were built. In addition, 29 water supply systems and 4 sewerage systems, to serve 204,740 and 54,490 persons, respectively, were constructed with local funds.

By Congressional decree, the Ministry of Public Health was given authority to contract for up to \$20 million in loans for sanitation facilities, and the Ecuadorean Institute of Sanitary Works (IEOS) was assigned a budget of 20,000,000 sucres (\$952,400).

A \$23,500,000 expansion of the water supply system of Quito (800,000 inhabitants) was started in August.

The Organization advised the IEOS and the Municipality of Quito in matters concerning management practices and water-rate schedules.

### PAHO/CWSF

#### ECUADOR-3100, Health Services

*Purpose:* Development of the national health structure by organizing the public health services at the national and local levels, especially those of the Province of Manabí, with a view toward integration of all activities.

*Probable duration:* 1953-

*Assistance provided:* 2 medical officers (one of them the PAHO/WHO Country Representative), 1 nurse, and 5 short-term consultants (one of them charged to 1968 funds); supplies; common services; 4 short-term and 18 long-term fellowships.

*Work done:* The rural medical care plan, providing for the extension of coverage to 50% of the population lacking service and for construction of 83 health centers in cantonal seats of government and 676 health posts in provincial capitals, was formulated during the year.

The plan was launched in Manabí Province, as part of the integrated program, with the extension of activities to 46 health posts designed to serve 50,190 persons, which raises the total coverage to 371,817 persons.

The National Technical Council approved the Organic Law

of the Ministry of Public Health, providing for gradual integration of its units, regionalization of services, and coordination of activities with those of autonomous entities. The Law was then submitted to the Legislative Branch for consideration.

At the level of the Ministry of Public Health, a Technical Advisory Committee was organized to establish standards and exercise supervision over activities.

The principal activities carried out in Manabí Province were the following:

<i>Activities</i>	<i>Targets 1969</i>	<i>Per cent accomplished</i>
Medical consultations		
3 per case for 58% of expectant mothers		
1st consultation	5,900	69.8
Subsequent consultations	11,800	84.5
Postpartum consultations	5,900	11.9
3 per case of 50% of infants under 1 year		
1st consultation	5,700	45.6
Subsequent consultations	17,100	33.8
Children	5,700	85.4
Subsequent consultations	11,400	77.1
Preschool-age children	12,500	67.7
Subsequent consultations	12,500	151.5
Adults	32,100	84.5
Home visits by nurses		
To expectant mothers	2,950	34.8
To infants under 1 year	2,850	83.4
To preschool-age children	6,250	119.0
Vaccinations		
Smallpox (10% of population of the area)	32,100	129.1
DPT (35% of children under 6 years)	35,000	9.8
BCG (50% of children under 15 years)	77,000	104.3
Poliomyelitis (35% of children under 6 years)	35,000	20.5
Environmental sanitation		
Wells constructed	87	129.9
Latrines installed	2,275	57.4

WHO/RB, WHO/UNDP

UNICEF

### ECUADOR-3101, Fellowships

Three short-term and 1 long-term fellowships were awarded.

### PAHO/RB

### ECUADOR-3102, Rural Medical Services

*Purpose:* Organization of a health infrastructure for the planning and administration of a health program in the rural areas of the Andean highlands.

*Probable duration:* 1956-1971.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by nursing and sanitary engineering personnel assigned to other projects in the country.

*Work done:* The population served in 1969 (86,000 inhabitants) represented 4.6% of the total rural population of 10 provinces in the Andean highlands.

The Medical Service provided care to 4,906 children (49% of the target) and 7,776 adults (52%), while the nursing

auxiliaries attended to 19,661 children (98%) and 18,529 adults (74%). In the health promotion field the proportions of the targets attained were: 32% for services to infants under 1 year, 16% to preschool-age children, 19% to school-children, and 62% to expectant mothers.

During the third quarter, the program of supplementary feeding for vulnerable groups was begun with the assistance of the World Food Program.

In vaccination against smallpox, 24% of the target was accomplished; and in vaccination against diphtheria, tetanus and pertussis, 74% of the target was achieved in administering DPT to infants under 1 year.

### FAO, ILO, UNESCO, UNICEF UNITED NATIONS DIVISION OF ECONOMIC AND SOCIAL AFFAIRS

### ECUADOR-3301, National Institute of Health

*Purpose:* Expansion of health laboratory services at the central level and extension of control activities to the entire country.

*Probable duration:* 1952-1972.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; supplies; 1 short-term and 1 long-term fellowship.

*Work done:* Three new laboratories (30% of the year's target) were placed in service. The activities carried out included: 908,629 (90%) diagnostic examinations; 5,552 (79%) quality tests of pharmaceuticals; 21,954 (87%) food analyses; 3,563 (142%) water-quality analyses; 41,315 (88%) inspections of reservoirs; 16,957 (84%) entomological examinations; and 572 (143%) tests for radioactivity.

In the field of biologicals preparation, 12,768 doses (106%) of rabies vaccine for human use, 18,638 doses (62%) of rabies vaccine for use in animals, and 330,000 doses (82%) of DPT vaccine were produced.

### PAHO/RB, WHO/RB

### ECUADOR-3700, Health Planning

*Purpose:* Initiation of a process of health planning, with the participation of all health institutions, in line with the economic and social development plan.

*Probable duration:* November 1969-1972.

*Assistance provided:* 1 medical officer, and advisory services by project Ecuador-3100 staff.

*Work done:* At the legislative level, consideration was being given to a constitutional provision that would give the Ministry of Public Health regulatory authority over all activities in the sector, regardless of the legal characteristics of the institutions involved.

The Legislative Branch was also considering the Organic Law of the Ministry of Public Health and the revision of the Health Code. Enactment of the Organic Law was awaited in order to revise the regulations of the Ministry. Also submitted was a legislative proposal to place the Social Welfare facilities (which account for 50% of the country's health resources) within the jurisdiction of the Ministry.

Initial action was taken to implement a national rural health plan in line with the general methods adopted for health planning, which would be applied to the creation of



## VIII. PROJECT ACTIVITIES

new resources for the purpose of extending the coverage of the health services to the rural population.

As part of a scheme for obtaining an inventory of available health resources, data were gathered on the health facilities in 5 provinces, the ultimate goal being to continue these activities until the entire country has been covered.

### WHO/UNDP

#### ECUADOR-4202, Goiter Prevention

*Purpose:* Determination of the effectiveness of iodized oil injections for the prevention of endemic goiter and associated defects.

*Probable duration:* 1966-1971.

*Assistance provided:* Advisory services by Headquarters and project AMRO-4204 staff; 1 grant.

*Work done:* Studies were made of 4 groups: individuals to whom ethiodol injections were administered in March 1966 (Tocachi); persons re-inoculated in December 1968 (Tocachi); schoolchildren inoculated in December 1968 (Machagui), and a non-inoculated control group (La Esperanza).

Surveys on the prevalence of goiter in Tocachi were conducted in April and October.

The evaluation of the thyroid function by means of radioisotopes was carried forward.

### PAHO/RB

#### ECUADOR-4203, Nutrition (Portoviejo)

*Purpose:* Establishment of a nutrition rehabilitation center in Portoviejo, Manabí Province, to reduce and prevent malnutrition.

*Probable duration:* 1966-1971.

*Assistance provided:* Advisory services by project AMRO-4204 staff; and a limited amount of supplies.

*Work done:* The Nutrition Rehabilitation Center began operation in July, admitting 26 children referred to it by the Pediatrics Service of the Manabí Cantonal Hospital. The local funds were provided by the Red Cross.

### PAHO/OF

### Research Corporation

#### ECUADOR-4204, Endemic Goiter and Mental Retardation

*Purpose:* Study of the effect of iodized oil (ethiodol) injections on growth and on mental development.

*Probable duration:* 1966-1970.

*Assistance provided:* Advisory services by Headquarters and project AMRO-4204 staff; 1 grant.

*Work done:* A longitudinal study was made of all children born in the localities of Tocachi (where the injections were administered) and La Esperanza (control group) after March 1966, who numbered 134 and 308, respectively. The determination of neuromuscular development was based on the Garaiso and Escardo technique and the Gesell Scale.

The degree of growth in the children of both localities was measured in 396 non-cretin children between 6 months and 16 years of age and in 6 cretin children.

### PAHO/OF

### National Association for Retarded Children (USA)

#### ECUADOR-4500, Radiation Protection

*Purpose:* Implementation of a national program to protect the population against the hazards of exposure to radiation.

*Probable duration:* 1969-1972.

*Assistance provided:* Advisory services by Headquarters staff; equipment and supplies.

*Work done:* The basic agreement for the program was signed in April. The relevant provisions for the Health Code were drawn up, along with pertinent regulations. A national survey of manpower and equipment for the program was begun; and a list was prepared of the equipment to be purchased so that the level of radioactive particles, in samples of air, water, and food can be determined in Ecuador, avoiding the need to send the samples to the United States of America.

Ecuador had 3 sampling stations, in Cuenca, Guayaquil, and Quito.

Advice was given on the training of personnel and on standardization of film dosimetry techniques.

### PAHO/OF, WHO/RB

### Government of Ecuador

#### ECUADOR-6000, Medical Textbooks and Teaching Materials

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-1973.

*Assistance provided:* Advisory services by staff of projects Ecuador-3100 and AMRO-6000.

*Work done:* A total of 220 copies of the *Tratado de patología* and 180 of *Bioquímica* were received and 77.8% were sold, 90% on cash terms and the rest on installments.

The Executive Secretary of the Association of Ecuadorian Schools of Medicine has direct responsibility for control and sale of the textbooks in the 3 schools participating in the program.

#### ECUADOR-6200, Medical Education

*Purpose:* Improvement of medical education, with emphasis on preventive and social medicine, the basic sciences, and medical pedagogy.

*Probable duration:* 1965-1973.

*Assistance provided:* 3 short-term consultants, and advisory services by staff of projects Ecuador-3100, AMRO-6204, and -6210; and 9 short-term and 3 long-term fellowships.

*Work done:* The School of Medical Sciences of the Central University of Ecuador (Quito) drew up standards for hospital residences and had under study internship, post-graduate, and specialized medical programs, as well as plans

for the construction of new physical plant. The Association of Ecuadorean Schools of Medicine took an active part in these activities.

The Greater Colombian Seminar on Social Security and Medical Education was held in Quito from 12 to 15 November under the auspices of the National Welfare Institute and the Association of Ecuadorean Schools of Medicine. This seminar, in which the interrelationships of medical education and social security were examined, was one of the meetings held in preparation for the II Pan American Congress on Social Security, scheduled to take place in Colombia in 1970. Also held were a seminar on the teaching of physiological sciences and one on the teaching of internal medicine.

## WHO/RB

### ECUADOR-6300, Nursing Education

*Purpose:* Adaptation of the system of nursing education to the health requirements of the country and to its human and material resources, as required by the planning process.

*Probable duration:* 1957-1970.

*Assistance provided:* 1 nurse educator, 1 short-term consultant, and advisory services by project AMRO-3204 staff; supplies.

*Work done:* In a basic supplementary course conducted in Quito, the first group of 31 graduates received their diplomas in nursing sciences. The group carried out 11 research studies (99% of the target), the first such studies ever conducted by Ecuadorean nurses within the country.

Refresher courses for teaching and practicing nurses were offered in Quito, Guayaquil, and Cuenca; the number of participants exceeded the target in each case. In the training of auxiliary personnel, 22.5% of the goal was reached. A refresher course on control of infections was held for auxiliary personnel in active service; attendance surpassed the proposed goal.

The Association of Schools of Nursing was formed by the schools of the country. This organization performed local situation studies and held the first national seminar on nursing education.

## WHO/RB

### ECUADOR-6400, Sanitary Engineering Education

Three short-term fellowships were awarded.

## PAHO/RB

### ECUADOR-6600, Dental Education

*Purpose:* Analysis of the program of professional dental education, with emphasis on preventive and social dentistry, with a view to improving the quality and increasing the number of graduates, and improving the postgraduate studies.

*Probable duration:* 1967-1970.

*Assistance provided:* 2 short-term consultants, and advisory services by project Ecuador-3100 staff; supplies.

*Work done:* The 2nd national seminar on dentistry was held, with important decisions adopted on the programs of

study, particularly those on preventive and social dentistry. It was recommended that intermediate-level careers be encouraged so as to adequately meet the rising demand in the country, where the coverage of the health services is very limited.

Two short courses were conducted: 1 on methods of teaching dentistry, and the other on preventive and social dentistry. Studies were made on the postgraduate courses.

## WHO/RB

### EL SALVADOR-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1955-

*Assistance provided:* 2 medical officers, 1 engineer, 2 sanitary inspectors, and advisory services by personnel of project AMRO-0216; supplies; and 2 long-term fellowships.

*Work done:* In the 1st spraying cycle 328,778 houses were sprayed (98.3% of the target), and in the 2nd, 346,004 houses. In the problem area, mass treatment with antimalaria drugs was administered to 60% of a population estimated at 351,345 inhabitants, and radical cure treatment to 2,538 cases and contacts. A total of 359,916 blood smears were taken from febrile and suspect cases, with 25,299 being diagnosed as positive.

As a result of the measures applied, the incidence of malaria was reduced from 4.4% in 1968 to 2.9% in 1969.

Financing for the 1969 activities was provided for by legislative decree. Beginning in March the program was handicapped by insufficient administrative and technical staff, owing to the resignation of 3 zone chiefs and the absence of 2 medical officers who were awarded PAHO fellowships to study in Maracay, Venezuela.

## PAHO/SMF, WHO/RB

## AID, UNICEF

### EL SALVADOR-2200, Water Supplies

*Purpose:* Preparation of short- and long-term plans to provide the entire country with water supply and sewerage services, including the design of systems and the formulation of construction plans; expansion of the water supply and sewerage systems in the capital and other major cities of the country; and training of technical and administrative personnel for the services.

*Probable duration:* 1961-

*Assistance provided:* Advisory services by staff of project El Salvador-3100 and of Zone III Office.

*Work done:* In the urban sector, facilities built in previous years provided water supply coverage of 80% in 1969.

In the rural sector, a special water supply program was launched in January with the participation of the Ministry of Public Health and Social Welfare, the National Water Supply and Sewerage Administration (ANDA), the Organization, and UNICEF. Five supply systems were built

## VIII. PROJECT ACTIVITIES

and 46 were expanded; the field engineering studies and designs were completed for 51 projects; and 120 basic community surveys were carried out.

### UNICEF

#### EL SALVADOR-3100, Health Services

*Purpose:* Execution of integrated health services programs in the country as part of a national health plan.

*Probable duration:* 1963-

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative), 1 sanitary engineer, 1 nurse, 3 short-term consultants (2 of them served 2 consultancies), and advisory services by project AMRO-3203 staff; supplies and other items for the national emergency program; common services; 1 short-term and 1 long-term fellowship.

*Work done:* A special health service was launched to meet the needs of the population affected by the national emergency.

Three courses held for nursing auxiliaries were attended by 100 students; and 12 auxiliaries in maternity services were trained in 9-month courses. A 4½-month course was held for 20 sanitation inspectors, as well as a 4½-month course in public health administration, for 20 nurses, a 1-month course in coding for 20 students, and a 2-month course for statistical and medical records auxiliaries, attended by 20 students. A workshop was conducted for the teaching personnel of the 2 nursing schools, with 31 instructors attending; an institute on continuous care was held for 15 hospital and 15 public health nurses, and the first stage of a seminar on nursing administration, attended by 40 nurses, was completed.

Among the targets and accomplishments were the following:

<i>Activities</i>	<i>Targets 1969</i>	<i>Per cent Accomplished</i>
Medical consultations	1,823,178	98.6
Discharges	159,327	104.3
Nurse visits	210,268	36.0
Vaccinations		
Smallpox	337,600	48.9
DPT	99,254	100.6
Poliomyelitis	106,340	102.6
Measles	258,662	15.6
BCG	500,000	48.6
Tetanus	250,000	78.3
Latrine construction	3,067	57.4

PAHO/RB, WHO/RB, WHO/UNDP

UNICEF

#### EL SALVADOR-3101, Fellowships

Six short-term and 6 long-term fellowships were awarded.

WHO/RB

#### EL SALVADOR-4200, Nutrition

*Purpose:* Implementation of an integrated program to improve the nutritional level of the population.

*Probable duration:* 1964-

*Assistance provided:* Advisory services by project AMRO-4203 staff.

*Work done:* A program of national scope, aimed at the examination of 50% of the undernourished children under 5 years of age, was launched. Of the 72,492 children examined (46,567 under 2 years and 25,925 between 2 and 4 years), 37,219 were found to be suffering from first degree malnutrition, 27,988 from 2nd degree malnutrition, and 7,285 from 3rd degree malnutrition.

#### EL SALVADOR-4600, Industrial Hygiene

*Purpose:* Strengthening of the structure of the National Health Department to enable it to cope effectively with industrial health problems.

*Probable duration:* 1969-

*Assistance provided:* 1 short-term consultant (2 consultancies), and advisory services by staff of project El Salvador-3100 and of Zone III Office.

*Work done:* A study was made of the problem and of existing laws on industrial hygiene and safety. A project was formulated for the purpose of strengthening the technical and administrative resources of the Division of Environmental Sanitation of the Ministry of Public Health and Social Welfare. The Ministry's corps of sanitary inspectors made 1,588 inspection visits to industrial plants throughout the country.

WHO/RB

#### EL SALVADOR-6000, Medical Textbooks and Teaching Materials

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* The School of Medicine of the University of El Salvador received 225 copies of the *Tratado de patología*, 175 of *Bioquímica*, 275 of *Fisiología humana*, and 200 of the *Manual de farmacología*, of which 156, 113, 143, and 8, respectively, were sold.

#### EL SALVADOR-6200, Medical Education

*Purpose:* Strengthening of medical education by improving the training of medical-faculty members and the methods used in the teaching of medicine.

*Probable duration:* 1965-

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters staff and by the PAHO/WHO Country Representative.

*Work done:* The new building in University City was completed and equipped and will be inaugurated during the next academic year. Advisory services to the Department of Pediatrics were initiated, and similar services continued to

be provided to the Department of Preventive Medicine. The textbook program and the activities of the Inter-American Investigation of Mortality in Childhood were continued on a regular basis.

Through the Central American Association of Schools of Medicine, with headquarters in San Salvador, laboratories of human relations and medical teaching were conducted and further progress was made in the study on the teaching of preventive medicine at the Central American schools of medicine.

#### PAHO/RB

#### EL SALVADOR-6400, Sanitary Engineering Education

*Purpose:* Strengthening of the teaching of sanitary engineering at the University of El Salvador, and improvement of the national personnel engaged in sanitary engineering programs.

*Probable duration:* 1965-

*Assistance provided:* 1 short-term consultant, and advisory services by project El Salvador-3100 staff; 1 grant.

*Work done:* A short course on the study of housing for low-income families was conducted from 1 to 15 December for 30 professionals. A course on industrial hygiene and safety was planned for 1970.

#### PAHO/RB

#### EL SALVADOR-6600, Dental Education

*Purpose:* Reorganization and expansion of the activities of the Department of Preventive and Social Dentistry of the Dental School of the University of El Salvador; and establishment of a research center to study the relationship between economic and social problems and dental health.

*Probable duration:* 1965-1970.

*Assistance provided:* 1 short-term consultant, and advisory services by the PAHO/WHO Country Representative; supplies.

*Work done:* Advisory services were rendered to the departments composing the clinical areas of the School; the plan for administrative reorganization was evaluated and scheduled; and the proposed salary scale and career service plan, together with budget estimates, were completed.

#### WHO/RB

#### FRENCH ANTILLES AND GUIANA-0200, Malaria Eradication

*Purpose:* Eradication of malaria in French Guiana and maintenance of Guadeloupe and Martinique free of the disease.

*Probable duration:* 1963-

*Assistance provided:* Advisory services by project AMRO-0201 staff; antimalaria drugs and equipment and supplies for a medicated-salt mixing plant.

*Work done:* Since the intensification of eradication efforts by the Government in 1967, residual spraying has been applied regularly in the coastal zone and in portions of the

interior regions. Attack measures continued to be coordinated with Surinam, and 4,000 kg of amodiaquinized salt were received from Surinam for treatment of the population in the interior and along the border.

During the year 7,000 blood smears were examined and 52 proved to be positive (0.74%). This was in contrast to 7,132 examined in 1968, of which 50 were positive (0.70%).

Residual house-spraying was carried out in coordination with the recently reorganized *Aedes aegypti* eradication program.

#### PAHO/SMF

#### FRENCH ANTILLES AND GUIANA-2300, *Aedes aegypti* Eradication

*Purpose:* Eradication of *A. aegypti* from French Guiana, Guadeloupe, and Martinique.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by staff of projects AMRO-2300 and -2301.

*Work done:* The attack phase of the eradication campaign was in progress in all three Departments. The *A. aegypti* was eradicated from the towns of Kourou, Iracoubo, Oyapock, and St. Laurent du Maroni in French Guiana, and at the year's end there was only a light residual infestation in Cayenne and Linnamary.

The attack phase of the campaign in Guadeloupe was carried out in most of Basseterre and Grandeterre. Substantial reductions in *aegypti* indices were achieved in all the treated areas.

In Martinique the first cycle of treatment in Fort-de-France ended in October, and coverage was extended to the rest of the island in the last quarter of the year. The *aegypti* index in treated areas fell below 2%.

The French Government provided full financial support for all 3 campaigns.

#### FRENCH ANTILLES AND GUIANA-3101, Fellowships

Five short-term fellowships were awarded.

#### PAHO/RB

#### GUATEMALA-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1955-

*Assistance provided:* 2 medical officers, 1 sanitary engineer, 1 entomologist, and 2 sanitary inspectors; antimalaria drugs and other supplies; 1 long-term fellowship.

*Work done:* The program was prepared for the 2nd year of the revised 3-Year Plan. The 4th spraying cycle was completed, with 378,777 houses (90.9% of the target) sprayed; in the 5th cycle, 350,848 houses (92.5%) were sprayed; and the 6th cycle was begun in October.

Mass treatment with antimalaria drugs was continued in the areas where the vector is totally or partly resistant to DDT. The project called for 240,000 inhabitants to be treated in 14-day cycles, but acceptance of the drugs by

## VIII. PROJECT ACTIVITIES

the population was low, with only 43.1% to 63.1%, on the average, receiving treatment.

A total of 521,336 blood smears were examined, with 10,494 (2.0%) found positive. The annual index of blood-smear examinations was 22.7%, and the annual parasite incidence was 4.6%.

A general review of the national eradication program was made early in the year by an international evaluation commission.

### PAHO/SMF, WHO/MESA

UNICEF

#### GUATEMALA-2100 (-2101), Environmental Sanitation

*Purpose:* Development of general environmental sanitation programs in urban and rural areas of the country.

*Probable duration:* 1965-

*Assistance provided:* 1 sanitary engineer, and advisory services by staff of Headquarters and of project AMRO-2103.

*Work done:* Reorganization of the Ministry of Public Health and Social Welfare was continued with the consolidation of the Department of Sanitary Engineering into the Division of Environmental Sanitation, as a result of which the environmental sanitation and food control activities were merged with those for water supply to small communities.

A total of 8,200 latrines, serving some 50,000 persons, were installed; and the sanitary conditions of about 2,800 rural dwellings were improved.

### PAHO/RB

#### GUATEMALA-2200, Water Supplies

*Purpose:* Planning and organization of water supply and sewerage services in the country.

*Probable duration:* 1961-

*Assistance provided:* 1 short-term consultant, and advisory services by staff of projects Guatemala-2100 and AMRO-2203.

*Work done:* Fifteen urban water supply systems to serve 43,650 persons were completed, and another 8 to serve 48,150 persons were under construction. In the sewerage field, 4 systems designed to serve 10,800 persons were completed and 8 to serve 42,600 were under construction.

The Water and Sewerage Department of the Municipality of Guatemala completed the Hincapié purification plant to supply water to the capital through 4,500 connections. Two wells were completed, and the pumping plant of project Ojo de Agua III, which will make it possible to add another 10,000 connections, was under construction. Bidding was under way on the pumping and purification plants for the Atlantic project to increase the supply of water to the capital through 10,000 additional connections.

### PAHO/RB

#### GUATEMALA-2300, *Aedes aegypti* Eradication

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by staff of projects AMRO-0103 and -2303.

*Work done:* Surveillance activities were continued throughout the country. Up to September, 34,591 houses in the area of operations were inspected and found free of reinfestation by *A. aegypti*.

### GUATEMALA-3100, Health Services

*Purpose:* Development and improvement of the health structure in order to enable it to meet the requirements for planning and programming of comprehensive activities; and training of professional and auxiliary personnel for implementation of a National Health Plan.

*Probable duration:* 1954-

*Assistance provided:* 1 nurse, and advisory services by staff of Zone III Office and of projects AMRO-0103, -0703, -2203, -3503, -3603, -3703, and -4203; supplies; common services; 6 short-term and 7 long-term fellowships.

*Work done:* The reorganization of the Ministry of Public Health and Social Welfare was continued. The National Health Department was replaced by a National Department of Health Services to perform the activities formerly carried out separately by the former Department and the Ministry itself. A National Health Council was also established to coordinate the activities of the various health-sector institutions.

The new National Department organized its regulatory, operating, administrative, training, and regionalization services as an initial step and appointed the senior personnel for the various levels. A beginning was made on the study of regulations for the various units and of the relevant technical standards and administrative procedures.

A ministerial resolution on the procurement and use of pharmaceuticals in the services of the Ministry was placed in force.

The revision of the Health Code was begun and carried to an advanced stage of completion, to a point where it was hoped that the legislative bodies would be able to consider it during the first quarter of 1970.

The plan for expansion of services was carried forward with the construction of a health center in Mazatenango to serve a population of 16,462 and of a 20-bed maternity facility in Chimaltenango as an annex to the health center in that city.

The immunization programs were continued at similar levels to those of the preceding years. From January to September 176,946 DPT, 246,300 typhoid, 154,168 smallpox, and 97,835 BCG vaccinations were administered, and 38,429 children received two doses of poliomyelitis vaccine.

In the maternal and child care activities, up to 30 June 6,077 pregnant women were enrolled in 65 health centers and 12,548 were given follow-up prenatal examinations. In the same period, 6,049 infants under 1 year of age and 7,757 preschool children were enrolled; 37,537 infants were given follow-up examinations.

The supplementary food programs benefited 53,996 persons.

In the field of dental care, 11,849 fillings and 39,641 extractions were performed.

Thirty-eight rural water supply systems to serve 39,000 persons were completed, and 8,200 latrines to serve some 50,000 persons were installed.

In the training programs, which are centered in the School of Public Health Training, 40 nursing auxiliaries, 10 statistical auxiliaries, and 10 laboratory auxiliaries were trained. An integrated public health course held during the year was attended by 14 nurses and 1 midwife.

**PAHO/RB, WHO/RB**

**UNICEF**

### **GUATEMALA-3200, Nursing**

*Purpose:* Improvement of nursing care in the country through the establishment of a national policy defining the role of nursing in accordance with health service needs; development of nursing education, including continuing education and inservice programs for all levels of nursing personnel.

*Probable duration:* 1968-1973.

*Assistance provided:* 1 nurse; 1 grant; audiovisual aids and other supplies.

*Work done:* Two 14-day seminars were held, one on audiovisual aids and the second on maternal and child health nursing; a total of 51 nurses attended. A series of 3 one-week courses on nursing service administration, alternated with 2 months of duty, was completed by 32 nurses; a second series was begun, with 27 participants. Workshops on the planning of patient care were held for nursing instructors of the schools of nursing in Quetzaltenango and Guatemala City. Fifteen audiotapes and accompanying worksheets were developed for use in the teaching of 4 subjects.

**PAHO/RB, PAHO/OF**

**KF**

### **GUATEMALA-3300, Laboratory Services**

*Purpose:* Technical-administrative reorganization of the health laboratories; training of their staff; and expansion of facilities for the preparation of biologicals to cover zonal requirements.

*Probable duration:* 1964-1972.

*Assistance provided:* 1 laboratory consultant (part of the year), 1 short-term consultant, and advisory services by project AMRO-3303 staff; 2 short-term fellowships.

*Work done:* A new set of regulations was being drawn up to facilitate organization of the health laboratories. Work was continued on the preparation of a feasibility study to be used to secure a loan from the Central American Bank for Economic Integration in order to expand the facilities for the production of biologicals. The drawing of plans for the building to house those facilities was also carried forward.

An estimate was made of the probable demand for the different kinds of vaccines through 1985.

Ten students, all of them holders of UNICEF fellowships, attended the annual course for the training of laboratory workers for the health centers.

**PAHO/RB, WHO/UNDP**

### **GUATEMALA-4800, Medical Care Services**

*Purpose:* Improvement in the management of the resources available for medical care; and coordination of health promotion and disease prevention activities with curative and rehabilitation activities.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by project AMRO-4803 staff; a limited amount of supplies; 1 long-term fellowship.

*Work done:* Within the Ministry of Public Health and Social Welfare, the Division of Medical Care was established under the supervision of the regulatory subdepartment. Projects were prepared for the construction of new health establishments, including the General Hospital for Guatemala City.

The operational subdepartment of the Ministry and the Division of Medical Care prepared the studies necessary for establishing pilot areas of integrated health services.

The Ministry and the Guatemalan Social Security Institute, with the Organization's assistance, conducted a short course in hospital administration, attended by 85 persons.

**PAHO/RB**

### **GUATEMALA-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* The technical and administrative aspects of the revolving fund system were organized; the Student Cooperative was made responsible for operating the system under the supervision of the Secretariat of the School of Medical Sciences of San Carlos University. Of the 100 copies of *Tratado de patología* and 150 of *Bioquímica* that were received, 99 and 73, respectively, were sold. A second shipment of the *Tratado de patología* (150 copies) was received.

### **GUATEMALA-6200, Medical Education**

*Purpose:* Strengthening of medical education by improving the training of medical-faculty members and developing a 10-year plan to reorganize the instruction and provide increased emphasis on a medicosocial approach.

*Probable duration:* 1965-1972.

*Assistance provided:* 2 short-term consultants, and advisory services by Headquarters and Zone III Office staff; 1 short-term fellowship.

*Work done:* A 10-year plan for the reorganization of medical education was formulated and was applied initially to the students entering the 1st year of their studies. The objectives of undergraduate and postgraduate education and of the training of paramedical personnel were redefined in terms of national health problems.

## VIII. PROJECT ACTIVITIES

The School of Medical Sciences of San Carlos University expanded its participation in public health activities and carried out a program of cooperation and teaching demonstration in an area of the Department of Chimaltenango (181,301 inhabitants).

The Central American Association of Schools of Medicine held its VI Conference, attended by 111 delegates from 27 schools.

### PAHO/RB

#### GUATEMALA-6400, Sanitary Engineering Education

*Purpose:* Improvement in the technical training of professional personnel working in the field of sanitary engineering.

*Probable duration:* 1967-1970.

*Assistance provided:* 2 short-term consultants, advisory services by staff of Headquarters and of projects Guatemala-2100 and AMRO-2203; grants.

*Work done:* The 4th regular postgraduate course in sanitary engineering, offered at the Regional School of Sanitary Engineering of San Carlos University, was attended by 9 engineers, including 6 from abroad. Two short intensive courses were also given: 1 on well-drilling techniques (5-16 May), for 19 students; and 1 on water and sewerage systems and sewage disposal connections in buildings (6-18 October), attended by 42 professionals. The Water and Sewerage Department of Guatemala City initiated a program of research on the use and operation of household water meters.

### PAHO/RB

#### GUATEMALA-6500, Veterinary Medical Education

*Purpose:* Improvement of the quality of teaching in the School of Veterinary Medicine of the University of San Carlos.

*Probable duration:* 1962.

*Assistance provided:* 2 short-term consultants, and advisory services by staff of Headquarters and project AMRO-0703; supplies; 1 long-term fellowship.

*Work done:* An evaluation was made of the teaching program in infectious diseases. Assistance was given in the teaching of clinical subjects.

The School conducted continuing education programs on the contemporary concepts of veterinary medicine, for veterinarians from Costa Rica, Guatemala, Nicaragua, and Panama.

A laboratory technician studied teaching methods in the field of parasitology at the University of San Marcos in Lima, Peru.

### PAHO/RB

#### GUATEMALA-6600, Dental Education

*Purpose:* Analysis of the programs of professional education in dentistry, with emphasis on preventive and social dentistry, with a view to improving the quality and increasing

the number of graduates and raising the level of postgraduate studies.

*Probable duration:* 1969.

*Assistance provided:* Advisory services by Headquarters staff and by the PAHO/WHO Country Representative.

*Work done:* The duration of the program of university studies in dentistry was set at six years. The number of new students increased, and teaching systems were put into practice to make it possible to handle the increased number and to make a selection of students during the 1st year, in which the studies are common to dental and medical students.

Twelve last-year students were serving a 1-year internship in rural communities, where they were applying dental techniques and carrying out preventive programs under the direct supervision of members of the faculty.

#### GUYANA-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1961-

*Assistance provided:* 1 sanitary inspector, and advisory services by Headquarters and project AMRO-0201 staff; antimalaria drugs and a limited amount of equipment.

*Work done:* The populated coastland, with 678,000 inhabitants, has been in the maintenance phase since 1960 and vigilance activities were continued in 1969 without major difficulties. In the 3 districts of the interior, with a population of 45,000, medicated salt and/or DDT residual house-spraying continued to be used as the main attack measures to eliminate a few residual foci of malaria infection.

In the Northwest and Mazaruni-Potaro-Cuyuni Districts, 164,474 lbs of chloroquinized salt were distributed during the period January-October. In addition, 5,084 houses were visited to ascertain whether they had supplies of medicated salt; 4,457 houses (87%) were found to have it on hand. In the Rupununi District, 35,790 lbs of chloroquine-pyrimethamine salt were distributed among 3,000 balata bleeders.

DDT residual house-spraying was applied once in selected localities of the Rupununi District as a general attack measure, and in other interior districts as a supplementary measure. From January to October 4,727 houses (68% of all those included in the program) were sprayed. Civil disturbances and financial problems impeded operations.

Up to the end of the year, 70,121 blood smears were examined in the country, and 25 were found to be positive (0.04%). Of the 25 cases (15 *P. falciparum* and 10 *P. vivax*), most were imported from abroad, and only 3 *P. falciparum* cases were autochthonous (in the Rupununi District). There were no positive cases among the balata bleeders.

### PAHO/SMF

UNICEF

#### GUYANA-2100, Environmental Sanitation

*Purpose:* Planning and execution of programs to improve environmental sanitation conditions; and training of professional and auxiliary personnel.

*Probable duration:* 1961 (as part of project British Guiana-10, which in the new numbering system became -3100)-1973.

*Assistance provided:* 1 sanitary engineer, and advisory services by project AMRO-2101 staff.

*Work done:* The activities were devoted mainly to the study and formulation of a comprehensive environmental health program as a component of the National Health Plan. A Committee on Environmental Sanitation was formed to collect the relevant data on water supply, sewage and waste disposal, housing, industrial health, and school sanitation. Those data were compiled in a report presented to the Sectoral Planning Committee for study and evaluation.

Following a feasibility study, the Government began to implement in the coastal area of Guyana a water supply project made possible by a \$2.6 million loan from the U.S. Agency for International Development.

Water supply and sanitary facilities were installed in four schools in Essequibo, thus bringing to completion the school sanitation program along the Essequibo Coast and Pomeroun River.

Forty-two sanitary inspectors trained by the Ministry of Health completed their examinations in the Royal Society for the Promotion of Health. An inservice training seminar was attended by 80 public health inspectors.

## WHO/RB

### GUYANA-2300, *Aedes aegypti* Eradication

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by project AMRO-2301 staff; equipment and supplies.

*Work done:* The verifications conducted from 1 January to 31 August covered 75,873 houses. A reorganized and expanded program was inaugurated on 2 September; 45,603 houses were treated by means of the perifocal method, using Baytex 40% W.P. and Abate 1% sand granules.

The infestation indices prior to treatment had been 10% in Georgetown and averaged 20% in the rural areas. A reduction in the indices was observed after the 1st cycle of treatment. Inspections of 930 vessels arriving from foreign ports all showed negative results.

A 5-week training course was conducted for 80 new *A. aegypti* inspectors.

## PAHO/RB

### GUYANA-3100, Health Services

*Purpose:* Strengthening and integration of health services and their extension to rural areas.

*Probable duration:* 1963-

*Assistance provided:* 1 medical officer, 1 short-term consultant, and advisory services by project AMRO-0201 staff; supplies, 15 short-term fellowships.

*Work done:* As a basis for the formulation of a National Health Plan, the National Health Planning Committee and various subcommittees, comprising more than 100 health officials, collected basic information on health conditions and available health manpower and other resources.

The Ministry of Health and Housing was strengthened by the addition of the Planning Unit and the Health Statistics

Unit. Measures were taken for the decentralization of laboratory services.

The year 1969 was declared "Vaccination Year" in Guyana. The country-wide poliomyelitis vaccination campaign and a focal vaccination campaign against typhoid fever were carried out. The country-wide smallpox vaccination campaign was in preparation.

As part of the measures for expanding medical care services, 6 new health centers and a new 38-bed hospital were under construction.

## WHO/RB

## UNICEF

### GUYANA-3200, Nursing Services

*Purpose:* Improvement of nursing services.

*Probable duration:* 1965-1972.

*Assistance provided:* 3 short-term consultants, and advisory services by project AMRO-3201 staff; supplies; 2 long-term fellowships.

*Work done:* Nurses participated in a number of multi-disciplinary projects. They served on the Committee of the Health Manpower Inventory, assisting in the collection of pertinent data. Nurses were also members of a special subcommittee engaged in studies related to the National Health Plan; 5 of the nurses formed a study team which reviewed the nursing activities in selected wards of 2 general hospitals and in 2 health centers and 2 health stations. Their report was submitted to the National Health Planning Committee.

To improve the coordination of the nursing services, the post of Principal Nursing Officer was created.

A program was organized for the preparation of auxiliary personnel to strengthen the nursing services. Two groups of nursing assistants began their training (30 in April and 28 in August).

For graduate nurses, 1-day teaching sessions continued to be held in different centers throughout the country. The annual 2-month summer institute provided training in administration for 41 senior nurses from both hospital and community services. Exercises during the institute included the preparation of much-needed job descriptions, and the analysis of data collected for the nursing activities study.

## WHO/UNDP

### GUYANA-4200, Nutrition

*Purpose:* Organization and development of a national nutrition program; improvement of the production, preparation, marketing, and preservation of foodstuffs; and training of professional and subprofessional personnel.

*Probable duration:* 1968-1972.

*Assistance provided:* 1 nutritionist and advisory services by project AMRO-4207 staff.

*Work done:* The applied nutrition program continued its activities in the 8 pilot areas selected in 1968, and 7 new areas were established. Two training courses on the operation of the program were conducted, and a preliminary assessment of the nutritional status of children attending health clinics in the pilot areas was carried out.



## VIII. PROJECT ACTIVITIES

The Caribbean Food and Nutrition Institute was assisting the Government in the preparation of a food balance sheet. Its assistance was also requested for the conduct of a food consumption survey.

**PAHO/RB**

**UNICEF**

### **HAITI-0200, Malaria Eradication**

*Purpose:* Eradication of malaria.

*Probable duration:* 1961-

*Assistance provided:* 1 entomologist, 1 sanitary engineer, and 3 sanitary inspectors; antimalaria drugs; a limited amount of equipment and supplies; and 1 long-term fellowship.

*Work done:* From January to December 686,167 blood smears were examined, with 5,005 (0.73%) found positive. Studies were made on the susceptibility of *A. albimanus* to DDT and malathion in various localities. In the localities of Bourg Haitien I and II, Chancerelles I, Simone Duvalier, and Trois Bébés, adjacent to Port-au-Prince, where 1,153 cases (23% of all those found in the country) were recorded, it was demonstrated that *A. albimanus* is resistant to DDT and susceptible to malathion. Radical-cure treatment was administered to 9,596 patients and suspected contacts.

Mass chemotherapy was poorly received as an attack measure and had to be suspended.

A total of 607,710 houses were sprayed with DDT. The number of cases found was 95% more than in 1968, although the number of rural districts where cases were found was 6.6% less.

**PAHO/SMF, WHO/RB**

**UNICEF**

### **HAITI-0600, Yaws Eradication**

*Purpose:* Eradication of yaws from the country.

*Probable duration:* 1950-

*Assistance provided:* Advisory services by Zone II Office staff and personnel of other projects in the country.

*Work done:* Treatment was given to the 52 cases of yaws reported, as well as to 969 contacts.

### **HAITI-2200, Water Supplies**

*Purpose:* Expansion of the water supply system of Port-au-Prince and, later, of the systems for other urban and rural localities in the country.

*Probable duration:* 1960-

*Assistance provided:* 1 sanitary engineer, and advisory services by staff of Headquarters and of projects Mexico-2200 and AMRO-2102; contractual services.

*Work done:* The first phase of the program for the extension of the Port-au-Prince water supply system was completed with the help of a loan from the Inter-American Development Bank. This work increased the number of inhabitants of the city served by 15%, and it was estimated that by the end of the year 45% of the city's inhabitants would have adequate water supply service. The supply of water for the city was increased by 63%; and the new water rates schedule was approved.

With the assistance of the Government of West Germany, a deep well was drilled and a pump installed at Croix-des-Bouquets, a small community near the capital. This system, designed to supply water to between 400 and 500 household connections, was providing excellent service.

Initial action was taken on the preparation of a program for the construction of water supply systems in rural areas.

**PAHO/RB, PAHO/OF**

**National Bank of Haiti**

### **HAITI-3100, Health Services**

*Purpose:* Development of integrated public health services at the national and local levels; and establishment of a demonstration and training area.

*Probable duration:* 1957-

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative), 1 short-term consultant, 1 secretary, and advisory services by staff of Headquarters and of projects AMRO-0102, -0409, -0702, -3202 and -3502; supplies; common services; and 2 short-term and 5 long-term fellowships.

*Assistance provided:* A Programming Unit, composed of representatives of the public, private, and academic sectors, was established in the Department of Public Health. An Evaluation Section was created to collect, analyze, and publish program and morbidity statistics.

A law on the status and responsibilities of auxiliary personnel in the country was prepared. A draft agreement was drawn up to govern the future regional project at Cayes, which will serve 500,000 persons and will be carried out concurrently with the agricultural promotion and community development activities sponsored by the Government with the assistance of the United Nations Development Program and FAO.

**PAHO/RB, WHO/RB**

**UNICEF**

### **HAITI-3300, Laboratory Services**

*Purpose:* Improvement in the services of public health, hospital and field laboratories.

*Probable duration:* 1953-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; equipment and supplies.

*Work done:* The Organization continued to provide equipment and supplies to the laboratory of the General Hospital in Port-au-Prince, which serves as a practice facility for the School of Laboratory Technicians, and contributed equipment for the laboratory of the Tuberculosis Hospital, also in Port-au-Prince. Both laboratories expanded their activities considerably.

The Central Public Health Laboratory performed 20,262 serological and 2,016 bacteriological examinations. The General Hospital did 4,230 bacteriological and 3,637 serological (Widal) examinations, 23,765 hemograms, 16,432 blood chemistry analyses, 10,658 urinalyses, 9,165 coprological analyses, and 8,134 malaria tests.

**PAHO/RB**

**HAITI-4200, Nutrition**

*Purpose:* Implementation and evaluation of pilot activities to combat malnutrition, encompassing its technical, educational, and economic aspects and the dissemination of practical nutritional concepts whose soundness has been demonstrated by institutions in the health and educational sectors.

*Probable duration:* 1961-1971.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project Dominican Republic-4200 staff; grants for local costs.

*Work done:* The Office of Nutrition and the Ministry of Public Health and Population continued to establish and operate nutrition rehabilitation centers. There were 21 such centers in the country, of which 15 were integrated with the public health service centers and 10 were involved in the execution of joint programs with the agricultural services. Also in operation were 13 centers organized by private institutions in accordance with the standards set by the Office of Nutrition. All of the children who visited the centers were vaccinated.

**PAHO/OF****Research Corporation**

**HAITI-4204, Nutrition and Maternal and Child Health (1965-1969)** Grant to PAHO: Unitarian Universalist Service Committee, Inc., Research Corporation, Foundation for International Child Health

The purpose was to strengthen the activities for the teaching of nutrition at the Maternal and Child Health Center in the Port-au-Prince General Hospital.

The Organization furnished advisory services through the PAHO/WHO Country Representative and other international personnel assigned to the country; it also provided equipment and supplies and yearly grants for local expenses.

With financial assistance from private foundations, the Center initiated a number of studies and activities on curative and preventive medical care, nutrition rehabilitation, responsible parenthood, and methods for educating the public. Particular attention was given to the training of nurses, medical students, hospital residents specializing in pediatrics, and the general public. Radio programs were broadcast and a series of articles were published in the press and later collected in a book entitled *Réflexions d'un Médecin*.

The urban work area consisted of 14 square blocks around the General Hospital, and the rural area was the locality of Fonds Parisien, 20 km from the capital. The public was vaccinated free of charge, and BCG vaccination of all newborn infants was instituted in the General Hospital. These activities made it possible to gain experience in the dissemination of practical concepts of maternal and child health and responsible parenthood and arrive at a better definition of obstacles to be overcome.

The project ended in January 1969, at which time the national personnel, with the assistance of private foundations, initiated a second project on a private and autonomous basis, using the experience gained in the first. This new project places emphasis on educational and sociological studies, with the aim of determining and testing effective methods for the dissemination of health concepts. The methods tested

during the original project and the studies being made in the present autonomous project, have served and will continue to serve as a sound basis for constructing the future national program of maternal and child health, including responsible parenthood.

**HAITI-4205, Corn-Breeding Improvement**

*Purpose:* Increase in the country's corn production through the improvement of native species.

*Probable duration:* 1968-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative; 1 grant.

*Work done:* Comparative productivity tests were made of 24 hybrid, 9 segregated, and 3 local species; and studies were made in 9 parcels of land in the Cul-de-Sac plains to evaluate alternatives with respect to planting seasons, use of fertilizers, plant density, frequency of irrigation, etc. Students of the School of Agronomy of the University participated in these studies. Local and exotic species were crossed to obtain the varieties most suitable in terms of weight and lysine and tryptophan content; and qualitative and quantitative chemical analyses were performed with 26 local species to determine their protein content, with the cooperation of the Virginia Polytechnic Institute (United States).

Studies were also made to determine optimum spacing of rows of corn and the amount of fertilizers to be used. Collections of seeds were kept and multiplied.

**PAHO/OF****Research Corporation****HAITI-6200, Medical Education**

*Purpose:* Improvement of technical education at the National University, with emphasis on preventive and social medicine, basic sciences, and medical pedagogy.

*Probable duration:* 1967-

*Assistance provided:* 2 short-term consultants, and advisory services by project Haiti-3100 staff; supplies.

*Work done:* Advisory services in medical architecture and medical education were provided in connection with the program for expansion of buildings and improvement of the teaching of basic sciences being carried out with the assistance of a loan from the Inter-American Development Bank. The final plans were completed, and public bidding for the construction contract will begin shortly. A decision was taken to participate in the Organization's medical textbook program; the manner of this participation is yet to be worked out.

**PAHO/RB****HAITI-6300, Nursing Education**

*Purpose:* Establishment of a National School of Nursing Auxiliaries; training or retraining of auxiliaries in service; and definition of the status and responsibilities of auxiliaries in the health services.

*Probable duration:* 1967-1971.

*Assistance provided:* Advisory services by project AMRO-3202 staff.

## VIII. PROJECT ACTIVITIES

*Work done:* The National School of Nursing Auxiliaries graduated its second class in September; the third class began its studies in November. The Government was drawing up a law on the status and responsibilities of auxiliary personnel in Haiti.

### UNICEF

#### HONDURAS-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1956-

*Assistance provided:* 1 malariologist, 2 sanitary inspectors (one of them only part of the year), and advisory services by project AMRO-0203 staff; supplies; 2 long-term fellowships.

*Work done:* An evaluation of the program was performed between 3 and 15 March. The epidemiological situation in the country was as follows:

	Population	Per cent	Area (km <sup>2</sup> )	Per cent
Consolidation phase	648,537	27	16,855	15
DDT attack phase	1,290,551	53	79,865	71
Attack phase with DDT and mass drug treatment programs	174,270	7	4,631	4
Nonmalarious area	307,983	13	10,737	10

During the year 360,416 houses were sprayed with DDT in semiannual cycles, with 1,728,186 inhabitants being protected; in addition, 8,670 emergency house-sprays were performed, with 42,371 inhabitants protected.

Of the 591,544 blood smears examined, 29,584 were positive (24,211 *P. vivax* and 5,373 *P. falciparum*). In the problem area of DDT resistance, with 194,166 inhabitants (8% of the national territory and 9.2% of the malarious area), 21,604 blood smears were found positive.

The following courses were conducted: 1 for education auxiliaries, 2 for microscopists, 1 for laboratory chiefs, and 1 for zone supervisors and administrative auxiliaries.

The general health services continued to participate in the program under the supervision of a coordinating medical officer.

#### PAHO/SMF, WHO/RB

#### AID, UNICEF

#### HONDURAS-2200, Water Supplies

*Purpose:* Organization, planning, and implementation of national water supply programs; and improvement of existing services.

*Probable duration:* 1960-1972.

*Assistance provided:* 3 short-term consultants, and advisory services by project Honduras-3100 staff.

*Work done:* A technical and economic feasibility study was made of future water supplies for the Central District, as were 35 preliminary studies on supply systems for rural communities (250 to 500 inhabitants), to serve as a basis for the submission of applications to lending agencies.

The installation of hydrometric stations in the water courses serving the District was carried to 60% of completion.

The National Autonomous Water Supply and Sewerage Service (SANAA) completed the construction of 4 rural aqueducts, for which funds were provided by SANAA itself and by the communities, and also completed another 12 rural systems with financial assistance from the U.S. Agency for International Development.

The expansion of water supply facilities for the Central District (San Juancito-El Picacho Project), financed by SANAA and the Inter-American Development Bank, was completed. The supply was thus increased by 100%. The new chlorination plant for this system began operation in December.

The scheduled work for the year for the expansion and improvement of the distribution network in the Central District was also completed, including the construction of 6 distribution and storage tanks.

Construction was in progress for the improvement and expansion of the distribution network in Choluteca (a municipal seat of government with 2,500 inhabitants). Construction of the sewerage system for the Central District was advanced in line with the targets for the year.

Advisory services were provided for the preparation of water-rate schedules.

#### PAHO/RB

#### HONDURAS-2300, *Aedes aegypti* Eradication

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1968-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project Honduras-0200 staff; equipment and supplies.

*Work done:* The number of affected localities increased to 12, with approximately 40,000 houses. Bimonthly treatment of 26,000 houses in the city of San Pedro Sula with Abate and Baytex began during the second half of the year, with only limited results achieved.

#### PAHO/RB

#### HONDURAS-3100, Health Services

*Purpose:* Gradual organization of integrated health services at both the central and local levels; and training of personnel.

*Probable duration:* 1955-

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative), 1 sanitary engineer, 1 public health nurse, and 1 short-term consultant; supplies; common services; 4 long-term fellowships.

*Work done:* Because of the national emergency, the Government established 32 centers to meet the needs of displaced persons; 19,459 such persons were given medical care, immunizations, and basic sanitation services in those centers. A rural development plan was formulated for the southern and eastern part of the country, and the Inter-American Development Bank was requested to provide financial assistance for a 5-year program of rural sanitation to serve a population of 250,000.

The National Health Plan was revised, and the program

budget of the Ministry of Public Health and Social Welfare was formulated. A plan of operations for food control was prepared.

A program of waste collection and disposal for the cities of Tegucigalpa and Comayagüela was prepared.

Fifteen new health centers were established.

The following training activities were carried out: 9 twelve-month courses for 309 nursing auxiliaries; 4 five-month courses for 144 nursing aides; 84 inservice training programs on basic nursing principles for 2,054 nursing auxiliaries and 7 short courses for 166 nursing aides; 12 inservice training programs in nursing administration and supervision for 242 professional nurses; 3 ten-day applied nutrition courses for 60 rural leaders; 5 short courses in applied nutrition for 115 nursing auxiliaries; 2 short courses in midwifery for 35 nursing auxiliaries; and 1 twelve-month course in health education for 16 educators.

PAHO/RB, WHO/RB, WHO/UNDP UNICEF

### HONDURAS-3102, Fellowships

Seven short-term and 4 long-term fellowships were awarded.

WHO/RB

### HONDURAS-3300, Laboratory Services

*Purpose:* Organization of a central public health laboratory in Tegucigalpa; regionalization of services through the establishment of district laboratories in the 7 health districts into which the country is divided; and an increase in efficiency through the modernization of laboratory techniques and the training of technical personnel.

*Probable duration:* 1967-1971.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-3303 staff.

*Work done:* The organization of the Central Public Health Laboratory in Tegucigalpa was postponed for lack of financial resources. Assistance was provided in drawing up plans for establishing it in 1970.

At the district level, 2 new buildings were placed in service for the San Pedro Sula Regional Laboratory (Health District III), and two auxiliaries were added to its technical staff. The laboratories of the health units in that district were placed under supervision.

### HONDURAS-4800, Medical Care Services

*Purpose:* Improvement in the medical care services of the State institutions, including the social security institutions.

*Probable duration:* 1965-

*Assistance provided:* 1 short-term consultant (2 consultantships), and advisory services by Headquarters staff; 1 short-term and 5 long-term fellowships.

*Work done:* The Maternal and Child Hospital in Tegucigalpa inaugurated its activities by gradual stages, beginning with outpatient care and proceeding to hospitalization services. The Hospital has 300 pediatric beds.

Preliminary plans were prepared for the construction of a university medical center, with the assistance of international experts for which funds were provided under an agreement between the Ministry of Public Health and Social Welfare and the Inter-American Development Bank.

WHO/RB

### HONDURAS-6000, Medical Textbooks and Teaching Materials

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* The School of Medical Sciences of the National University of Honduras received 80 copies of the *Tratado de patología* and 80 of *Bioquímica*, of which 21 and 43, respectively, were sold.

The program is very efficiently organized in the School, which has established a special office for the promotion and sale of the books.

### HONDURAS-6200, Medical Education

*Purpose:* Organization of a Division of Health, grouping all the appropriate schools, at the National University of Honduras.

*Probable duration:* 1965-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* A new Charter for the University was submitted to the National Congress. The plans for the Division of Health were made in the context of the University's development plan. The University signed a contract with the Inter-American Development Bank for a loan to finance the plan.

### HONDURAS-6300, Nursing Education

*Purpose:* Strengthening of the University School of Nursing and the School of Nursing of the Vicente D'Antoni Hospital by instituting a 3-year basic program.

*Probable duration:* 1965-1970.

*Assistance provided:* 1 nurse educator; supplies.

*Work done:* Teaching activities at the University School of Nursing proceeded according to schedule. Of the 50 students enrolled, 45 completed their studies: 20 finished the general basic sciences courses, 16 the 1st year of nursing, and 9 the 2nd year. One instructor completed her studies for the Bachelor's degree and another began her courses for a Master's degree. Nine first-aid courses were held for a total of 296 instructors, university students, and community members.

The program of supplementary education for graduate nurses was approved and will be instituted in 1970.

## VIII. PROJECT ACTIVITIES

An agreement between the University and the School of Nursing of the Vicente D'Antoni Hospital, in La Ceiba, for technical advisory services to the latter, was prepared in preliminary draft form.

### PAHO/RB

#### HONDURAS-6400, Sanitary Engineering Education

*Purpose:* Improvement in the teaching of sanitary engineering at the National University of Honduras and in the advanced professional training of personnel working in national environmental sanitation programs.

*Probable duration:* 1965-1972.

*Assistance provided:* 1 short-term consultant, and advisory services by the PAHO/WHO Country Representative and by project Honduras-3100 staff; 1 grant.

*Work done:* A short intensive course in design and construction of sewerage systems, directed by the short-term consultant, was attended by 14 engineers.

### PAHO/RB

#### JAMAICA-2100, Environmental Sanitation

*Purpose:* Improvement of environmental conditions by establishing health standards and programs for housing, food sanitation, industrial health, and air, water and soil pollution.

*Probable duration:* 1968-

*Assistance provided:* 1 sanitary engineer, 1 short-term consultant, and advisory services by Headquarters and Zone I Office staff; 1 short-term fellowship.

*Work done:* At the request of the National Health Advisory Committee, the collection of basic environmental data for the whole country was undertaken, with a view to improving the planning and execution of programs in accordance with predetermined priorities.

The sewage disposal and treatment system for the Montego Bay area continued to operate effectively. Preliminary studies on pollution of the waters in Kingston Harbor were started. A comprehensive report on problems of water pollution in the country was submitted.

### WHO/RB, WHO/UNDP

#### JAMAICA-2200, Water Supplies

*Purpose:* Development of water supply programs in urban and rural areas of the country, including improvement in the organization and administration of the Kingston and St. Andrew Water Commission and the National Water Authority.

*Probable duration:* 1963-

*Assistance provided:* 2 short-term consultants (1 charged to 1968 funds), and advisory services by staff of project Jamaica-2100 and of Zone I Office.

*Work done:* Many of the recommendations made in 1968 by the team of consultants which studied the administration and organization of the Kingston and St. Andrew Water

Commission were implemented; and a consultant visited Jamaica to assess the progress made.

The World Bank approved the Commission's application for a loan for expanding and improving the water service for the city of Kingston.

The rural water supply program was carried forward satisfactorily.

### PAHO/CWSF

### UNICEF

#### JAMAICA-2300, *Aedes aegypti* Eradication

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by staff of projects AMRO-2300 and -2301; equipment and supplies.

*Work done:* Plans were drawn for a national eradication campaign, including a 4-year program of operations. The Government, with the Organization's assistance, was attempting to secure the participation of the UNDP in this program.

The preparatory phase was completed in the District of Spanish Town, where the campaign will be brought under way early in 1970, for later extension to the rest of the country. This District will also serve as a practice field for personnel training.

### PAHO/RB

#### JAMAICA-3100, Health Services

*Purpose:* Formulation of a national health plan as part of the national social and economic development plan, by promoting the establishment of mechanisms to coordinate and/or integrate preventive and medical care services, effecting changes in the administrative structure to facilitate the execution of the plan, and training personnel at all levels from the country's health administration.

*Probable duration:* 1963-1971.

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative), 1 administrative methods officer (part of the year), and advisory services by Zone I Office staff; common services; 11 short-term and 2 long-term fellowships.

*Work done:* With a view to performing a small-scale assessment of health conditions, using a simple methodology, a survey was made of the health situation in the Parish of Portland, its conditioning factors, and the operating capacity of the health services, the intention being to extend the study to other localities.

The National Health Planning Committee continued its joint activities with the Caribbean Food and Nutrition Institute, the University of the West Indies, the National Research Council (on nutrition), and the Family Planning Council. The reporting on mortality was improved. The *Aedes aegypti* eradication campaign was incorporated into the Government's official policy. A sampling survey of 3 parishes was made to determine the extent of the leprosy problem. Analyses were made of the operation of the Finance Section of the Region of Kingston and of the Personnel Section of the Ministry of Health; and a working party was formed to implement the solutions proposed in the reports on those studies.

### PAHO/RB, WHO/RB

**JAMAICA-4300, Mental Health**

*Purpose:* Reduction of the propensity of the system of psychiatric care to promote chronicity of psychosis.

*Probable duration:* 1964-1972.

*Assistance provided:* 1 medical officer and 1 nurse; 1 long-term fellowship.

*Work done:* Sixty nurses and ward aides received 6 months' training in the demonstration ward of Bellevue Psychiatric Hospital in Kingston; they were then assigned to 3 other wards of the Hospital to convert them into "therapeutic communities." The University of the West Indies made use of the demonstration ward as a training facility for student psychiatrists.

In 3 general hospitals in rural areas, attention was focused on the treatment of psychotic patients in the wards. Seminars and lectures were given for physicians, nurses, and other staff.

A very active program of seminars and talks on mental health, for both professional workers and the general public, was carried on in all parts of the island.

**PAHO/RB, WHO/UNDP****JAMAICA-4500, Radiation Protection**

*Purpose:* Organization of a radiation protection service on a national scale, in order to cope with the problem of radiation exposure, both occupational and general.

*Probable duration:* 1966-1971.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* A total of 200 occupationally exposed persons were being monitored. Studies were continued on the high Cesium-137 content in milk in certain watersheds.

The Government health physicist studied radiochemical analysis at the New York University (USA), for a 6-week period.

**JAMAICA-4601, Air Pollution**

*Purpose:* Installation, operation, and maintenance of sampling stations as part of the Pan American Pollution Surveillance Network.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by project Jamaica-2100 and Zone I Office staff.

*Work done:* The air sampling station (installed in 1968) continued to operate satisfactorily. The partial results of the measurements taken at the station were included in the special report prepared by the Pan American Sanitary Engineering and Environmental Sciences Center (CEPIS).

**JAMAICA-4800, Medical Care and Hospital Administration**

*Purpose:* Improvement of medical care and hospital administration.

*Probable duration:* 1967-1968; 1969.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* Studies in the areas of personnel and finance were made at the Kingston Public Hospital. Recommendations for improvement were submitted to the Ministry of Health and to all staff concerned.

The Ministry instituted a "case-abstract record" form to be used by all hospitals on the island.

**JAMAICA-6100, Public Health Training Center**

*Purpose:* Adaptation of the training of public health personnel to the real needs, quantitative and qualitative, of Jamaica and of the English-speaking Caribbean area.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by Headquarters staff.

*Work done:* Existing programs were evaluated and plans for the future were formulated. The basic course for public health inspectors and nurses was attended by 44 participants. Steps were taken to expand certain teaching activities so as to include laboratory aides in 1970.

**JAMAICA-6201, Department of Social and Preventive Medicine (UWI)**

*Purpose:* Dissemination of the concepts of modern social and preventive medicine among students of the University of the West Indies.

*Probable duration:* 1962-

*Assistance provided:* 2 short-term consultants, and advisory services by the PAHO/WHO Country Representative and by Headquarters staff; 1 grant.

*Work done:* The Department actively pursued its research studies on skin infections, efficacy of oral poliomyelitis vaccine in tropical climates, and management of chronic tropical ulcers; and continued to cooperate in the Inter-American Investigation of Mortality in Childhood.

It offered assistance in the activities of the National Health Planning Committee, in the training of community health aides, in studies on population dynamics, and in rural integrated health programs.

Efforts were made to create a 3-year residency program in social and preventive medicine.

**WHO/RB****JAMAICA-6301, Advanced Nursing Education**

*Purpose:* Preparation at the University of the West Indies of nurses for positions of leadership in their profession in the Caribbean area; and development of nursing education within the University as a force in the advancement of training and administration in the field of nursing.

*Probable duration:* 1965-

*Assistance provided:* 1 nurse educator, 2 short-term consultants, and advisory services by staff of project AMRO-3201; supplies; 7 short-term fellowships.

*Work done:* The third course in the Certificate Program, which ended on 22 August, was successfully completed by 21 students (91% of those enrolled). The effect of the entrance examination established in 1968 could be measured

by the 31% increase in the number of students passing the course in 1969 as compared with the previous year.

Eight students specializing in nursing administration completed 4 weeks of field work in July in Florida (USA). Eighteen students attended a 4-week psychiatric nursing course at the University of the West Indies in September.

Of the 25 students enrolled in the fourth course in October, 11 were from Jamaica and 14 from other areas of the Caribbean. Eleven students specialized in nursing administration and 14 in nursing education.

Studies were made in connection with the conduct of special projects by students and of research by faculty members. A preliminary proposal for a Bachelor's degree program in nursing was drawn up. It was being discussed in detail with members of the nursing profession and other interested groups in the Caribbean area in order to establish the bases for a final draft proposal.

#### WHO/RB

#### JAMAICA-6600, Dental Auxiliary Education (Dental Nurses)

*Purpose:* Provision of dental care to schoolchildren.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative.

*Work done:* Construction of the School of Dental Nurses was near completion. The School was scheduled to begin operating in 1970.

#### UNICEF

#### MEXICO-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1956-

*Assistance provided:* 2 medical officers and 1 sanitary inspector (until March); antimalaria drugs; equipment and supplies.

*Work done:* The transitional campaign continued to be carried out. A total of 1,359,414 sprayings were performed during the 1st half-year cycle (96.6% of the target), and in the 2nd cycle 392,612 houses were sprayed. In addition, in consolidation-phase areas, 167,487 and 217,259 sprayings were completed in the 1st and 2nd cycles, respectively. The Supplementary Measures Plan (PMC), consisting of DDT fogging as a supplement to the two regular cycles of intradomiciliary spraying, was carried out in 75 localities with 3,491 houses and 13,184 inhabitants. Positivity in the PMC area remained high and continued to increase.

During the year 1,497,730 blood smears were examined in the attack-phase area and 46,743 were found to be positive; in the consolidation area 5,383 cases were found among 1,026,330 smears examined. This was an increase over the number of cases recorded in 1968 (22,486 and 3,554, respectively).

#### PAHO/SMF, WHO/UNDP

#### MEXICO-0300, Smallpox Eradication

*Purpose:* Maintenance of the smallpox-free status of the country.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by staff assigned to project AMRO-0300; equipment for the production of freeze-dried vaccine.

*Work done:* Equipment for the production of freeze-dried vaccine, in accordance with WHO standards, was installed with the aim of using this vaccine to replace the glycerinated type currently produced in the country. Part of the cost of the equipment was charged to project AMRO-0300. A technician from the Ministry of Health was awarded (under another project) a short-term fellowship for training at the Connaught Laboratories (Toronto, Canada).

Mexico supplied glycerinated vaccine to Panama and the Central American countries.

#### WHO/RB

#### MEXICO-0400, Tuberculosis Control

*Purpose:* Improvement in the administration of the tuberculosis control program in all its phases, in order to reduce the rates of infection, incidence, prevalence, and mortality.

*Probable duration:* 1960-

*Assistance provided:* 2 short-term consultants, and advisory services by the medical officer assigned to project AMRO-0402; contractual services; 3 short-term fellowships.

*Work done:* Between January and August 1, 841,100 BCG vaccinations were performed. X-ray examinations were made of 267,591 persons at the various services throughout the country; 5,027 suspected positives were found.

A complete tuberculosis control program was prepared for Ciudad Juárez, and basic epidemiological data were gathered in an area in the State of Puebla, which will be used as a demonstration area for initiating a control program.

The laboratory in charge of preparing freeze-dried BCG vaccine was furnished advisory services.

A seminar on the role of the social worker in tuberculosis control was held at the School of Medicine of the National University. Its main topic was coordination between the hospital and residents of the community.

#### WHO/RB

#### UNICEF

#### MEXICO-2200, Water Supplies

*Purpose:* Provision of water and sewerage service to 70% of the urban and 50% of the rural population in the country within a 4-year period (1968-1971).

*Probable duration:* 1960-1973.

*Assistance provided:* 1 sanitary engineer, 4 short-term consultants, and advisory services by project AMRO-2102 staff.

*Work done:* The program of investments of the Ministry of Hydraulic Resources made it possible to extend water service to 1,271,546 new users, bringing the total coverage to 81% of the urban population. The urban water supply program gained substantial momentum with the utilization of credit extended by domestic manufacturers of pipes and other

materials and with the participation of the National Public Works and Utilities Bank. The program of the Ministry of Health and Welfare provided water service to 640,000 new users in rural areas, bringing this coverage to 22%.

A program for the prevention and control of pollution in water courses was begun.

In the training of personnel, emphasis was laid on the concurrent training of professional and nonprofessional staff.

**PAHO/RB, WHO/RB**

### **MEXICO-3100, Health Services**

*Purpose:* Strengthening of the general health services by training personnel at the technical and auxiliary levels.

*Probable duration:* 1966-

*Assistance provided:* 1 short-term consultant, and advisory services by Zone II Office staff; supplies; and 1 short-term fellowship.

*Work done:* A total of 17 courses were held and 334 persons were trained, as follows: 10 courses for 200 nursing auxiliaries; 1 for 36 nursing technicians; 1 for 6 sanitation inspectors; 1 for 10 statistical technicians; 1 for 20 laboratory assistants; 1 for 30 administrators of health centers; 1 for 20 dental auxiliaries; and 1 for 12 nutrition technicians.

**PAHO/RB, WHO/RB**

**UNICEF**

### **MEXICO-3102, Fellowships**

Ten short-term and 6 long-term fellowships were awarded.

**WHO/RB**

### **MEXICO-3105, Continuing Medical Education**

*Purpose:* Fostering of an interest in continuing education among professionals in rural areas and small communities, to encourage them to continue enlarging their knowledge and improving their technical efficiency.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by project AMRO-3407 staff; 1 grant.

*Work done:* A study was made in the State of Michoacán with a view to conducting a pilot program of continuing education in that area, to be extended gradually to the rest of the country.

Activities were begun in October for the purpose of updating knowledge and improving techniques in hospitals and sanatoriums in the State of Morelia.

**PAHO/RB**

### **MEXICO-3300, Laboratory Services**

*Purpose:* Expansion and improvement of the services of the national health laboratories by providing them with a modern structure and organization with respect to diagnostic techniques and methods, production, control of biological products, and control of drugs and medicines.

*Probable duration:* 1967-

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters staff; supplies; and 4 short-term fellowships.

*Work done:* The list of equipment needed for the project was reviewed item by item. The requirements for consultation, personnel training, and restructuring of physical facilities were re-examined at the request of the United Nations.

Studies were made on the production of freeze-dried BCG vaccine. Negotiations were pursued to secure a freeze-drying unit for the production of this vaccine and another for the preparation of smallpox vaccine. Fellowships were awarded to officials of the national laboratories of the Ministry of Health and Welfare and other institutions, for training in production of vaccines, sera, and toxoids and in the control of vaccines and other biologicals.

Action was being taken on a request of the Ministry for laboratory equipment for the control of drugs and medicines.

**PAHO/RB**

### **MEXICO-3301, Research and Training Center in Immunology**

*Purpose:* Provision of postgraduate training in immunology and development of research on immunological problems of local public health importance, particularly as they relate to infectious diseases.

*Probable duration:* 1968-

*Assistance provided:* 2 short-term consultants; 1 grant; and reference books and other materials for a basic library in immunology.

*Work done:* Seven institutions in Mexico City provide the Center with laboratory facilities and the services of their permanent staff. The Center's research program focuses on basic aspects of immunology, immunochemistry, and immunopathology, as well as on the immunology of diseases and conditions representing a local public health problem. Studies were under way on the following subjects: role of the common antigen (Kunin) of *E. coli* in infant diarrheas; relationship between malnutrition and immunity; complement components in rabbits in relation to immune responses, including rejection of transplants; immunochemical properties of bacterial polysaccharides; systemic lupus; anti-enzyme antibodies; laboratory models of anaphylaxis; cell-mediated immunity in lepromatous and tuberculoid leprosy; and production of antibodies to guinea-pig macrophages.

Two students completed the 3-year course leading to a PhD degree in immunology and were working on their theses. Four degree candidates were in the first year, one in the second year, and one in the third year of the academic course. Short courses were conducted by visiting immunologists. All of the courses are open to students from any part of Latin America.

**PAHO/RB**

### **MEXICO-3302, Vaccine Production**

*Purpose:* Increase in the production of live poliomyelitis vaccine at the National Institute of Virology to 50-70 million doses per year, so as to meet the needs of the Latin American countries.



## VIII. PROJECT ACTIVITIES

*Probable duration:* 1968-1970.

*Assistance provided:* 1 laboratory adviser; supplies.

*Work done:* The poliomyelitis vaccine production laboratory was remodeled according to recommendations made in 1968 by short-term consultants. In July the laboratory resumed production of vaccine for national use.

The remodeling of the National Institute of Virology, which will produce vaccine for other Latin American countries, was begun in October. The Institute will also carry out virus research.

### WHO/RB, WHO/UNDP

#### MEXICO-4600, Industrial Hygiene

*Purpose:* Strengthening of industrial hygiene and radiation protection programs.

*Probable duration:* 1966-1971.

*Assistance provided:* Advisory services by project AMRO-2102 staff.

*Work done:* The authorities were considering the report of the study done in 1968 on health conditions in Mexican industrial plants.

A course in industrial hygiene was conducted in November.

#### MEXICO-4601, Air Pollution

*Purpose:* Establishment of sampling stations in Mexico City as part of the Pan American Air Pollution Surveillance Network.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by staff of projects AMRO-2102 and -2114.

*Work done:* The activities of this project were gradually being expanded. Nine air sampling stations were in operation in Mexico City by the end of the year.

#### MEXICO-6000, Medical Textbooks and Teaching Materials

*Purpose:* Raising the level of medical education by providing suitable, low-cost textbooks to students; and establishment of a revolving system for the funds collected, in order to ensure the continuity of the program.

*Probable duration:* 1968.

*Assistance provided:* Advisory services by staff of Zone II Office and of project AMRO-6000.

*Work done:* Of the 23 medical schools in the country, 10 had joined the program. Of these, 7 ordered more than 10,000 textbooks, 70% of which were requested by the School of Medicine of the National University of Mexico.

Of the 2,592 copies of *Bioquímica* and 1,918 of *Tratado de patología* received by the schools, 2,029 and 1,438, respectively, were sold. A start was made on the distribution of *Fisiología humana* and *Manual de farmacología*.

#### MEXICO-6200, Medical Education

*Purpose:* Strengthening of medical education, with emphasis on preventive and social medicine, the basic sciences, and medical pedagogy.

*Probable duration:* 1958.

*Assistance provided:* 1 short-term consultant, and advisory services by project AMRO-3407 staff; 1 short-term fellowship.

*Work done:* A visit was made to the Institute of Health Sciences of the University of Nuevo León (Monterrey), which was then being organized, to perform a preliminary diagnosis of its current situation. Advisory services were also rendered to the School of Medicine of the University.

### WHO/RB

#### MEXICO-6300, Nursing Education

*Purpose:* Increase in the number and improvement of the quality of professional, technical, and auxiliary nursing personnel, over a 5-year period.

*Probable duration:* 1958-1973.

*Assistance provided:* 2 nurse educators and 2 short-term consultants; supplies.

*Work done:* With a view to promoting and improving the training of professional personnel, a working group, composed of senior officials of the 4 schools that have initiated nursing programs at the university level, was established to develop uniform criteria for those programs. The School of Nursing of the University of Nuevo León (Monterrey) had a new 4-year program at this level, with 73 students enrolled in the 1st and 2nd year courses. In the intensification and improvement of the basic nursing programs at the university level, 60% of the scheduled work was completed.

The training of nursing technicians was stepped up; 11 one-year courses, with a combined enrollment of 260 students, were in progress. In regard to raising the number and quality of courses for nursing technicians, 90% of the target was reached.

Two hundred auxiliaries from the public health services received training in 3-month courses (100% of the goal).

Assistance was provided in the training of 70 nurses who attended courses in nursing education and service administration at the National Polytechnic Institute and the National University of Mexico.

### PAHO/RB

#### MEXICO-6400, Sanitary Engineering Education

*Purpose:* Development of sanitary engineering education, and of continuing education at the professional level and research at various universities in the country.

*Probable duration:* 1961-1971.

*Assistance provided:* 1 sanitary engineer and 5 short-term consultants; 1 grant; supplies; and 2 long-term fellowships.

*Work done:* Five intensive courses were offered: 2 at the University of Nuevo León (1 on the operation and maintenance of water wells, for 26 professionals, and 1 on industrial hygiene and air pollution, for 40 participants); 1 at the

University of Puebla, on financing of water supply systems, for 30 participants; 1 at the National University of Mexico, on water-supply financing and rates, for 36 participants; and 1 at the University of Chihuahua, on ground water utilization, for 20 participants.

**PAHO/RB, WHO/RB**

**MEXICO-6500, Veterinary Medical Education**

*Purpose:* Development of the teaching of preventive medicine and public health in the schools of veterinary medicine of the country.

*Probable duration:* 1969.

*Assistance provided:* Advisory services by staff of Headquarters, Zone II Office, and project AMRO-0700.

*Work done:* Assistance was given in strengthening the course on veterinary public health and preventive medicine at the National School of Veterinary Medicine in Mexico City. Under the School's sponsorship and with the collaboration of the Pan American Zoonoses Center, a laboratory course on brucellosis was held in July; it was attended by 26 professional workers from the Ministry of Agriculture and professors of the School.

An evaluation was made of the 8 veterinary medical schools in the country.

Arrangements were made for holding a seminar on veterinary public health in Mexico in 1970.

**NETHERLANDS ANTILLES-2300, *Aedes aegypti* Eradication**

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1969.

*Assistance provided:* 1 short-term consultant and advisory services by staff of project AMRO-2301 to the Federal Government in Curaçao.

*Work done:* The Government of the Netherlands provided funds for the initiation of the campaign in Curaçao. The short-term consultant and the coordinator of the eradication campaign prepared the plan of operations and worked out the technical details of the campaign.

Work on the preparatory phase of the campaign was begun in the last quarter of the year.

**PAHO/RB**

**NETHERLANDS ANTILLES-3101, Fellowships**

Four short-term fellowships (Aruba 2 and Curaçao 2) and 1 long-term fellowship (Curaçao) were awarded.

**WHO/RB**

**NICARAGUA-0200, Malaria Eradication**

*Purpose:* Eradication of malaria.

*Probable duration:* 1957-

*Assistance provided:* 2 medical officers, 1 entomologist, and 2 sanitary inspectors; antimalaria drugs and other supplies, entomological equipment, and 1 station wagon.

*Work done:* After an evaluation by an international team in March, the problem area where the vector is resistant to DDT was redefined to include all or part of 45 of the country's 123 municipalities. Of these, 27 were placed under attack by means of mass drug treatment, and in the remaining 18 the attack measures consisted of intensified case-detection and radical treatment of cases discovered. Eight urban centers in the problem area were protected by larviciding operations.

A total of 16,043 cases were discovered through examination of blood smears in the period January-December, as compared with 8,250 in 1968. In order to overcome the problem of DDT resistance, the Government decided to purchase 22,500 kgs of the new insecticide OMS-33 (Baygon).

**PAHO/SMF, WHO/RB**

**UNICEF**

**NICARAGUA-0400, Tuberculosis Control**

*Purpose:* Suitable organization of the tuberculosis control services in the country; and gradual transfer of the operation of the tuberculosis program to the general health services.

*Probable duration:* 1963-1972.

*Assistance provided:* Advisory services by Zone III Office and project AMRO-0403 staff.

*Work done:* The tuberculosis control activities of the Ministry of Public Health were consolidated, and procedures were instituted for the bacteriological investigation of the disease through the laboratory services of the health centers.

A seminar was held to develop standard criteria for the extension of BCG vaccination and its direct use in certain areas and population groups, and for intensification of case-detection and treatment activities. It was recommended that vaccination of newborn infants be made compulsory.

A total of 1,227 cases were discovered in the country. The number of cases registered rose to 3,861, of whom 2,840 were kept under surveillance. A total of 96,597 persons were vaccinated with BCG, and 49,430 PPD tests were performed.

**NICARAGUA-2200, Water Supplies**

*Purpose:* Establishment of a central agency responsible for water and sewerage services; and planning of a national water supply program.

*Probable duration:* 1962-1970.

*Assistance provided:* 1 short-term consultant, and advisory services by staff of projects Nicaragua-3100 and AMRO-2203; supplies; and contractual services.

*Work done:* With the loan obtained from the Inter-American Development Bank, 4 rural water supply systems were completed and placed in service, another 11 were in an advanced stage of construction, and bidding was under way for the construction of 22 more, which would achieve the target for the year, by benefiting a total of 42,234 inhabitants. With financing made available by the U.S. Agency for International Development, the feasibility studies were completed for water supply and sewerage systems for 10 cities in the interior of the country with a total population of 170,000.

## VIII. PROJECT ACTIVITIES

In the capital city, 1,733 new household water connections to serve some 10,400 inhabitants were installed.

The groundwork was laid for implementation of the recommendations made in 1968 on technical and administrative reorganization of the National Department of Water Supply and Sewerage Services.

### PAHO/CWSF

#### NICARAGUA-3100, Health Services

*Purpose:* Development of the institutional infrastructure of the health sector to meet the needs for the planning, administration, and implementation of health programs, the coordination and integration of services, and training of the required technical personnel.

*Probable duration:* 1963-

*Assistance provided:* 1 medical officer, 1 sanitary engineer, 1 nurse, and 1 short-term consultant; common services; 3 short-term and 5 long-term fellowships.

*Work done:* Continuing efforts were made to increase coordination between the Ministry of Public Health and the Social Welfare Board; a plan was adopted which includes initially 4 health centers and the Managua General Hospital. Studies were carried forward on the establishment of comprehensive health sectors in 3 areas of the capital (with 323,661 inhabitants), to provide integrated services; each sector will operate from a base facility.

Of the 56 health centers called for in the 3-year plan for the extension of services, 13 were placed in operation and 2 were scheduled for construction.

Compulsory social service over a period of 6 months to 1 year was made a prerequisite for receiving a medical degree. This action, taken in mid-year, made it possible to assign 40 medical students to health activities, mainly in rural areas.

Health and population dynamics activities were extended to 39 clinics, which handled 25,835 consultations by 6,497 persons.

In the field of maternal and child health, 24,333 prenatal consultations (48.5% of the target) and 166,551 pediatric consultations (76.9%) were carried out.

As for disease control, 3,118 cases of venereal diseases were detected and treatment of 2,840 was begun. Owing to an outbreak of poliomyelitis totaling 147 cases in 12 of the country's 16 departments, a mass vaccination drive for children below age 3 was carried out. During the first 10 months of the year 36,322 smallpox, 53,668 DPT, 183,993 poliomyelitis, 185,597 TAB, 8,329 rabies, and 96,597 BCG vaccinations were performed.

At the National School of Nursing of the Ministry of Public Health the faculty was increased (14 full-time nurses) and a start was made on a revision of the program of study and field practice.

The following courses were offered: 1 orientation course in public health, for 40 medical students; 1 short course in basic planning, for 45 nurses; and 1 theoretical-practical course (lasting 1 week) on organization and planning of nursing activities in maternal and child health and immunization programs, attended by 32 nurses.

WHO/RB, WHO/UNDP

UNICEF

#### NICARAGUA-3101, Fellowships

Three short-term and 2 long-term fellowships were awarded.

PAHO/RB

#### NICARAGUA-3300, Laboratory Services

*Purpose:* Development of the country's health laboratories, by raising the technical and administrative standards of the entire system; and training of the needed personnel.

*Probable duration:* 1967-1971.

*Assistance provided:* Advisory services by project AMRO-3303 staff; supplies.

*Work done:* A set of preliminary draft regulations for the organization of a Laboratory Division was completed. A plan for a central chemistry laboratory was prepared, and funds were approved for its implementation.

In the Ministry of Public Health, 15 posts of medical technologists were created pursuant to the Law on Compulsory Social Service; two were assigned to the Central Laboratory, 2 to the regional laboratories at León and Estelí, and the rest to local laboratories throughout the country.

The School of Medical Technology updated its curriculum, prepared a manual of standard techniques, and was organizing a regular course for the yearly training of technical assistants.

Twenty local laboratories were strengthened through the provision of equipment supplied by UNICEF.

PAHO/RB

UNICEF

#### NICARAGUA-4200, Nutrition

*Purpose:* Development and gradual extension of applied nutrition programs in the country.

*Probable duration:* 1962-1971.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-4203 staff.

*Work done:* Twelve nutrition education and rehabilitation services (120% of the target) were organized, and 162 school gardens were established in the Departments of Managua, Boaco, Chontales, León, and Chinandega and on the Atlantic coast.

The programs of supplementary feeding benefited 127,976 schoolchildren and 21,000 preschool-age children and pregnant women. A local program was started (in Salvadorita) for the purpose of assessing the progress of undernourished persons to whom supplementary feeding was provided.

Nine courses (totaling 82 days and 280 hours of classroom instruction) on various aspects of nutrition education were offered to 273 persons from different institutions, and 2 one-day seminars were held for 150 persons. Nutrition instruction was continued in 220 rural schools and was included in the official curricula of all elementary schools.

UNICEF

**NICARAGUA-4800, Medical Care Services**

*Purpose:* Coordination or integration of the medical care resources of the National Social Welfare Board, the National Social Security Institute, and the Ministry of Public Health.

*Probable duration:* 1967-1971.

*Assistance provided:* Advisory services by the administrative methods consultant of project Dominican Republic-3100 and by staff of project AMRO-4803.

*Work done:* The Managua General Hospital prepared regulations for the medical staff and standards and procedures for its departments of supply, pharmacy, nutrition and dietetics, statistics, and medical records. A plan for coordination between the health centers of the Ministry of Public Health and the General Hospital, operated by the National Social Welfare Board, was put into practice. The health centers in the city of Managua were renovated and expanded, with the cooperation of the Welfare Board.

A start was made on the construction of two new health centers, with funds from the U.S. Agency for International Development, for which the plans were prepared. A project was drawn up for the construction of an outpatient clinic as an annex to the Managua General Hospital.

Improved coordination was achieved between the School of Medicine of the National University and the National Social Welfare Board in programs for the training of interns and residents at the Managua General Hospital.

**NICARAGUA-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable, low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* Fifty copies of the *Tratado de patología* and 55 of *Bioquímica* were sent to the National University, of which 19 and 51, respectively, were sold.

**NICARAGUA-6200, Medical Education**

*Purpose:* Strengthening of medical education, with emphasis on the training of teachers in basic sciences and in preventive and social medicine.

*Probable duration:* 1965-1970.

*Assistance provided:* 1 short-term consultant and 1 short-term fellowship.

*Work done:* Further assistance was given to the School of Medical Sciences of the National University of Nicaragua in the strengthening of its teaching programs and administrative structure, through the training of faculty members.

A study was made on the organization of the teaching of pathology in Nicaragua.

**WHO/RB****NICARAGUA-6400, Sanitary Engineering Education**

*Purpose:* Strengthening of sanitary engineering education; and organization and holding of intensive short courses in this field at the School of Physical Sciences and Mathematics of the National University.

*Probable duration:* 1965-1970.

*Assistance provided:* Advisory services by project Nicaragua-3100 staff; grants.

*Work done:* A short, intensive course on inservice training of well-drillers was conducted at the National Technical Vocational Institute, with the cooperation of the Ministry of Public Health, for 14 participants.

**PAHO/RB****NICARAGUA-6600, Dental Education**

*Purpose:* Analysis of the programs of professional education in dentistry, with emphasis on preventive and social dentistry, with a view to raising the quality and number of graduates and improving the postgraduate studies.

*Probable duration:* 1966-1971.

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* A full time professorship in preventive and social dentistry was established, and a professional who had received training in public health dentistry in São Paulo, Brazil, on a PAHO fellowship was appointed to fill the post.

**PANAMA-0200, Malaria Eradication**

*Purpose:* Eradication of malaria.

*Probable duration:* 1956-

*Assistance provided:* 1 medical officer, 1 sanitary engineer, 2 sanitary inspectors (1 until October); antimalaria drugs.

*Work done:* The 3-year plan was launched in April. During the first half of the year, 8,612 localities (92.1% of the target) and 183,546 houses (88.1%) were sprayed. Spraying operations for the second half-year, which was the 1st spraying cycle of the 3-year plan, were started on 14 July and completed on 20 December; 196,003 houses (91.0%) were sprayed in 9,109 localities (97.7%). On 29 September a program of mass treatment with chloroquine-primaquine in 14-day cycles was started in the regions of Barú and Los Lagos, containing 28,089 inhabitants. By 31 December 6 cycles of collective medication had been concluded, with an average coverage of 90.0% of persons treated. The slide positivity rate was reduced gradually from 14.0% at the beginning of the program to 4.6% in the 6th cycle.

From January to December 94,596 blood smears were examined throughout the country, with 5,938 positive findings; the slide positivity rate was 7.0%, and the annual parasite incidence 4.4%.

Early in 1969, before the 3-year plan was begun, there was an outbreak of malaria (predominantly *P. falciparum*) in 5 localities of Las Cumbres and Chilibre, which was brought under control through emergency measures.

The National Malaria Eradication Service was reorga-

## VIII. PROJECT ACTIVITIES

nized, the necessary staff was trained and recruited at all levels, and 23 courses were offered for 734 participants. In addition, the zones and field operations were restructured and the supply of material and equipment completed.

**PAHO/SMF, WHO/MESA**

**UNICEF**

### **PANAMA-2200, Water Supplies**

*Purpose:* Implementation of a national program for the construction of water supply and sewerage systems in the country.

*Probable duration:* 1960-

*Assistance provided:* Advisory services by staff of projects Panama-3100 and AMRO-2203.

*Work done:* A start was made on construction of 22 rural water supply systems to be built during 1969-1970 with financing provided by the National Water Supply and Sewerage Institute (IDAAN), the Inter-American Development Bank (IDB), and the communities to be served. Three water supply systems, to serve 2,400 inhabitants, were completed and another 6, to serve 4,300 inhabitants, were under construction.

Twenty wells were drilled with the cooperation of the Ministry of Health, which also cooperates with the program in community promotion activities.

The agreement for a loan to finance the design and construction of new facilities for the capital city was signed by IDAAN and the U.S. Agency for International Development. In the program for improvement and expansion of the Panama City water supply system, which includes 5 projects, 3 projects were advanced to an average of 90% of completion, 1 was completed, and the other has yet to be started. The new facilities, whose construction is being financed by the IDB, will extend service to areas in and around the city which are of great potential importance to urban and industrial development.

Construction began on 2 projects to expand the sewage disposal facilities for a population estimated at 45,100 inhabitants; these projects belong to a group of 10 for which AID financing has been made available.

Two courses on well-drilling techniques and the design of sanitary facilities and 1 seminar on aspects of sanitation and sanitary engineering were organized.

### **PANAMA-2300, *Aedes aegypti* Eradication**

*Purpose:* Eradication of *A. aegypti*

*Probable duration:* 1969-1971.

*Assistance provided:* 1 short-term consultant; supplies.

*Work done:* *A. aegypti* mosquitoes were found in 4 houses in the shipyard and dock area south of Colón. The Government immediately organized an eradication campaign with help from the Organization, treating the entire city of Colón. Inspection of the areas most subject to reinfestation was also instituted.

**PAHO/RB**

### **PANAMA-3100, Health Services**

*Purpose:* Improvement in the technical and administrative structure of the country's health services; formulation of a National Health Plan; and development of an environmental sanitation program.

*Probable duration:* 1952-

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative), 1 sanitary engineer, and 2 short-term consultants; common services; 4 short-term fellowships.

*Work done:* The new structure and legal basis of the Ministry of Health was established; and a start was made on the preparation of a program budget. The system of statistical information was reorganized. An evaluation was made of the capacity of the local health services to execute the National Plan. The existing Health Code was revised.

Documents were prepared for the establishment of a program of health and modernization of rural life, as was a request for cooperation from the World Food Program, AID, and UNICEF.

The program for the training of health personnel was intensified, with 58 nursing auxiliaries, 20 nurse-midwives, 4 laboratory workers, 25 sanitary inspectors, and 25 well-drillers trained during the year. In addition, short courses and seminars were held for other staff of the Ministry.

The groundwork was laid for a national vaccination program to be carried out during 1970-1973.

Architectural plans for the remodeling of the Santo Tomás General Hospital were prepared.

The water supply program was expanded, and activities were organized for the construction of 14 rudimentary water supply systems to serve a population of about 6,000. In addition, work was started on the drilling of 210 wells and the digging of 66 to supply water to some 13,800 persons.

**PAHO/RB, WHO/UNDP**

**UNICEF**

### **PANAMA-3101, Fellowships**

Eleven short-term and 4 long-term fellowships were awarded.

**WHO/RB**

### **PANAMA-4200, Nutrition**

*Purpose:* Improvement of nutritional levels of the population, particularly among preschoolers, schoolchildren, and pregnant women.

*Probable duration:* 1962-1970.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-4203 staff.

*Work done:* Salt iodization and Incaparina plants were established.

The report on the national nutrition survey was completed, and a national seminar on nutrition was held.

Documents were prepared for the purpose of applying for World Food Program assistance.

**INCAP, UNICEF**

**PANAMA-4700, Food and Drug Control**

*Purpose:* Expansion of food and drug control activities and increased compliance with existing legislation; strengthening of the Special Analysis Laboratories of the University of Panama, which serve as reference laboratories for the countries of Central America; and training of the personnel required to carry out these activities.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by staff of other projects in the country and project AMRO-4710; laboratory equipment and supplies.

*Work done:* Action was taken to reorganize the technical and administrative units of the Pharmaceutical, Food, and Drug Department of the Health Ministry. During the year, 330 visits to pharmaceutical establishments, 794 inspections were carried out, and 21 actions were taken for the destruction of adulterated products.

**WHO/RB****PANAMA-4800, Medical Care Services**

*Purpose:* Expansion of medical care services and integration of health activities, so as to achieve a better utilization of physical resources.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by Headquarters staff, the PAHO/WHO Country Representative, and projects Panama-3100 and AMRO-4803 staff.

*Work done:* Within the Ministry of Health, a Medical Care Department was established at the central level and regulations for its operation were included in the Health Code.

Experimental work was carried forward in the Penonomé health district, whose medical care activities have been integrated with those of other health services.

A start was made on reorganizing the Santo Tomás General Hospital, by improving its emergency facilities, medical records, X-ray, nutrition and dietetics services, and administration. A study was made of the Accounting, Supply, and Personnel Departments with a view to their improvement. Architectural plans were drawn up to improve the physical plant.

**PANAMA-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable, low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* In the reorganization of the School of Medicine of the University of Panama, responsibility for this program was assigned to the University Library. Fifty copies of the *Tratado de patología* and 60 of *Bioquímica* were shipped to the University and were offered for purchase or rental by the students.

**PANAMA-6200, Medical Education**

*Purpose:* Adaptation of the functional structure to permit the formulation and execution of teaching programs, regulate the operation of the departments, and set standards for the programming and evaluation of activities.

*Probable duration:* 1965-

*Assistance provided:* 2 short-term consultants, and advisory services by the PAHO/WHO Country Representative and by project AMRO-3603 staff.

*Work done:* The University was closed during the first half of 1969. Upon its reopening, a comprehensive revision was made of the 1968 study on medical education and the teaching of preventive and social medicine in the School of Medicine. A set of General Regulations for the School was drawn up.

**PAHO/RB****PANAMA-6300, Nursing Education**

*Purpose:* Increase in the number and improvement in the levels of training of nurses in Panama.

*Probable duration:* 1966-1971.

*Assistance provided:* 1 short-term consultant and advisory services by Headquarters staff, and the PAHO/WHO Country Representative; 1 long-term fellowship.

*Work done:* A study was made of the country's nursing needs, and plans were prepared for the courses in clinical nursing. The professional orientation course was revised.

Five nurses received the Bachelor's degree in nursing sciences.

**WHO/RB****PANAMA-6400, Sanitary Engineering Education**

*Purpose:* Preparation and advanced training of professional and subprofessional personnel through improved teaching of sanitary engineering at the University of Panama and through short intensive courses on specific subjects.

*Probable duration:* 1965-1974.

*Assistance provided:* 1 short-term consultant, and advisory services by the PAHO/WHO Country Representative and Zone III Office staff; 1 grant.

*Work done:* A course on stabilization ponds was held at the School of Engineering of the University of Panama, for 15 professionals. The consultant served as instructor.

**PAHO/RB****PARAGUAY-0100, Communicable Diseases**

*Purpose:* Reduction of the risks of illness and death from the more prevalent communicable diseases.

*Probable duration:* 1965-1973.

*Assistance provided:* Advisory services by staff of projects Paraguay-3100 and AMRO-0106.

*Work done:* The communicable disease control program continued to be carried out in Health Regions I and V, which include a population of 740,082 inhabitants (33% of the country's population).

## VIII. PROJECT ACTIVITIES

Direct BCG vaccination, without prior tuberculin testing, was continued. The trial was started in two areas and later extended to the entire work area. No problems were observed among the 90,000 persons vaccinated.

The leprosy control program continued to be carried out through the regular health services; and the tabulation of data on movement of cases and their contacts, and on preventive activities during 1968, was completed. The prevalence rate for the country was 11 per 100,000 inhabitants. A National Leprosy Department was established, under the direction of the Department of Regulatory Services.

A 14-week training course was offered for 7 laboratory workers from health centers in the work area, as well as a 2-month course for 15 statistics auxiliaries. The phthisiologist of the Paraguari Health Center attended the course in tuberculosis epidemiology and control program administration offered in Venezuela.

The targets for vaccination with DPT were surpassed, as were those for tetanus, smallpox, and BCG vaccinations.

### PARAGUAY-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1961-

*Assistance provided:* 1 engineer, 1 medical officer, 2 sanitary inspectors, and 1 short-term consultant; laboratory and entomology equipment; antimalaria drugs and other supplies.

*Work done:* From January to March 165,473 houses were sprayed, completing the 1st semiannual spraying cycle (started in October 1968) and raising the total number of sprayings to 304,100 (96.5% of the target). From April to September 311,000 sprayings were performed in the 2nd semiannual cycle (96.7%), and from October to December (part of the 3rd cycle) 148,675 were performed. The spraying operations provided direct protection to 2,863,445 inhabitants during the year.

A total of 129,509 blood smears were examined, with 10,307 found positive. An equal number of presumptive treatments were administered. The slide positivity rate dropped from 18.2% in 1968 to 8.0% in 1969.

The National Malaria Eradication Service (SENEPA) was allotted a budget of 126,750,000 guaraníes (approximately \$1 million) from national funds and from an AID loan.

### PAHO/RB, PAHO/SMF

### UNICEF

### PARAGUAY-0201, Study of the Socioeconomic Impact of Malaria

*Purpose:* Measurement of the socioeconomic impact of malaria in selected farm families and small rural industries by means of a study of their economic activities and production, with comparisons among units suffering from different levels of malaria morbidity.

*Probable duration:* 1968-1972.

*Assistance provided:* Advisory services by the economist of project AMRO-0200 (with duty station in Paraguay); local costs; equipment and supplies.

*Work done:* Visits to the farm families and rural industries were continued; 90% of the planned number was

reached, and a careful study of a random sample of the information collected showed the data to be of excellent quality. It was estimated that 50% of the programmed data were obtained.

Tentative coding procedures for data from some of the survey forms were worked out, and various indices relating to work performed by the family and its malaria experience were prepared (40% of the projected activities).

### PAHO/SMF

### PARAGUAY-0300, Smallpox Eradication

*Purpose:* Eradication of smallpox within a 4-year period starting in 1969.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by staff of projects Paraguay-3100 and AMRO-0106 and -0306; equipment and supplies; 1 short-term fellowship.

*Work done:* A Virology Laboratory was organized as part of the Central Laboratory of the Ministry of Public Health and Social Welfare.

Training was given in Health Regions II and III to 37 physicians, 12 nurses, 15 midwives, 54 nursing auxiliaries, 10 sanitation inspectors, and 2 health educators.

Field operations had not yet begun.

### WHO/RB

### PARAGUAY-2100, Environmental Sanitation

*Purpose:* Development of programs of environmental sanitation, including water supply and sewerage, industrial hygiene, waste disposal, housing, and food hygiene.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by staff of projects Argentina-2200, Paraguay-3100, and AMRO-2106.

*Work done:* A national environmental sanitation program, aimed particularly at small communities and rural districts in the country, was prepared.

With the collaboration of the National University, a seminar on housing hygiene was held (1-6 December) for 34 participants.

### PARAGUAY-2200, Water Supplies

*Purpose:* Planning and implementation of a national water supply and sewerage program.

*Probable duration:* 1961-

*Assistance provided:* Advisory services by staff of Headquarters and of projects Paraguay-2100 and AMRO-2106.

*Work done:* The Sanitary Works Corporation signed an agreement with the Inter-American Development Bank for an \$8.3 million loan to expand the water supply, sewerage, and storm drain systems of the city of Asunción. The plans for the works have already been prepared.

The water supply projects for the 8 principal cities of Paraguay were revised; this work will also be financed through an IDB loan.

A study was being made of a national environmental sanitation program aimed at raising the proportion of the rural population of Paraguay served by water supply and sewerage facilities over a period of 5 years.

**PARAGUAY-3100, Health Services**

*Purpose:* Planning of health programs, and development of the infrastructure of health services to permit coverage of 70% of the country's population by 1970.

*Probable duration:* 1955-

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative), 1 sanitary engineer, 1 public health nurse (part of the year), 1 statistician, 1 short-term consultant, and advisory services by Zone VI Office staff; common services; supplies; and 2 short-term fellowships.

*Work done:* A Planning Unit was being established in the Institute of Social Welfare. A fellowship was awarded to a national official to attend the health planning course offered in Chile. A study was made of possible areas for cooperation and coordination of activities between the Institute and the Ministry of Public Health and Social Welfare.

The number of cases of paralytic poliomyelitis recorded during the first 9 months of 1969 was three times greater than anticipated. A program of vaccination was carried out among the susceptible groups in the areas most seriously affected.

A national sanitation program was prepared for the population of remote rural areas and small communities; it is designed to serve approximately 1,270,000 persons. Construction was started on the first water supply system for the town of Villeta. A food control program was begun in Asunción.

Emphasis continued to be placed on the strengthening of the health infrastructure. Two health posts were established, for the communities at Santo Domingo and Monday del Eje Este; work was completed on the expansion of the health centers (formerly health posts) at Itacurubí del Rosario and Quiindy, each of which has 8 beds for emergency care; the center at Minga-guazú, with 10 beds and a capacity to serve some 4,000 persons, was inaugurated; and work was started on the construction or expansion of the centers at San Estanislao, Caaguazú, and Juan León Mallorquín.

The 400-bed Central Hospital, with a capacity to service as many as 5,000 external consultations per day, was inaugurated.

The performance of the general health services during the first 9 months of the year is indicated below:

Activity	Targets (1969)	Per cent accomplished (9 months)
Communicable disease control		
Leprosy		
Cases brought under control	3,040	124.6
Case consultations	5,310	113.7
Tuberculosis		
Cases brought under control	3,737	49.9
Consultations	14,948	67.5
BCG	262,990	10.8 *
Poliomyelitis		
Cases brought under control	23	160.0
Consultations	23	173.0
Vaccinations	90,567	23.0 *

Activity	Targets (1969)	Per cent accomplished (9 months)
Diphtheria		
Cases brought under control	50	22.0
Consultations	75	14.6
Pertussis		
Cases brought under control	1,716	77.7
Consultations	3,432	35.6
Vaccinations (DPT)		51.8 *
Measles		
Cases brought under control	1,644	2.5
Consultations	3,288	2.0
Vaccinations	90,567	2.9
Leishmaniasis		
Cases brought under control	1,500	25.8
Consultations	3,000	27.1
Maternal and child health		
Prenatal care for 60% of expectant mothers	33,709	77.6 *
Prenatal consultations (2.4 consultations per expectant mother in health centers and 2.2 in health posts)	85,895	63.9
Environmental sanitation		
Wells drilled	20	50.0
Wells dug	175	64.0
Installations in health centers	15	67.0
Latrines constructed	3,000	67.0
Removal of household wastes	6,400	104.0
Food control (establishments inspected)	600	35.0

\* Figures for one half-year.

In the field of statistics, emphasis was placed on promoting the registration of births and deaths. The number of births recorded was 61.5% of the expected total and the number of deaths, 53.1%, representing an increase of 1.9% and 5.7%, respectively, over the previous year. The Organization provided the Civil Registry Office with supplies of paper which is being used for birth and death registrations in the country. The estimated rates for 1968 were as follows: births, 42.2 per 1,000; general mortality, 10.6 per 1,000; and infant mortality, 101.7 per 1,000 live-births.

Training activities were given special attention: 56 nurses and midwives participated in seminars, and 34 nursing and 12 dental auxiliaries completed their training courses. The head nurse of the Nursing Section was granted an Organization fellowship to attend a course in administration of nursing services.

The following additional courses were offered: 1 course for 40 nursing auxiliaries (9 months); 1 for 7 health education assistants (8 months); 1 for 14 dental assistants (2 months); 1 for 7 laboratory technicians (4 months); 1 for 40 supervisors of the Food and Nutrition Education Program (PAEN) (2 weeks); 1 for 22 community leaders (2 weeks); 1 for 40 community promoters (2 weeks); 1 for 50 elementary schoolteachers (2 weeks); and 1 for 60 principals of schools in the PAEN area (2 weeks). A 2-week seminar on maternal and child care was attended by 32 workers.

PAHO/RB, WHO/UNDP

UNICEF



**PARAGUAY-3101, Fellowships**

Eight short-term and 8 long-term fellowships were awarded.

**WHO/RB**

**PARAGUAY-4200, Nutrition**

*Purpose:* Improvement of the nutritional level of the population, with emphasis on vulnerable groups, with a view to controlling or eradicating serious and moderate cases of clinical malnutrition.

*Probable duration:* 1970-1972.

*Assistance provided:* Advisory services by staff of Headquarters, Zone VI Office, and project Paraguay-3100.

*Work done:* Discussions were carried out by the National Nutrition Council to increase the production of milk and its adequate distribution to the various population strata. A study was made on the possibility of enriching the wheat flour produced in the country by adding nutrients in which the diet is deficient.

An 80-hour course was conducted for 40 supervisory personnel from the areas in which the Food and Nutrition Education Program (PAEN) is being carried out. The participants were supervisors in the following fields: 10 in home education, 9 in agricultural extension, 2 in health services, 17 in primary education, and 2 in teacher-training. In the city of Coronel Oviedo 1 course for 22 community leaders from Caaguazú, Alto Paraná, and San Pedro was offered, and in Asunción 2 short courses were given, 1 for 40 community promoters from the PAEN area and 1 for 50 elementary schoolteachers. A short-course was also conducted for 25 voluntary leaders from the Cordillera region. Preliminary arrangements were made to offer a 10-month course for 10 nutrition auxiliaries, with financial assistance from UNICEF.

The World Food Program (WFP) collaborated with the Government in a reforestation project in the Puerto Presidente Stroessner area, providing food assistance to 12 schools in Acaray. Distribution of food among the settlers in the Eje Norte started in May. The plan for the development of human resources in the Cordillera region, which will benefit 2,488 nursing mothers, 2,690 pregnant women, 9,216 pre-school-age children, and 15,000 schoolchildren, was completed and submitted to the WFP. Work was begun on the preparation of a national environmental sanitation program in which WFP resources will be used.

**UNICEF**

**PARAGUAY-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable, low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* The Rentaria Library of the National University received and sold 30 copies of *Fisiología humana*. Negotiations were in progress for provision of the other 3 available textbooks.

**PARAGUAY-6200, Medical Education**

*Purpose:* Strengthening of medical education, with emphasis on preventive and social medicine, the basic sciences, and medical pedagogy.

*Probable duration:* 1964-1970.

*Assistance provided:* 1 short-term consultant, and advisory services by staff of Headquarters, Zone VI Office, and project Paraguay-3100; 1 short-term fellowship.

*Work done:* The letter-agreement was approved. The Department of Pediatrics of the School of Medicine conducted a series of lectures on clinical and social pediatrics and infectious diseases of childhood, for 40 Paraguay pediatricians.

A ward chief and an instructor in the Department of Pediatrics attended the course on clinical and social pediatrics offered in Chile.

The Professor of Preventive Medicine, the Administrative Director of the Clinical Hospital, and the Associate Professor of Clinical Surgery attended the seminar on organization of medical care and hospital services held in Buenos Aires, Argentina. A program of short training courses or seminars on medical statistics for students, faculty, and practicing physicians was prepared.

**PAHO/RB**

**PARAGUAY-6400, Sanitary Engineering Education**

*Purpose:* Improvement in the teaching of sanitary education at the National University in Asunción.

*Probable duration:* 1967-

*Assistance provided:* 1 short-term consultant, and advisory services by staff of Headquarters and of projects Paraguay-2100 and AMRO-2106; 1 grant; and supplies.

*Work done:* Two short courses were held at the School of Physical Sciences and Mathematics of the National University: 1 on household plumbing, attended by 19 participants (15-27 September); and 1 on housing hygiene (1-6 December), for 34 professionals.

**WHO/RB**

**PARAGUAY-6600, Dental Education**

*Purpose:* Improvement in dental education, with emphasis on clinical work, public health dentistry, and a social view of the profession.

*Probable duration:* 1966-1970.

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters and project Paraguay-3100 staff; teaching materials.

*Work done:* Classrooms, a library, X-ray installations, and modern baths for the faculty and students were added to the School of Dentistry building.

The curriculum committee continued working on a revi-

sion of the program of studies in order to adapt it to the recommendations and suggestions of the Latin American Association of Schools of Dentistry.

A 2-week course on prosthetic devices was held in November, for 22 dentists. In addition, a 2-month course was conducted for 14 dental auxiliaries, consisting of 300 hours of instruction (40 of theory, 140 of theory and practice, and 120 of practice and demonstration).

The first postgraduate course in orthodontics held at the School, a 1-year course attended by 16 dentists, was completed in September.

The 28 dentists graduated raised the total number for the last 10 years to 276.

#### PAHO/RB

#### PERU-0200, Malaria Eradication

*Purpose:* Eradication of malaria.

*Probable duration:* 1957-

*Assistance provided:* 1 medical officer, 1 sanitary engineer, 3 sanitation inspectors, and advisory services by Headquarters staff; antimalaria drugs.

*Work done:* During the first half of the year 46,710 sprayings (2.3% more than scheduled) were performed in quarterly cycles and 47,238 (96.8% of the target) in the semi-annual cycle. The targets for the second half-year were 48,821 house sprayings for the semiannual cycle and 22,832 for the October-December quarterly cycle.

From January to October 190,816 blood smears were taken from the 3,456,417 inhabitants of the areas in the attack and consolidation phases, with 2,618 (1.4%) found positive; 90.5% of the positives were in attack-phase areas and 9.5% in consolidation areas. The general health services, which conduct surveillance of 1,133,345 inhabitants of the maintenance-phase area, examined 25,645 blood smears, with 9 cases of malaria discovered.

In the consolidation area, 2 new active foci (166 cases) were discovered in provinces bordering on Ecuador.

Attack operations in the jungle region along the Ene and Satipo Rivers were supplemented by triple drug combination treatment for 4,000 inhabitants in 147 localities. In the first month of treatment 102 cases were found, and in the third and last month of treatment, 9.

Special training courses were conducted for 20 field auxiliaries, 28 sector chiefs, 52 evaluators, and 1 microscopist. The entire field staff received inservice training.

#### PAHO/RB

#### UNICEF

#### PERU-0300, Smallpox Eradication

*Purpose:* Protection of the country against smallpox, by immunizing the population against the disease through maximum coverage of all age groups and establishing a nationwide epidemiological surveillance service for the early detection and control of all suspect cases.

*Probable duration:* 1967-1972.

*Assistance provided:* 1 sanitary inspector, and advisory services by staff of Headquarters and of projects AMRO-0104 and -0304; supplies; 1 short-term fellowship.

*Work done:* A total of 1,028,184 smallpox vaccinations

were administered, the percentage of takes being 96.8% for the primary vaccinations and 73.2% for revaccinations.

A total of 6,527,200 doses of freeze-dried vaccine were produced, and 3,148,700 doses were delivered to the Ministry of Health. The reserve was 3,378,500 doses plus 3,475,100 g of stock with which 3,000,000 doses can be prepared.

The health districts administered 831,983 smallpox vaccinations outside the program.

#### WHO/RB

#### PERU-0700, Veterinary Public Health

*Purpose:* Planning and organization of programs for the control and prevention of the zoonoses, in particular brucellosis, rabies, hydatidosis, and bovine tuberculosis.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by Headquarters, Zone IV Office, and project AMRO-0700 staff; field and laboratory equipment, and supplies.

*Work done:* A program for the control of caprine brucellosis in the Departments of Lima, Callao, and Ica was established. The program operations were begun in August with the vaccination of young and adult goats in the area of Lima, using concentrated and diluted *Br. melitensis* REV 1 vaccine.

#### PAHO/RB

#### PERU-0900, Plague Control

*Purpose:* Control of active plague foci, in order to prevent human cases and deaths due to the disease; improvement in housing, environmental sanitation, and health education in the communities affected; and conduct of epidemiological field studies in order to supplement current knowledge on the ecology of the disease.

*Probable duration:* 1966-1971.

*Assistance provided:* 1 sanitary inspector, and advisory services by project AMRO-0104 staff; equipment and supplies for field operations.

*Work done:* During the year 8 human cases of plague were reported. The routine control activities were centered on the active plague foci and included disinsectization and deratting. A total of 10,888 houses were treated through August. In the rest of the endemic area, surveillance activities were intensified by capture of rodents and vectors to determine the indices of epidemiological importance.

New serologic techniques were tested at the Piura Central Laboratory on rodents captured alive; 32,353 specimens were examined.

Assistance was given with a training course on rodents, conducted for the program staff.

#### PAHO/RB

#### PERU-2100, Environmental Sanitation

*Purpose:* Creation of better environmental conditions for the population through adequate planning and coordination of the many agencies involved and through a comprehensive approach to the problem; and provision of the basic health services essential to physical, mental, and social well-being.

*Probable duration:* 1968-

*Assistance provided:* 1 sanitary engineer.

*Work done:* As a result of the enactment of the new Health Code, all specific regulations on environmental sanitation were revised and additional regulations were in course of approval. A general water-use law promulgated during the year substantially altered the old system of priorities and provided for participation by the health sector in the use of this multi-purpose resource.

An evaluation of the National Rural Water Supply Plan was prepared. A fluoridation program for the Lima water supply system was being considered. The Lima air sampling station, which is part of a Pan American Air Pollution Surveillance Network, continued to operate regularly.

A course on water systems analysis, for engineers, was held during the year (see project Peru-6400).

## PAHO/RB

### PERU-2200, Water Supplies

*Purpose:* Increase in the percentage of population served by public water supply and sewerage facilities throughout Peru, through the establishment of properly operated systems.

*Probable duration:* 1960-

*Assistance provided:* Advisory services by staff of Zone IV Office and of project Peru-2100.

*Work done:* The water supply program was carried forward in urban and rural areas. In the urban areas, the works comprising the first stage of the program were carried to 65% of completion and construction was started on 3 major facilities included in the second stage. Construction jobs were under way in 166 rural localities. Tenders were requested for household meters) a total of about 100,000 units).

As a result of the administrative reform, the functions of the Sanitary Works Department (DOS) were transferred to the Ministry of Housing, the functions of the Special Public Health Services (SESP) were eliminated, the Board of Directors of the Lima Sanitation Corporation (ESAL) was dissolved, and a complete reorganization of ESAL was begun.

### PERU-3100, Health Services

*Purpose:* Improvement in the health services at the national, regional, and local levels; and organization of health areas, beginning with the Junín Health Area.

*Probable duration:* 1956-

*Assistance provided:* 1 sanitary engineer, 2 nurses, 2 short-term consultants, and advisory services by Zone IV Office staff; common services; supplies; 2 short-term and 1 long-term fellowships.

*Work done:* The new Organic Law for the Health Sector was enacted in March. Basic provisions were drawn for reorganizing the Ministry of Health and integrating the health services of the public sector. A program was prepared for the establishment and operation of the technical and administrative infrastructure, which permit the orderly analysis and reorganization of the Ministry. The new structure of the health operations units (peripheral level) was put into effect in September, with the former 16 health areas and 5 health units consolidated into 5 major integrated develop-

ment regions into which the country was divided. These regions were divided into 12 health zones, which were in turn subdivided into 60 hospital areas, these being the units directly responsible for applying the integrated health program.

An action program was formulated as the first stage of the Five-year Health Plan, to be carried out in the Departments of Piura and Tumbes (912,000 inhabitants and 37,700 km<sup>2</sup>).

Assistance was given in the fields of sanitation, nutrition, and housing to the project for the development of the Huallaga, Chiriyacu, and Nieva River Basins.

A surgical center was organized in the San Juan de Dios Teaching Hospital, and an intensive 30-hour course on surgical techniques was conducted for 38 nurses. At the Workers' Social Security Hospital, the job descriptions of the nursing staff were reviewed, work was begun on the organization of a sterilization center, and inservice training programs for nurses were planned.

A course on health planning was offered at the School of Public Health (21 July-17 October) for 18 nurses holding senior administrative positions.

## PAHO/RB, WHO/UNDP

UNICEF

### PERU-3101, Fellowships

Nine short-term and 3 long-term fellowships were awarded.

## WHO/RB

### PERU-3102, Andean Region Development Program

*Purpose:* Implementation of integrated minimum health programs; provision of water supply and excreta disposal services; and establishment of a network of medical and health posts, with an adequate transportation and communications system, in indigenous communities in 7 zones of the Peruvian Andes.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by Zone IV Office staff.

*Work done:* The Organization of American States and the Peruvian and Bolivian Governments organized the First Meeting of National Community Development Directors, held in the city of Puno (Peru). During the meeting, the community development plans and programs under way in the border area of the two countries, including the health programs, were described. A recommendation was made for closer coordination of health activities, particularly those relating to communicable disease control, medical care, and sanitation.

A mission comprising representatives of UN specialized agencies discussed a plan for the modernization of rural life with the Governments of Bolivia, Ecuador, and Peru. It was suggested that 3 short-term consultants (1 for each country) be engaged to make a study of current health programs, to serve as a basis for the formulation of an integrated plan. The health program would be advised on a continuing basis by a public health officer serving as administrator and planner.

**PERU-3105, Health Services in Loreto and San Martín**

*Purpose:* Improvement in the services of the Health Areas of the Departments of Loreto and San Martín.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by Zone IV Office staff.

*Work done:* Activities in the Loreto Health Area were carried forward on a regular basis.

Of the 82 health posts that are to be established in the San Martín Health Area, 60 received equipment and materials sent by UNICEF and in each of them a nursing auxiliary was on duty. Equipment for 6 medical posts and 3 health centers was also received.

A 15-day course was offered in May for 22 empirical midwives. A course on tuberculosis control, including vaccination techniques, taking of sputum samples, handling of slides, and health education, was conducted for 45 technical auxiliaries.

The health program in Iquitos was evaluated, and the 1970 plan of activities reviewed, from 15 to 17 December.

**UNICEF****PERU-3301, Vaccine Production**

*Purpose:* Strengthening of the National Institutes of Health for the purpose of increasing the production of vaccines to meet the country's needs.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by the Zone IV Office staff.

*Work done:* A request for assistance in order to strengthen the program for production of DPT vaccine was submitted to UNICEF. A separate laboratory for the preparation of tetanus toxoid was being constructed.

**PERU-3500, Health Statistics**

*Purpose:* Strengthening of the national health statistics service.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by project AMRO-3504 staff; equipment and supplies.

*Work done:* A detailed analysis of the uses being made of data processing within the Ministry of Health was completed, and recommendations were presented on ways to increase the data processing capacity. To strengthen the program of data analysis, an electronic calculator was furnished.

**WHO/RB****PERU-4200, Nutrition**

*Purpose:* Development of a food and nutrition program within the health services.

*Probable duration:* 1965-

*Assistance provided:* 1 nutritionist, and advisory services by project AMRO-4204 staff; 1 short-term fellowship.

*Work done:* The agreement on the multisectoral applied nutrition program was signed by the Government, FAO,

PAHO/WHO, and UNICEF on 14 August. A series of orientation courses and seminars on this program were held for administrators (58 participants) and nursing auxiliaries (42 participants), as well as for community leaders. The National Committee for coordination of the program was appointed.

The World Food Program approved an application for assistance.

The Government made obligatory the production of iodized salt throughout the country, for human as well as for animal use.

The second 9-month course for public health nutritionists began in the School of Public Health.

**WHO/RB****PERU-4202, Development of Nutrition Rehabilitation Centers in the Peruvian Highlands**

*Purpose:* Establishment of nutrition rehabilitation centers as a regular service of the hospital areas.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by staff of projects Peru-4200 and AMRO-4204; local costs; and supplies.

*Work done:* A nutrition rehabilitation center was organized by the Ministry of Health in the Hospital-Maternal and Child Health Center, which carried out an intensive teaching program. The Puno Health Area rendered assistance to a center funded by a private organization; and the Rotary Club in Cuzco organized another center, which is operating under the supervision of the Health Area.

**PAHO/OF****Research Corporation****PERU-4500, Radiation Protection**

*Purpose:* Development of a national program for protection against radiation; and control of radiation sources.

*Probable duration:* 1968-1971.

*Assistance provided:* Advisory services by project AMRO-4507 staff.

*Work done:* The measurement of radiation levels in air samples was continued on a regular basis. The Institute of Occupational Health established a Department of Air Pollution and Radiation Control, headed by a chemical engineer. Basic legislation governing its operation was being drafted.

Part of the equipment and materials supplied for this project by the Organization was delivered to the Institute.

**PERU-4600, Industrial Hygiene**

Two short-term fellowships were awarded.

**WHO/RB****PERU-4601, Air Pollution**

*Purpose:* Determination of the levels of air pollution and adoption of control measures, through the establishment of air sampling stations in the principal cities of Peru.

*Probable duration:* 1967-1972.

## VIII. PROJECT ACTIVITIES

*Assistance provided:* Advisory services by staff of projects Peru-2100, -3100, and AMRO-2114.

*Work done:* The Lima station, which is part of the Pan American Air Pollution Surveillance Network, continued to operate on a regular basis. Consideration was being given to increasing the number of sampling stations in Lima and other Peruvian cities. A course on air pollution was given with the cooperation of the National University of Engineering (see project Peru-6400.)

### PERU-4700, Food and Drug Control

*Purpose:* Strengthening of the drug testing laboratory of the National Institutes of Health.

*Probable duration:* 1969-

*Assistance provided:* 1 short-term consultant.

*Work done:* A study was made with a view to improving the drug testing laboratory of the Institute, especially in regard to organization, equipment, and library and other facilities available to the technical staff.

### PAHO/RB

### PERU-4900, Health and Population Dynamics

*Purpose:* Improvement in maternal and child services, particularly as regards the prevention of induced abortion, detection of cancer in women, child nutrition, infertility, and education and assistance in connection with responsible parenthood.

*Probable duration:* 1968-1970.

*Assistance provided:* Advisory services by Zone IV Office staff.

*Work done:* The Ministry of Health, with assistance from the U. S. Agency for International Development, reviewed the entire plan for the expansion and improvement of maternal and child services. A new plan of operations was prepared defining the new objectives and establishing priorities for 1970.

### PERU-6000, Medical Textbooks and Teaching Materials

*Purpose:* Raising the level of medical education by providing suitable, low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* The program was carried forward in 5 of the 7 schools of medicine in the country; 360 copies of *Tratado de patología* and 220 of *Bioquímica* were received, and 200 and 139, respectively, were sold.

### PERU-6100, School of Public Health

*Purpose:* Strengthening of the School of Public Health, in order to train the professional and auxiliary personnel who

will serve in health programs in such a way as to meet the country's needs.

*Probable duration:* 1963-

*Assistance provided:* Advisory services by Zone IV Office staff; 1 grant.

*Work done:* The authorities were considering reorganizing the School in line with the over-all reorganization of the country's public agencies.

### PAHO/RB

### UNICEF

### PERU-6200, Medical Education

*Purpose:* Improvement in medical education, particularly as regards preventive and social medicine, basic sciences, and medical pedagogy.

*Probable duration:* 1964-1970.

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters and project AMRO-6204 staff; 1 short- and 1 long-term fellowship.

*Work done:* The survey on the teaching of preventive medicine and on medical schools was brought to completion.

A course in immunopathology and a seminar on the teaching of pathology were held.

Arrangements were made for a seminar on medical education, to be offered in 1970 in the School of Medicine of the University of Arequipa.

The universities were completely reorganized under a new law.

### PAHO/RB

### PERU-6300, Nursing Education

*Purpose:* Carrying out of an academic nursing program at the basic and advanced levels at San Marcos University (Lima); and strengthening of the academic programs at the Universities of Chiclayo, Trujillo, and Arequipa (2 schools).

*Probable duration:* 1959-

*Assistance provided:* 1 nurse (part of the year), 3 short-term consultants (1 made 2 missions), and advisory services by the nurse assigned to project AMRO-3204; 3 long-term fellowships.

*Work done:* The academic nursing program at San Marcos University, established in April 1967, had an enrollment of 131 students (the first class will be graduated in December 1970). With respect to curriculum planning for professional-level courses, 30% of the work relating to classroom instruction and 10% of that on field practice was completed.

The 5 universities participating in the project devoted much of their time to administrative and academic reorganization of the educational program.

The Peruvian University Law authorized an official career status for nursing: 8 terms for a professional certificate, 2 additional terms for a Bachelor's degree, and 3 more for an advanced degree. Of the nursing professors in the academic program at San Marcos University, 85% have completed their academic training and 28% have advanced training in clinical aspects of nursing.

### WHO/RB

**PERU-6400, Sanitary Engineering Education**

*Purpose:* Strengthening of the teaching of sanitary engineering at the National University of Engineering, by revising the curriculum, improving the laboratories and library, providing short training courses, and establishing research projects.

*Probable duration:* 1964-1971.

*Assistance provided:* 4 short-term consultants, and advisory services by the sanitary engineer assigned to project Peru-3100; 1 grant; supplies.

*Work done:* An intensive course (1 week, 54 hours) on systems analysis applied to hydraulic resources was conducted at the National University of Engineering, with the assistance of 4 professors from the University of Oklahoma (U.S.A.), for 32 engineers (28 Peruvians and 4 from abroad). A course in air pollution was also offered, for 15 engineers.

A part of the University's new building for sanitary engineering education and research was placed in service.

A manual on hydrobiology applied to sanitary engineering was published.

**PAHO/RB****PERU-6500, Veterinary Medical Education**

*Purpose:* Strengthening of the School of Veterinary Medicine of the University of San Marcos, especially with reference to the teaching of public health and preventive medicine.

*Probable duration:* 1964-1972.

*Assistance provided:* 1 short-term consultant, and advisory services by staff of Headquarters, Zone IV Office, and projects AMRO-0700 and -0800; 1 short-term and 3 long-term fellowships.

*Work done:* A postgraduate course on applied epidemiology for the control of zoonoses was held at the School of Veterinary Medicine in Lima during August and September. It was attended by 28 veterinarians from the agricultural and health services, and Armed Forces, and several universities of the country.

**WHO/RB****PERU-6600, Dental Education**

*Purpose:* Inclusion of the teaching of preventive and social dentistry, on an integrated basis, in the curriculum of the Schools of Dentistry of San Marcos University in Lima and San Luis Gonzaga National University in Ica.

*Probable duration:* 1969-1972.

*Assistance provided:* 1 short-term consultant; and 1 short-term fellowship.

*Work done:* The curriculum of San Marcos University was revised, with greater importance given to preventive and social dentistry, and the course in oral surgery and other integrated courses were reorganized.

**PAHO/RB****SURINAM-0200, Malaria Eradication**

*Purpose:* Eradication of malaria.

*Probable duration:* 1957-

*Assistance provided:* 1 medical officer, 3 sanitary inspectors, and advisory services by Headquarters and project AMRO-0201 staff; antimalaria drugs and a limited amount of equipment.

*Work done:* In January the Government appointed a national medical officer to assume the responsibility for the program.

Of Surinam's total population of 365,150, about 130,000 (35.6%) were in the nonmalarious area (Paramaribo), 198,900 (54.5%) in consolidation-phase areas, and 36,250 (9.9%) in attack-phase areas. Medicated salt and/or intradomestic spraying with insecticides continued to be the main attack measures. From January to November 264,906 lbs of medicated salt were distributed among the population on the two main rivers in the interior, where 90% of the malaria cases were detected. Residual house-spraying, on the other hand, continued to be very insufficient in its coverage. Of the 14,550 houses scheduled to be sprayed in the period January-June, only 3,939 (27%) were covered. In the second spraying cycle, 14,550 houses were included in the plan, but only 2,957 (20.3%) were sprayed.

From January to December 38,194 blood smears were examined and 741 were found to be positive (1.9% as compared to 4.4% in 1968 and 7.0% in 1967). That reduction was attributable mainly to the effects of medicated salt, which had been in use since late 1966. In the consolidation areas, 70 cases were found among 14,905 blood smears examined; 19 of the cases were recorded in a focus on the Wyambo/Arawara/Upper Nickerie Rivers, where a small outbreak occurred as a result of an imported case.

**PAHO/SMF****UNICEF****SURINAM-2200, Water Supplies**

*Purpose:* Improvement of rural and urban water supplies and development of sewerage facilities; exploration and definition of water resources; and establishment of an authority responsible for the continuing development and sound management and operation of systems.

*Probable duration:* 1964-1973.

*Assistance provided:* 1 project manager (sanitary engineer), 1 short-term consultant (2 visits), and advisory services by Headquarters and Zone I Office staff.

*Work done:* Following a field review by a preparatory assistance mission assigned by UNDP and assisted by PAHO/WHO staff, a preliminary work program was initiated in September. This advance work was directed toward the high priority water supply problems in the Lower Surinam River Basin.

The work undertaken in this phase included: collection and collation of hydrologic, meteorologic, hydrogeologic, topographic, and demographic data; investigation, exploration, and analysis of groundwater resources in the Lower Surinam River Basin by means of a comprehensive drilling program; a survey of surface water resources in the Basin; and preparation of the plan of operations for the full-scale project.

**WHO/UNDP**

**SURINAM-2300, *Aedes aegypti* Eradication**

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1952-1971.

*Assistance provided:* 1 sanitary inspector, and advisory services by project AMRO-2301 staff; equipment and supplies.

*Work done:* Owing to administrative setbacks, the goal of 2 complete treatment cycles was not achieved in 1969. One complete treatment cycle and one incomplete modified verification cycle were carried out in 38 of the 39 infested localities. A total of 74,254 houses were treated using Baytex 40% W.P. suspension perifocally and Abate 1% sand granules for stored drinking water containers. Of the 48,986 houses verified, 2,850 were positive (an index of 5.8%). During a second, incomplete cycle, 37,876 houses were verified and treated and 1,253 were found positive (an index of 3.3%). The infestation index in 10 localities averaged 0.0% to 5.1% after one treatment.

**PAHO/RB, WHO/UNDP****SURINAM-3100, Health Services**

*Purpose:* Improvement and expansion of the national health structure and strengthening of the national health services, particularly in rural areas.

*Probable duration:* 1965-

*Assistance provided:* 1 medical officer (part of the year), and advisory services by the PAHO/WHO Country Representative and by staff of Zone I Office and project AMRO-0201; common services; 2 short-term fellowships.

*Work done:* In the area where a yellow fever case occurred in April, prompt countermeasures were taken, consisting of vaccination of the population and insecticide spraying.

Plans for a pilot project for schistosomiasis control were drawn up with the assistance of a short-term consultant, whose preliminary report included financial estimates as well as a draft plan of operations. The report was under study by Government authorities.

A Government veterinarian attended the II Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control in Rio de Janeiro, Brazil.

**PAHO/RB****SURINAM-6200, Medical Education**

*Purpose:* Strengthening and improvement of medical education in Paramaribo.

*Possible duration:* 1967-1971.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by staff of Zone I Office and project AMRO-3501.

*Work done:* The official proclamation of the Faculty of Medical Science of the University of Surinam took place on 26 September.

Further improvements were introduced in the medical records unit at the Teaching Hospital. A review was made of the collection and reporting of statistics in the outpatient services.

A proposal for the reorganization of the Hospital's Outpatient Department was under consideration.

**TRINIDAD AND TOBAGO-0100, Epidemiology**

*Purpose:* Development of effective epidemiological intelligence and programs for the control of communicable diseases.

*Probable duration:* 1969-1972.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by Headquarters staff; 2 short-term fellowships.

*Work done:* An updated communicable disease reporting system was put into effect. The programs of the Epidemiology Division—particularly those related to immunizations, rationalization of malaria and *Aedes aegypti* vigilance, and public health laboratory development—progressed satisfactorily, 75% of targeted activities having been carried out.

**WHO/RB****TRINIDAD AND TOBAGO-2100, Environmental Sanitation**

*Purpose:* Strengthening and expansion of environmental health activities in Trinidad and Tobago.

*Probable duration:* 1969-1972.

*Assistance provided:* Advisory services by staff of Zone I Office and projects West Indies-2200 and AMRO-2107; a limited amount of supplies; 2 short-term and 1 long-term fellowships.

*Work done:* Progress in improving the environmental sanitation program of the Ministry of Health was impeded by the lack of a Division head; the Ministry upgraded the post in order to attract qualified candidates.

A survey on environmental health activities was started in April and was near completion. It will be complemented by a manpower survey of governmental agencies administering programs in this field, scheduled to begin in 1970.

**PAHO/RB****Canadian International Development Agency (CIDA), IDB****TRINIDAD AND TOBAGO-2200, Water Supplies**

*Purpose:* Reorganization of the national Water and Sewerage Authority; expansion of the existing water treatment plant; and achievement of economic self-sufficiency by the water and sewerage services.

*Probable duration:* 1963-

*Assistance provided:* 2 short-term consultants, and advisory services by staff of projects West Indies-2200 and AMRO-2101.

*Work done:* The first phase of a water-rates analysis was begun; the studies will be continued in 1970. Accountancy studies were carried out and a chart of accounts was established.

A seminar for public health inspectors was held, jointly by the Ministry of Health and the Water and Sewerage Authority, to promote an increase in the number of connections to the water supply and sewerage systems.

**PAHO/CWSF**

**TRINIDAD AND TOBAGO-3100, Health Services**

*Purpose:* Implementation of the health policies embodied in the First National Health Plan, 1967-1976.

*Probable duration:* 1968-

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative), 1 nurse, 1 administrative methods officer, and 1 short-term consultant; common services; 9 short-term and 7 long-term fellowships.

*Work done:* Substantial progress was made in the activities related to policy definition and program formulation (75% of the target). Major attention was given to the following: regionalization of services; testing of methods for increasing the integration of services; preparation of a detailed maternal and child health program; acceleration of numerous small health-service construction projects; planning of a centralized radiotherapy service; and preparation of a national drug formulary.

In the training activities, utilization of fellowships reached 140% of the targets for the year. Targets for increasing the quality and volume of training at the local and national levels were largely met, particularly in basic and postbasic nursing education.

**PAHO/RB, WHO/RB**

**UNICEF**

**TRINIDAD AND TOBAGO-3200, Nursing Services**

This project was incorporated into project Trinidad and Tobago-3100.

**UNICEF**

**TRINIDAD AND TOBAGO-3500, Health Statistics**

*Purpose:* Establishment of a health statistics service to provide timely and adequate data for the planning, operation, and evaluation of health services.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by the medical records officer of project AMRO-3501.

*Work done:* Owing to staffing difficulties, only 25% of targeted progress toward establishment of a health statistics service was achieved, and it was necessary to postpone a training course for statistical assistants. In selected fields (statistics on family planning and on certain categories of health manpower), close to 100% of targets were met, through active collaboration between the Health Ministry and the Central Statistical Office. Improvements in hospital statistics were achieved following recruitment of a medical records librarian.

**TRINIDAD AND TOBAGO-4800, Medical Care Administration**

*Purpose:* Strengthening of hospital and medical care administration and management.

*Probable duration:* 1965-1972.

*Assistance provided:* 1 hospital administrator and 1 short-term consultant; travel and per diem for seminar participants.

*Work done:* A detailed plan of action was drawn up. Regulations were established for several departments of the Port-of-Spain General Hospital. A preliminary evaluation of the activities of the Point Fortin Pilot Area was conducted, and preparations were made for an evaluation of the services in the Northern Region. A seminar on administration, for physicians, was held in Tobago.

**WHO/UNDP**

**TRINIDAD AND TOBAGO-4900, Health and Population Dynamics**

*Purpose:* Development of a national family planning program as an integral part of health services.

*Probable duration:* 1969-1970.

*Assistance provided:* Advisory services by staff of projects AMRO-4900 and -4901; equipment and supplies.

*Work done:* Family planning services were established in 9 health centers (100% of the target). About 15,000 additional persons registered for family planning services.

Training courses in family planning were offered to nursing personnel. Clinical training was given to medical officers participating in the program. Teaching in family planning was incorporated into the nursing, midwifery, and public health nursing curricula. Thirty-six community development officers and 5 community health educators also received training; all were incorporating community education in family planning into their regular activities. A conference on family-life education was held.

New recording and reporting procedures were implemented for purposes of program evaluation, and 3 pilot research projects were conducted. A manual on maternal and child health clinic procedures was prepared and the health staff was oriented in its use.

**PAHO/OF**

**AID**

**UNITED STATES OF AMERICA-3100, Consultants in Specialized Fields of Public Health**

*Purpose:* Study of special public health problems.

*Probable duration:* 1958-

*Assistance provided:* 1 short-term consultant (nurse educator).

*Work done:* At the request of the Division of Nursing of the U.S. Public Health Service, the consultant made studies on public health nursing curricula best suited to prepare nurses for community health services, and on the type of investigations which could be undertaken in such services.

**WHO/RB**

**UNITED STATES OF AMERICA-3103, Fellowships**

Twenty-three short-term fellowships were awarded.

**WHO/RB**



### **URUGUAY-0300, Smallpox Eradication**

*Purpose:* Eradication of smallpox.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by project AMRO-0306 staff; supplies.

*Work done:* Two imported cases of smallpox were reported. An epidemiological investigation made in each case. Diagnosis was made by clinical means and laboratory study. There were no secondary cases.

A total of 442,531 persons were vaccinated. Between January and the end of September, 2,900,000 doses of glycerinated vaccine were produced.

**WHO/RB**

### **URUGUAY-0701, Rabies Control**

*Purpose:* Planning and implementation of a rabies control program, including the production of rabies vaccine.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by project AMRO-0700 staff; supplies.

*Work done:* No cases of human rabies have been reported since October 1968. The program of vaccination and elimination of dogs achieved 15% of its goal for 1969.

**PAHO/RB**

### **URUGUAY-1000 (-0900), Chagas' Disease**

*Purpose:* Development of a program for controlling the vector of Chagas' disease; and reduction of the level of infestation.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and staff of other projects in the country; 2 vehicles and equipment and supplies that will arrive in Uruguay in 1970.

*Work done:* The program was slowed down by administrative problems which it is hoped to solve, at least in part, with the arrival of the equipment. A review of the program was begun as a preliminary step for preparing a detailed schedule of activities.

**PAHO/RB**

### **URUGUAY-2100, Environmental Sanitation**

*Purpose:* Formulation and implementation of environmental sanitation programs.

*Probable duration:* 1968-1974.

*Assistance provided:* 1 sanitary engineer; supplies.

*Work done:* A program was drawn up with the aim of supplying water to 170,000 persons in rural communities in 19 Departments of Peru; with the completion of this program, the targets of Punta del Este for rural areas would be virtually attained.

A final decision was taken on the award of contracts for the performance of feasibility studies on projects to solve sanitation problems on the beaches in Montevideo.

A plan of action to implement the rural public health program was being prepared.

**PAHO/RB, WHO/UNDP**

### **URUGUAY-2200, Water Supplies**

*Purpose:* Implementation of national water supply and sewerage programs to meet the needs of 75% of the urban and 40% of the rural population for water supply and of 55% of the urban population for sewerage service.

*Probable duration:* 1960-1970.

*Assistance provided:* 1 short-term consultant, and advisory services by staff of Zone VI Office and of projects Uruguay-2100 and -3100; supplies; 14 short-term fellowships.

*Work done:* The Organization continued to provide technical advisory services to the State Sanitation Works (OSE) in connection with the sanitation plan for the interior of the country, carried out with the help of a \$4.4 million loan from the Inter-American Development Bank.

Activities were conducted in the following fields: organic structure, organization and methods, billing and collecting, water meters, cost accounting, procurement and supplies, personnel management, documents and records, program budgeting, data processing, rates, operation and maintenance.

**PAHO/CWSF**

### **URUGUAY-3100, Health Services**

*Purpose:* Development of the national health services in accordance with a national health plan and a program encompassing technical organization at the national, regional, and local levels; training of the necessary personnel; and modernization of structures, systems, and procedures of the administrative services.

*Probable duration:* 1955-

*Assistance provided:* 1 medical officer (the PAHO/WHO Country Representative), 1 administrative methods consultant, 1 short-term consultant, and advisory services by staff of Zone VI Office and of projects AMRO-3606 and -3700; common services.

*Work done:* With the establishment of the Planning and Budget Division in the Ministry of Health, a number of structures and administrative procedures were modified. Particularly significant was the progress made in the field of accounting through the organization of the General Accounting Office, program budgeting, and administrative improvements (study of personnel actions and leave records). It was hoped that on the basis of the preliminary diagnosis of the health situation and the training activities carried out or programmed, a health plan could be formulated.

A training course was conducted for 38 administrative officials from hospitals, departmental centers, and ancillary services throughout the country.

**PAHO/RB, WHO/RB**

**UNICEF**

### **URUGUAY-3101, Fellowships**

Eleven short-term and 5 long-term fellowships were awarded.

**WHO/RB**

### **URUGUAY-3102, Development of the Santa Lucía Basin**

*Purpose:* Study of the water resources of the Santa Lucía River Basin with a view to obtaining the maximum benefit from the use of the water of the Basin.

*Probable duration:* 1968-1970.

*Assistance provided:* 2 short-term consultants and advisory services by the PAHO/WHO Country Representative and by staff of projects Uruguay-2100, -6200, and AMRO-3122; contractual services.

*Work done:* A work program was prepared, by means of which it was hoped to determine the combination of available resources (manpower, materials, land, water, structure and equipment, and operating procedures) which at a given place and time would best provide water in the quantity and quality needed to meet requirements.

Basic data were collected and analyzed in order to study the growth of demand and the possibility of supplying sufficient water of the quality required for each use. A start was made on gathering information to assess the health conditions in the area and the use of water for public health purposes.

#### **PAHO/RB**

### **URUGUAY-3500, Health Statistics**

*Purpose:* Establishment of a national system of health statistics to provide reliable current data.

*Probable duration:* 1965-1970.

*Assistance provided:* Advisory services by staff of projects Uruguay-6200 and AMRO-3506; supplies; 1 long-term fellowship.

*Work done:* A new system of hospital statistical records was put into use in 14 establishments in Montevideo, 16 departmental facilities, and 15 auxiliary centers. The processing and publication of mortality data for the country was made more current with the issuance of a report covering the period 1963-1967; and progress was made toward bringing the monthly morbidity report up to date.

#### **WHO/RB**

### **URUGUAY-4101, Research in Maternal and Child Health**

*Purpose:* Carrying out of research and training in methods for the intensive care of the mother, the fetus, and the newborn, so as to prevent or reduce the consequences of damage during gestation and/or delivery.

*Probable duration:* 1968-

*Assistance provided:* 1 grant; equipment and supplies.

*Work done:* Thirty-six research projects were conducted in Montevideo with the cooperation of the Obstetrical Physiology Service and the Obstetrical Clinic of the Medical School of the University of Uruguay. Some of the projects were reported to the Eighth Meeting of the PAHO Advisory Committee on Medical Research.

Training was given to 18 physicians, including 9 PAHO fellows.

Plans were made for continuing this program under the responsibility and with the resources assigned to the Latin American Center of Perinatology and Human Development recently established in Montevideo.

#### **PAHO/RB**

### **URUGUAY-4300, Mental Health (1965-1969) PAHO/RB**

The purpose was to assess the mental health situation in Uruguay, to prepare a national program which, as an integral part of the national health plan, would promote the improvement of care services; to introduce modern techniques for prevention, rehabilitation, and research; and to train personnel. The Organization made available 1 short-term consultant in 1966 and another in 1969, 1 grant for a course (1969), and advisory services by Zone VI Office staff for the duration of the project.

In 1966 the consultant studied the country's resources and needs in the mental health field and submitted a report and specific recommendations to the Government. In 1969 another consultant assisted the School of Medicine of the University of Uruguay with a seminar on alcoholism, defining the epidemiological research techniques used in this field. He also aided in planning services for the prevention of alcoholism and the care and rehabilitation of alcoholics. A course on early stimulation of children with brain damage, attended by 52 professionals from 9 countries, was held in Montevideo (15 August-30 September) with the cooperation of the Government and the Inter-American Children's Institute.

### **URUGUAY-4600, Industrial Hygiene**

*Purpose:* Implementation of a program for reducing the losses of life, health, and economic productivity caused by occupational diseases and work accidents.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by project Uruguay-2100 staff; a limited amount of supplies; 1 short-term fellowship.

*Work done:* The Industrial Chemistry Laboratory, an agency of the Committee on Occupations Hazardous to Health, inspected 27 industrial plants, including lead manufacturing or processing plants, foundries, chrome-processing establishments, pulverizing and metal polishing plants, and paint factories.

#### **PAHO/RB**

### **URUGUAY-4601, Air Pollution**

*Purpose:* Determination of air pollution levels and adoption of control methods through the establishment of an air-sampling station.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by project Uruguay-2100 staff.

## VIII. PROJECT ACTIVITIES

*Work done:* The air-sampling station set up in the center of Montevideo continued its work. Monthly data were obtained and a number of measures were taken at the municipal level to reduce the effects of pollution.

### **URUGUAY-4800, Medical Care and Hospital Administration**

*Purpose:* Establishment of a national medical care system with the participation of all public and private medical care institutions; and development of services in outlying and rural areas of the country.

*Probable duration:* 1966-

*Assistance provided:* 2 short-term consultants (1 charged to 1968 funds).

*Work done:* A program for the training of personnel of the departmental hospitals was prepared. A study was made on the financing of an integrated medical care system.

### **PAHO/RB**

### **URUGUAY-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable, low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967.

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by project AMRO-6000 staff.

*Work done:* The School of Medicine of the University of Uruguay received 800 copies of *Tratado de patología* and 650 of *Bioquímica* and began distribution.

### **URUGUAY-6200, Medical Education**

*Purpose:* Strengthening of medical education by improving the curriculum, teaching methods, and the faculty and physical resources of the School of Medicine of the University of Uruguay.

*Probable duration:* 1964-1970.

*Assistance provided:* 1 statistician and 1 short-term consultant; supplies; 1 long-term fellowship.

*Work done:* The new curriculum, including a year of basic premedical studies (500 hours of theory and practice in quantitative methods, behavioral and natural sciences, and biology) was put into practice. Two training courses in biostatistics were given to the faculty members who will teach this subject as part of the basic course.

A seminar on the behavioral sciences was held, with the participation of faculty of the School of Medicine.

### **WHO/RB**

### **URUGUAY-6400, Sanitary Engineering Education**

*Purpose:* Improvement of the teaching of sanitary engineering in the regular engineering courses; implementation of a program of continuing education for professionals,

through short courses and seminars; and conduct of applied research.

*Probable duration:* 1965-1970.

*Assistance provided:* 4 short-term consultants, and advisory services by staff of projects Uruguay-2100, and AMRO-3122; 1 grant; books for the library of the School of Engineering and some laboratory equipment for water-quality studies.

*Work done:* The following training activities were carried out: a short course on the use of computers in sanitary engineering problems; a symposium on household sanitary installations; and a seminar on standards for the design of water supply and sewerage facilities. A total of 76 engineers and technicians participated in these activities, which involved 2,630 hours of classroom instruction and practice.

### **PAHO/RB**

### **URUGUAY-6500, Veterinary Medical Education**

*Purpose:* Strengthening of the teaching at the School of Veterinary Medicine of the University of Uruguay.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by Zone VI Office and project AMRO-0700 staff.

*Work done:* Assistance was given to the School authorities in connection with a request for financial support from the Inter-American Development Bank for the construction of a new building. A professor from the Department of Preventive Medicine was granted a fellowship (under a separate project) for postgraduate studies in food hygiene in Europe. Books and other publications were furnished to the School library.

### **VENEZUELA-0200, Malaria Eradication**

*Purpose:* Eradication of malaria.

*Probable duration:* 1955-

*Assistance provided:* Advisory services by Zone I Office staff.

*Work done:* The final report of the evaluation team (which worked from October to December 1968) was presented to the Government in April 1969.

The Organization recruited a short-term consultant in administrative methods who will report for duty in January 1970.

### **VENEZUELA-0300, Smallpox Eradication**

*Purpose:* Maintenance of the smallpox-free status of the country.

*Probable duration:* 1969-1972.

*Assistance provided:* Advisory services by staff assigned to project AMRO-0300; equipment for the production of freeze-dried vaccine.

*Work done:* An agreement was signed between the Government and the Organization establishing the bases for a program to maintain the immunity of the population. During the year, 1,243,164 vaccinations were performed.

### **WHO/RB**

**VENEZUELA-2100, Sanitary Engineering**

*Purpose:* Improvement of waste collection and disposal services in Caracas and other major cities in Venezuela.

*Probable duration:* 1964-

*Assistance provided:* 2 short-term consultants, and advisory services by staff of project AMRO-2101 and other projects in the country.

*Work done:* The Government of the Federal District formulated the so-called Caracas Plan, which includes certain sanitation aspects.

The Organization signed an agreement with the National Sanitary Works Institute (INOS) to provide it with 3 years of advisory services in matters of administration. Technical advisory services were furnished to the Federal District of Caracas in connection with waste disposal, and to the Ministry of Health and Social Welfare in the fields of industrial hygiene, laboratory services, and control of pesticides.

**PAHO/RB****VENEZUELA-2200, Water Supplies**

*Purpose:* Preparation and implementation of plans to provide water to 90% of the urban and 70% of the rural population.

*Probable duration:* 1960-1968, 1969-

*Assistance provided:* Advisory services by staff of Headquarters, of project AMRO-2101, and of other projects in the country.

*Work done:* The targets established for the supply of water to urban and rural areas had been attained by the end of the year. It was estimated that in 1971, out of a total urban population of 7,302,000 persons, 6,671,000 would be served by adequate water supply systems. As for the rural areas, it was estimated that 55% of the population had adequate water service at the end of 1969.

The National Institute of Sanitary Works (INOS) undertook an administrative reform to improve the services offered the users of its 152 water supply systems. As an initial phase, it proposed to reorganize its general, personnel, supply, accounting, and other services. A preliminary draft agreement between the INOS and PAHO for a program of technical assistance in institutional improvements was under consideration.

Seventy-two executives of INOS received training in management systems and procedures; and 2 special courses were conducted, 1 on management functions and 1 on programming systems.

**UNICEF****VENEZUELA-2300, Aedes aegypti Eradication**

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1958-

*Assistance provided:* Advisory services by Headquarters and Zone I Office staff.

*Work done:* Activities continued to be limited to measures to control the mosquito in the area bordering on Colombia.

The director of the campaign received training in new control methods at the National Communicable Disease Center in Atlanta, Georgia (USA).

**VENEZUELA-2400, Housing and Urbanization**

*Purpose:* Improvement in the socioeconomic and health conditions of the rural population by incorporating into the plans village planning aspects and housing construction programs.

*Probable duration:* 1963-

*Assistance provided:* Advisory services by Headquarters and Zone I Office staff.

*Work done:* The Ministry of Health and Social Welfare carried forward the program for the construction of houses in rural areas under a scheme which considers such other factors as places of employment, community facilities, schools, and related facilities. By the end of the year the Ministry concluded that the program had reached its goals, and an evaluation of results was begun.

**VENEZUELA-3100, Consultant Services in Health**

*Purpose:* Strengthening of the organization of the Ministry of Health and Social Welfare; and development of the national health planning process.

*Probable duration:* 1964-

*Assistance provided:* 2 short-term consultants, and advisory services by Zone I Office staff and personnel of other projects in the country; common services; 9 short-term and 11 long-term fellowships.

*Work done:* Cooperative services were established in the States of Monagas and Guárico.

The architectural plans for renovating the Maracaibo Tuberculosis Sanatorium and the Andrés Herrera Sanatorium at El Algodonal (Caracas) were completed, and work was started on the Maracaibo Sanatorium.

The responsibility for operating the nutrition services in Aragua State was transferred from the Nutrition Institute to the Regional Health Service.

A diagnosis was made of the health situation in the northeastern region, which includes the States of Sucre, Monagas, Anzoátegui, and Bolívar; and technical and administrative standards were prepared by the central unit in the Ministry of Health and Social Welfare.

Directors of the Ministry and of other health-sector institutions, as well as representatives of PAHO/WHO, participated in a meeting on development in Venezuela and programming of technical assistance, at which the purpose was announced of preparing a National Plan for 1970-1974. The following were identified as areas in which the health sector requires technical assistance: administration of services (with a view to establishing a national health service); development of human resources; nutrition research and implementation of nutrition programs; and strengthening of the National Institute of Hygiene.

**WHO/RB****VENEZUELA-3300, Laboratory Services**

*Purpose:* Organization of laboratory services at the national, regional, and local levels with the aim of improving the quality of diagnosis, comprehensive medical care, and preventive medicine.

*Probable duration:* 1966-1970.

*Assistance provided:* 1 laboratory adviser.

*Work done:* The regional laboratories of Lara and Sucre States, which have integrated health services, were reorganized. Two medical microbiologists were trained and another 6 were undergoing training; 14 technicians completed training and 25 more were being trained in 18-month courses. A 6-week course on immunofluorescence techniques was offered to 4 technicians. The Laboratory Division continued its study to determine the distribution and resources and assess the performance of all the laboratories of the Ministry of Health and Social Welfare.

## WHO/UNDP

### VENEZUELA-3301, National Institute of Hygiene

*Purpose:* Adaptation of the structure, organization, and programs of the National Institute of Hygiene to the needs of the country.

*Probable duration:* 1964-1970.

*Assistance provided:* Advisory services by Zone I Office staff.

*Work done:* An analysis was made of the resources and facilities of the 3 sections of the Institute that perform drug tests.

### VENEZUELA-4200, Nutrition

*Purpose:* Improvement in the nutritional level of the population by strengthening the nutrition services and programs and the programs for the training of physicians and nutritionists-dietitians.

*Probable duration:* 1965-1970.

*Assistance provided:* 1 medical officer; and 5 long-term fellowships.

*Work done:* Eleven nutrition units were established in the cooperative health services of Aragua, Táchira, Carabobo, Sucre, Anzoátegui, Zulia, Miranda, Lara, Falcón, and the Federal District (Caracas).

The coverage of the salt iodization program was extended to include 50% of the population.

The School of Dietetics in Caracas was granted university status and its program of studies was lengthened to 4 years.

Teaching programs for the training of nutritionists-dietitians were designed at the University of Zulia and the Central University in Caracas. Five physicians and 7 nutritionists-dietitians were sent abroad for training in nutrition.

## PAHO/RB, WHO/RB

### VENEZUELA-4300, Mental Health

*Purpose:* Provision of mental health services, at adequate quantitative and qualitative levels, to the population of Venezuela.

*Probable duration:* 1964-1970.

*Assistance provided:* 1 nurse.

*Work done:* Nine directors of psychiatric units completed an advanced course in psychiatric nursing. The 5th course, attended by 10 nurses, was under way. Six seminar-courses

in mental health offered during the year were attended by 235 nurse educators and nurses from the general health services. Inservice training was given to 95 auxiliaries in the Psychiatric Hospitals of Anare, Bárbula, and Caracas and the Hospital Día in Maracay.

Work was continued on the integration of mental health and psychiatry studies into the curricula of the intermediate-level nursing schools and 2 university-level schools.

Advisory services were provided in the organization of a working group on methodology of nursing studies.

Two surveys for the evaluation of psychiatric centers and their nursing staff were designed and initiated.

The Psychiatric Hospitals in Caracas and Bárbula were given advisory services in connection with their administrative reorganization. A plan for reorganizing the nursing departments of these 2 hospitals was formulated and put into practice.

## WHO/UNDP

### VENEZUELA-4400, Dental Manpower Studies

*Purpose:* Completion of a dental manpower study as a first stage of a general analysis to assess the extent of dental health problems, the personnel and institutional resources available for solving them, and the immediate and future needs.

*Probable duration:* 1965-1970.

*Assistance provided:* 3 short-term consultants (2 of them completed 2 missions), and advisory services by staff of Headquarters and of project Venezuela-6200.

*Work done:* The activities of the project (started in 1966) encompass 4 areas: morbidity, manpower, teaching resources, and institutional resources. As part of the morbidity studies, 32,000 persons were interviewed and oral clinical examinations of 16,000 persons were performed between November 1967 and December 1968. As the final part of the morbidity survey a study was made of a segment of the population of Táchira State. The morbidity data were reviewed and coded in collaboration with personnel of the Ministry.

Under an agreement concluded with the Ministry, the School of Dentistry of Zulia University (Maracaibo) assumed responsibility for the survey of teaching resources and initiated this work.

Forms and manuals were developed for the investigation of human and institutional resources; the field work was scheduled to begin in January 1970.

## PAHO/RB

### VENEZUELA-4401, Center for Dental Materials

*Purpose:* Development of training and research; and quality control and standardization of dental materials.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by staff of Headquarters and of projects Venezuela-6200 and -6600.

*Work done:* A grant was obtained from the W. K. Kellogg Foundation for the development of the Center, to be located in the School of Dentistry of the Central University in Caracas.

The 2nd national seminar on dental materials, held from 16 to 19 July, was attended by 20 participants.

**VENEZUELA-4601, Air Pollution**

*Purpose:* Measurement of the air pollution level in Caracas and environs; and establishment of a control program.

*Probable duration:* 1967-1972.

*Assistance provided:* Advisory services by staff of Zone I Office and of projects AMRO-2101 and -2114.

*Work done:* Fifteen sampling stations measured air pollution throughout the city of Caracas. The complete data for 1969 were sent to the Pan American Sanitary Engineering and Environmental Sciences Center (project AMRO-2114) for collating with data from the other stations in the Pan American Air Pollution Surveillance Network.

**VENEZUELA-4800, Medical Care Services**

*Purpose:* Preparation and implementation of an organizational and operational plan for hospitals and health centers, with a view to achieving the best possible coordination and utilization of the resources available; and training of the personnel needed.

*Probable duration:* 1966-1971.

*Assistance provided:* 1 medical officer, 1 short-term consultant, and advisory services by project Venezuela-3100 staff; 1 long-term fellowship.

*Work done:* A preliminary project was prepared for the construction of general hospitals and urban outpatient health centers during the decade 1970-1979. A start was made on construction of the Catia General Hospital in Caracas (500 beds), and on the preliminary project for implementing the second stage of converting the Maracaibo Tuberculosis Sanatorium into a general hospital.

The program for the organization of new regional hospitals in Mérida and Maracay proceeded on schedule.

The basic study for architectural and functional redesign of the El Algodonal Tuberculosis Sanatorium in Caracas, to be converted into a general hospital, was completed; and studies were in progress for the conversion of 3 other sanatoriums.

General standards for clinical departments of hospitals were prepared and reviewed.

A cost-accounting system was being applied on an experimental basis in the principal hospitals of the western region, with a view to the eventual establishment of national standards in this regard.

The University Hospital in Maracaibo completed its staff training program prior to opening of its intensive care unit. Personnel were trained in various aspects of hospital administration.

**WHO/RB****VENEZUELA-4802, Hospital Maintenance and Engineering Center**

*Purpose:* Establishment of a center for hospital maintenance and engineering, directly under the Ministry of Health and Social Welfare and responsible for the organization and development of maintenance services in the various medical care establishments.

*Probable duration:* 1968-

*Assistance provided:* 8 short-term consultants (1 com-

pleted 2 missions), and advisory services by Zone I Office staff.

*Work done:* Courses on maintenance were offered, technical assistance was given to a number of hospitals, manuals on various subjects were published, and several special studies were made.

Four new manuals were drawn up, and orders from various countries for publications of the Center were filled. Initial action was taken on the recruitment of the international staff. The Center was represented at the seminar on hospital maintenance organized by the School of Public Health with the Organization's assistance.

The United Nations Development Program authorized the participation of the Program in the financing of the project, and a plan of operations was prepared.

**PAHO/RB, WHO/UNDP****VENEZUELA-5000 (-4801), Rehabilitation**

*Purpose:* Provision of training (in the period 1967-1971) for 62 physiotherapists and occupational therapists for the country's physical rehabilitation services.

*Probable duration:* 1963-1970.

*Assistance provided:* 1 physiotherapist and 1 occupational therapist; 2 short-term fellowships.

*Work done:* The 2nd course in physiotherapy and the 1st in occupational therapy at the School of Public Health of the Central University (Caracas) ended in July; 24 students (18 in physiotherapy and 6 in occupational therapy), or 80% of those originally enrolled, were graduated. Of these graduates, 88% accepted employment in rehabilitation services in Caracas and regional services in other parts of the country. The new courses began in September with a total of 35 students and a 5-semester curriculum.

Two additional services for pediatric and psychiatric practice in occupational therapy were organized, completing the scheduled goal of establishing 4 such services.

Four physiotherapy graduates did postgraduate work abroad, 2 attending a 9-month course for teachers of this specialty and 2 attending 4-month courses on administration and supervision of services.

**WHO/RB****VENEZUELA-6000, Medical Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable, low-cost textbooks to students; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by staff of Zone I Office and of project AMRO-6000.

*Work done:* The program was carried on in the 7 medical schools, which received 685 copies of the *Tratado de patología* and 835 of *Bioquímica*, selling 307 and 320, respectively. The schools also ordered 1,240 copies of *Fisiología humana* and 775 of *Farmacología*, distribution of which was begun.

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Information was gathered on histology, embryology, surgery, psychiatry, obstetrics, and gynecology with a view to the appointment of expert committees to select the textbooks in these subjects.

### **VENEZUELA-6100, School of Public Health**

*Purpose:* Strengthening of the School of Public Health of the Central University, in order to improve its teaching.

*Probable duration:* 1961-

*Assistance provided:* 1 medical officer (part of the year), and advisory services by Zone I Office staff; 2 short-term fellowships.

*Work done:* A symposium on hospital administration was attended by 15 directors of hospitals of the Ministry of Health and Social Welfare. An international course on tuberculosis epidemiology and control was also held for 20 physicians from 16 Latin American countries.

### **WHO/RB**

### **VENEZUELA-6200, Medical Education**

*Purpose:* Improvement in the quality of medical education.

*Probable duration:* 1958-1971.

*Assistance provided:* 1 medical officer; costs of seminar; 7 short-term and 1 long-term fellowship.

*Work done:* The 4th national seminar on medical education and the 2nd seminar on epidemiology for clinical professors were held during the year.

A survey of final-year students at the 7 schools of medicine was conducted to determine how many intended to practice general medicine and how many would enter specialized fields.

A course in behavioral sciences, for professors of social sciences, was organized.

Two laboratories of human relations and medical teaching were organized.

Advisory assistance was given in the establishment and operation of a medical education office in each school of medicine, in the organization of a seminar for personnel to serve in those offices, and in establishing a library in each of them.

The School at Barquisimeto was assisted with a review of its program of study for the clinical years and the curriculum of the preventive and social medicine department.

A study was made of the general characteristics of the medical schools.

### **PAHO/RB, PAHO/OF, WHO/RB**

#### **Milbank Memorial Fund**

### **VENEZUELA-6300, Nursing Education**

*Purpose:* Improvement in nursing education, in order to raise the level of nursing services offered to the community.

*Probable duration:* 1959-1970.

*Assistance provided:* 2 short-term consultants, and advisory services by project Venezuela-4300 staff; 1 short-term fellowship.

*Work done:* Assistance was furnished in the revision of

the programs of study of the Schools of Nursing of the Universities of Zulia (Maracaibo) and of Mérida; the resultant recommendations were being applied in progressive stages.

Advisory services were provided in the organization of a working group on nursing study methodology. A study on nursing activities was being designed.

Mental health units were introduced into 6 postbasic courses conducted by the Nursing Division of the Ministry of Health and Social Welfare and attended by 235 nurse educators and nurses from the general health services.

Basic nursing instruction was being strengthened through the inclusion of mental health and psychiatry concepts in the curriculum of the university and intermediate-level schools.

### **PAHO/RB**

### **VENEZUELA-6400, Sanitary Engineering Education**

*Purpose:* Strengthening of the teaching of sanitary engineering at the undergraduate level within the civil engineering curriculum of the Central University of Venezuela, the University of the Andes, Zulia University, and Andrés Bello Catholic University; organization of a postgraduate program in sanitary engineering at the Central University; establishment of an experimental station and laboratories for research and teaching; and organization of extension courses and seminars on environmental sanitation.

*Probable duration:* 1964-1970.

*Assistance provided:* 1 sanitary engineer, 2 professors, and 9 short-term consultants (1 completed 2 missions); supplies; local costs; and 2 short-term fellowships.

*Work done:* The teaching of sanitary engineering at the Schools of Civil Engineering was strengthened with the inclusion of the minimum programs required. The Central University completed the 2nd postgraduate course in sanitary engineering. A start was made on the construction of the new building for the Sanitary Engineering Department of that University, at a site close to that where the experimental station is to be built. Both buildings will be ready for use by mid-1970 and will provide excellent facilities for future sanitary engineering programs.

New equipment and supplies, including the portable laboratory, were received. Four courses were offered, on fluoridation, operation of treatment plants, advanced technology in water clarification, and biological treatment of liquid wastes, the latter being the 2nd offered on this subject.

Research activities were carried forward on a limited basis, as had been anticipated. The Central University continued to operate as part of the Pan American Air Pollution Surveillance Network.

Five books and manuals were printed, including a manual on the treatment of drinking water, which was the first Spanish-language publication on this subject issued in the last five years.

### **WHO/UNDP, WHO/OF**

### **VENEZUELA-6500, Veterinary Medical Education**

*Purpose:* Strengthening of the teaching of veterinary public health and preventive medicine.

*Probable duration:* 1966-1970.

*Assistance provided:* Advisory services by staff of Headquarters and of project AMRO-0700.

*Work done:* Two of the country's three schools of veterinary medicine (at Maracay and Maracaibo) made an evaluation of their teaching programs in general, and specifically of those departments directly related to public health.

The Veterinary Research Center made preparations for putting into operation the new service for production of laboratory animals.

The Department of Public Health of the School of Veterinary Medicine at Maracay was assisted in designing a course on the epidemiology of the zoonoses and foot-and-mouth disease, for veterinarians working in public health and preventive medicine.

### VENEZUELA-6600, Dental Education

*Purpose:* Training of auxiliary dental personnel; and strengthening of the program for the teaching of dentistry, particularly its preventive and social aspects.

*Probable duration:* 1966-1970.

*Assistance provided:* 7 short-term consultants (1 completed 2 missions and another 3 missions), and advisory services by Headquarters staff; contractual services; 1 short-term fellowship.

*Work done:* Advice was given to the School of Dentistry of the University of Zulia (Maracaibo) in the establishment of an experimental curriculum, the organization of its teaching and administrative services, and in research programs. The committee on the experimental curriculum held its 2nd meeting at the School.

Research on resources for the teaching of dentistry was initiated as part of the study for the comprehensive planning of dentistry.

Advisory services were extended to the Schools of Dentistry of the Central University (Caracas) and the University of Mérida in connection with the review of their programs of study.

The Venezuelan Association of Schools of Dentistry was established. Four professors participated in national courses sponsored by PAHO.

A course on the design and construction of simplified dental equipment, held in Maracaibo in November, was attended by 25 participants, including dentists and dental auxiliaries from the Ministry of Health and Social Welfare, professors from schools of dentistry, public health officials, and manufacturers and distributors of dental equipment in the country.

### WHO/RB

### WEST INDIES-0701, Rabies Control (Grenada)

*Purpose:* Improvement of rabies control activities in Grenada in order to reduce the incidence of the disease and eliminate the hazard to human and animal populations.

*Probable duration:* 1968-1970.

*Assistance provided:* 2 short-term consultants, and advisory services by the PAHO/WHO Country Representative,

by Headquarters staff, and by the health educator assigned to project AMRO-3401; supplies.

*Work done:* The canine vaccination program was stepped up; 90% of the targeted activities were completed. The distribution of poison bait to reduce the mongoose population reached the highest level ever achieved in Grenada.

The number of rabies cases in animals was reduced by 50% from 1968 to 1969. The proportion of brain samples from trapped mongooses that were found to be positive for rabies was reduced from 4% to 1.4%, even though a larger number was examined in 1969.

### WHO/RB

### WEST INDIES-2100, Environmental Sanitation

*Purpose:* Improvement of the quality of health services in the islands of the eastern Caribbean area through the training or retraining of public health inspectors.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and staff of projects West Indies-4200, AMRO-2107, -2301, and -3401; a limited amount of supplies; and 34 short-term fellowships: Antigua (5), Barbados (18), Dominica (8), St. Kitts (1), and St. Vincent (2).

*Work done:* Eighteen uncertified public health inspectors received their first intensive 6-week course (196 hours), covering 22 major aspects of their work. Another group of 16 received their second intensive course (also of 6 weeks), which centered on technical principles essential to proper performance of their work.

### PAHO/OF

### UNICEF

### WEST INDIES-2200, Water Supplies

*Purpose:* Preparation of plans and designs for the improvement and expansion of existing water supply systems and the construction of new ones in several islands of the eastern Caribbean area.

*Probable duration:* 1962-1970.

*Assistance provided:* 1 sanitary engineer, 3 short-term consultants, and advisory services by project AMRO-2107 staff; 3 long-term fellowships (Grenada, St. Lucia, and St. Vincent).

*Work done:* For the improvement of the water systems in Dominica, assistance in the form of materials and equipment was obtained from the Canadian Government.

The Government of Grenada passed the Water Supply Act creating a Central Water Commission; the Board of Commissioners was proceeding with plans for water supply improvements in the town of St. George's.

In St. Kitts, exploratory drilling for water was started on the outskirts of Basseterre, in conjunction with the training of a local drilling crew.

In St. Lucia, a small dam and pumping station were being constructed, as part of a supplemental water supply system for the city of Castries.

The Government of St. Vincent adopted a bill creating



## VIII. PROJECT ACTIVITIES

the Central Water Authority, and the new Board of Water Commissioners was studying proposed improvements to the Kingstown water system.

**PAHO/RB, WHO/UNDP**      **Canadian International Development Agency (CIDA)**

### **WEST INDIES-2300, *Aedes aegypti* Eradication**

*Purpose:* Eradication of *A. aegypti* from Antigua, British Virgin Islands, Dominica, Grenada, Montserrat, St. Kitts, St. Lucia, and St. Vincent.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by staff of project AMRO-2301; equipment and supplies for the campaigns of Montserrat and St. Lucia.

*Work done:* The eradication campaign was officially launched in St. Lucia in the fourth quarter of the year, after 40 recruits were trained as field inspectors.

The preparatory phase of the campaign in Montserrat was completed and preparatory work was initiated in Antigua, Grenada, and St. Vincent.

Dominica and St. Vincent approved funds to start their eradication programs in 1970.

### **WHO/RB**

### **WEST INDIES-3100, Health Services**

*Purpose:* Formulation and implementation of health programs as part of the socioeconomic development plans, and with the maximum utilization of local resources.

*Probable duration:* 1969 (activities previously conducted under project AMRO-3107)-

*Assistance provided:* 1 nurse, 2 short-term consultants, and advisory services by staff of the Eastern Caribbean Office and of project AMRO-3107; supplies; 20 short-term fellowships (1 each Bahamas and Bermuda; 2 each Dominica, Grenada, Montserrat, St. Kitts, St. Vincent; and 4 each Antigua and St. Lucia) and 14 long-term fellowships (1 each Grenada and Montserrat; 2 each Antigua and Dominica; 3 St. Vincent; and 5 St. Lucia).

*Work done:* The work of preparing the first National Health Plan for St. Kitts was continued. The diagnosis of the health situation was completed.

St. Lucia and St. Vincent were assisted with the development of expanded maternal and child health programs in which family planning and nutrition formed an integral part of the activities.

Fourteen graduate nurses attended a 2-week workshop on ward administration and supervision in St. Lucia, and 22 nurses attended a 2-week seminar on the training and utilization of auxiliary nursing personnel in Dominica. A 2-day seminar on health legislation was held for 7 chief inspectors.

### **WHO/RB**

### **WEST INDIES-3103 (AMRO-3107), Health Services (St. Lucia)**

*Purpose:* Implementation and evaluation of an integrated health program.

*Probable duration:* 1963-

*Assistance provided:* Advisory services by staff of the Eastern Caribbean Office and of projects West Indies-3100 and 4200 and AMRO-2301.

*Work done:* Consultant services were provided to assist in expanding the leprosy control program.

The *Aedes aegypti* eradication program was strengthened; 32 field workers were trained.

An expanded maternal and child health program that will include nutrition and family planning activities was being developed.

A feasibility study was completed for the proposed extension of hospital installations to provide 155 additional beds over the next 10 years.

Forty 2nd year students at the Teacher Training College and 20 student nurses received instruction in nutrition as part of their regular studies.

A 2-week workshop on ward administration and supervision was held for graduate nurses.

**UNICEF**

### **WEST INDIES-3104, Health Services (Montserrat)**

*Purpose:* Evaluation of the existing integrated health program as a basis for the preparation of a National Health Plan.

*Probable duration:* 1965-

*Assistance provided:* Advisory services by staff of the Eastern Caribbean Office and of projects West Indies-2200 and -3100.

*Work done:* An evaluation of the existing integrated health program was made.

A feasibility study was completed for a new 92-bed hospital. A study of nursing resources was in progress.

The latrine construction program was further strengthened and budgetary provision was made for its full-scale operation in 1970. The *Aedes aegypti* eradication program was stepped up.

One nurse received training in advanced nursing education, and 2 others were awarded fellowships (West Indies-3100)—one in nursing administration and the other in public health nursing.

**UNICEF**

### **WEST INDIES-3105, Health Services (Antigua)**

*Purpose:* Reorganization of the Health Ministry and preparation of staff in order to achieve the targets of the integrated health program.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by staff of the Eastern Caribbean Office.

*Work done:* A study was made of the food service at Holberton Hospital; a member of its staff attended the 2-week course on hospital food service in Barbados.

Fellowships were awarded in advanced nursing education (1), intermediate-level administration (1) (West Indies-3100), public health inspection (5) (West Indies-2100).

**UNICEF**

**WEST INDIES-3106, Health Services (St. Vincent)**

*Purpose:* Implementation of the integrated health program and its continuing evaluation as the basis for the preparation of a National Health Plan in 1972.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by staff of the Eastern Caribbean Office and of projects West Indies-3100 and AMRO-4201.

*Work done:* Assistance was given in the development of an expanded maternal and child health service that will include nutrition and family planning activities, and in the development of a community mental health program, for which 24 local personnel were trained.

Under projects West Indies-2100, -2200, -3100, and AMRO-6301, fellowships were awarded in public health nursing, advanced nursing education, hospital food service, and public health inspection. A nurse attended a workshop on health and population dynamics, and the community development officer attended another on community education and population dynamics, held in Trinidad.

UNICEF

**WEST INDIES-3107, Health Services (Dominica)**

*Purpose:* Implementation and evaluation of an integrated health program.

*Probable duration:* 1963 (as part of project AMRO-3107)-

*Assistance provided:* Advisory services by staff of the Eastern Caribbean Office and of project West Indies-3100.

*Work done:* An assessment was made of the status of tuberculosis and leprosy in Dominica.

At the Princess Margaret Hospital, advice was given on measures for expanding the histology department, and assistance with inservice training was provided. A laboratory technician obtained his diploma and a junior technician was awarded a fellowship for further training. In 6-week courses, 4 uncertified public health inspectors received basic training, and 4 received advanced training.

A 2-week seminar on training and utilization of auxiliary nursing personnel was conducted for 31 participants from 13 countries and territories.

Job descriptions for nurses were prepared and a fellowship in public health nursing was awarded.

Courses were held for food handlers (2 days for 20 handlers and 4 days for 18). A staff member of the Hospital attended the 2-week course on hospital food service in Barbados.

All fellowships were awarded under projects West Indies-2100, -3100, and AMRO-6301.

UNICEF

**WEST INDIES-3108, Health Services (Grenada)**

*Purpose:* Strengthening of health services in order to bring maximum benefits to the population.

*Probable duration:* 1963-1967 (as part of project AMRO-3107); 1969-

*Assistance provided:* Advisory services by the PAHO/WHO Country Representative and by staff of projects Trini-

dad and Tobago-3100 and AMRO-3501; 4 short-term and 4 long-term fellowships.

*Work done:* Preparations for national health planning (including the institution of improved morbidity reporting) were well advanced (80% of the targeted activities). Similar progress was made in the program for improving hospital records; in the programs for the control of yaws, poliomyelitis, leprosy, tuberculosis, and other diseases; and in the malaria surveillance program.

A comprehensive evaluation of the district nursing services in the years 1967-1968 was made on the basis of the daily statistical records and in the light of the program objectives established in the District Nursing Service Manual, in use since 1967. Improvement in nursing in all aspects, including the working conditions of nurses, was achieved owing mainly to the interest taken by the Government in these activities.

PAHO/RB, WHO/RB

UNICEF, British Overseas Development Mission, Canadian International Development Agency (CIDA)

**WEST INDIES-3300, Laboratory Services**

*Purpose:* Development of the laboratory services in Dominica in order to provide tissue pathology services for that island and also for Antigua, Montserrat, and St. Kitts.

*Probable duration:* 1968-1970.

*Assistance provided:* 1 short-term consultant, and advisory services by staff of the Eastern Caribbean Office.

*Work done:* The laboratory established in Dominica was providing services to the above-mentioned islands. Consultant services were provided to assist in strengthening the laboratory's histology department. Supplementary equipment was furnished to the laboratory in St. Kitts. Training activities were conducted and three fellowships were awarded (under other projects) to Barbados, Dominica, and St. Lucia for studies in laboratory technology.

PAHO/RB

**WEST INDIES-4200, Nutrition**

*Purpose:* Improvement of the nutritional status of the population, especially of mothers and children, by raising the standards of production, distribution, and consumption of local foodstuffs and by undertaking intensive nutrition education of different social groups.

*Probable duration:* 1962-

*Assistance provided:* 2 nutritionists (one of them part of the year), and advisory services by staff of the Eastern Caribbean Office and of project AMRO-4201; supplies.

*Work done:* In Dominica the nutrition activities included curriculum planning for courses, the holding of community classes and of lectures at the Teacher Training College and the Nursing School, the organization of radio talks, and the conduct of two seminars on nutrition and food hygiene. The National Nutrition Association was active in promoting work in this field.

In St. Kitts-Nevis training courses were organized for food handlers. The home economics teacher returned to her post

## VIII. PROJECT ACTIVITIES

after attending the nutrition course at the Caribbean Food and Nutrition Institute (CFNI).

In St. Lucia the activities of the applied nutrition program were carried forward in 12 pilot areas. A nutrition officer returned to duty after attending courses at the CFNI.

### WHO/RB

### UNICEF

#### WEST INDIES-4300, Mental Health

*Purpose:* Establishment of community mental health services in each country and territory of the area, utilizing St. Vincent as the pilot zone.

*Probable duration:* 1969-

*Assistance provided:* 1 short-term consultant, and advisory services by staff of the Eastern Caribbean Office.

*Work done:* Technical advice was furnished to St. Vincent in connection with the development of a community mental health program. Fourteen public health inspectors, 4 public health nurses, and pertinent staff of 4 districts and 2 mental hospitals received 4 weeks of inservice training.

### PAHO/RB

### University of West Indies (UWI)

#### WEST INDIES-4800 (-4802), Medical Care and Hospital Administration

*Purpose:* Efficient operation of all hospitals in the eastern Caribbean area.

*Probable duration:* 1965-

*Assistance provided:* 1 short-term consultant, and advisory services by staff of projects West Indies-4200 and AMRO-3107; 2 long-term fellowships (Dominica and Grenada).

*Work done:* Nineteen persons received 2 weeks of training in hospital food service in Barbados. Advisory services in that specialty were furnished to Antigua and to St. Lucia.

A detailed study of the administration of the Joseph France General Hospital in St. Kitts was completed; the report was presented at the Workshop on National Health Planning. The Hospital was also provided with consultant services in linen and laundry management.

### PAHO/RB, WHO/UNDP

#### WEST INDIES-4805, Hospital Food Services (Tortola)

The housekeeper of the Peebles Hospital of Tortola was awarded a fellowship to attend a 2-week hospital food services course held in Barbados.

### WHO/UNDP

#### AMRO-0102, Epidemiology (Zone II)

*Purpose:* Development in the countries of the Zone of programs for the control of communicable diseases; establishment of epidemiological and laboratory services; and training of personnel.

*Probable duration:* 1965-

*Assistance provided:* 1 epidemiologist.

*Work done:* In Cuba new projects were drawn up for the strengthening of the National Institute of Health; for vacci-

nation and epidemiological surveillance against smallpox; and for eradication of *Aedes aegypti*. In the Dominican Republic preliminary studies were made in connection with a general communicable disease control program and a program to combat schistosomiasis.

### PAHO/RB

#### AMRO-0103, Epidemiology (Zone III)

*Purpose:* Development of epidemiological services in the countries of Zone III; and training of personnel in epidemiological procedures.

*Probable duration:* 1961-

*Assistance provided:* 1 epidemiologist and 1 secretary.

*Work done:* *Aedes aegypti* eradication activities were carried forward in El Salvador, Honduras, and Panama, where reinfestation had occurred.

The epidemiological services were reorganized in Guatemala and Panama.

Documents were prepared for each of the countries, showing the present level of immunization, the susceptible population, and the programs and activities needed in order to attain an adequate level of protection.

Advisory services were provided to all countries where poliomyelitis was on the increase, in order to intensify the vaccination campaigns.

Three countries of the Zone had handbooks of techniques and procedures for the control of venereal diseases.

In Guatemala an outbreak of bacillary dysentery and of Venezuelan equine encephalitis were brought under control.

Advisory assistance was extended to the project for the establishment of an Institute of Biological Products in Guatemala.

### PAHO/RB

#### AMRO-0104, Epidemiology (Zone IV)

*Purpose:* Development and improvement of the epidemiological services in the countries of the Zone; advice to the Governments in the planning, execution, and evaluation of programs to control communicable diseases, particularly the quarantinable ones; improvement of statistical systems; participation in epidemiological research; development of more effective laboratory services; training of personnel; use of more effective techniques in the control of communicable diseases; exchange of epidemiological information; and application of the International Sanitary Regulations.

*Probable duration:* 1966-

*Assistance provided:* 1 epidemiologist and 1 secretary.

*Work done:* Bolivia began the maintenance program for smallpox vaccination, combined with BCG vaccination, in the Departments of Cochabamba and Tarija, and intensified the smallpox vaccination campaign in the Department of La Paz.

Colombia began a nation-wide program of BCG, DPT, and smallpox vaccination. Since 1967, 63.7% of the population have been covered in the smallpox vaccination campaigns. The first course for venereal disease interviewers was held in Bogotá as an initial step toward a national venereal disease control program.

Ecuador conducted 2 vaccination campaigns against poliomyelitis, of which there were cases in the coastal and high-land regions. Various control measures were taken to combat an epidemic of Venezuelan equine encephalitis in the coastal area. An agreement was signed with the Organization for assistance in intensifying the venereal disease control activities in the cities of Quito and Guayaquil. Plague control activities continued to be carried out; 19 cases were reported in the Provinces of Chimborazo, Guayas, Manabí, and Loja.

Peru conducted 2 poliomyelitis vaccination campaigns in the Department of Lima. Progress was made in studies for a program of epidemiological research and control of Chagas' disease and control of venereal disease in the areas of greatest incidence. The plague control program was continued, with emphasis on epidemiological research. No cases of the disease were reported. A consultant provided training on rodent biology to officials of the program.

#### PAHO/RB

#### AMRO-0106, Epidemiology (Zone VI)

*Purpose:* Implementation of communicable disease control programs; promotion of epidemiological surveillance; improvement of laboratory services; and training of personnel.

*Probable duration:* 1958.

*Assistance provided:* 1 epidemiologist and 1 secretary; a limited amount of supplies.

*Work done:* Argentina began work on the organization of a suitable infrastructure for epidemiological operations by carrying out the following activities: an intensive program of seminars and short courses for 147 medical and paramedical professionals; meetings throughout the country for the purpose of standardizing activities involved in the study and control of communicable diseases (immunizations in general, tuberculosis, leprosy, venereal diseases); an inventory of human and physical resources available in the provincial health services for epidemiological activities; and a survey of existing structures to serve these purposes and of the responsibilities of epidemiological services at the various levels of public health administration.

Assistance was provided to Chile in connection with tuberculosis and venereal disease problems.

Uruguay developed plans for strengthening its epidemiological and laboratory services.

See also the -0100 projects for Argentina and Paraguay.

#### PAHO/RB

#### AMRO-0108, Research Training Program in Virology

*Purpose:* Study of the ecology of pathogenic arboviruses, especially the role of migratory birds in the spread of arboviruses in temperate and tropical areas in the northern part of the Western Hemisphere; and provision of research training in this field.

*Probable duration:* 1961-1971.

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* Research training under this program was carried on through the Department of Microbiology, Cornell

University Medical College. Attention was focused on the study of encephalitis viruses transmitted by arthropods in Mexico and Central America.

Venezuelan and Eastern encephalitis viruses, Patois virus, Nepuyo virus, and another closely related Group C virus were all isolated for the first time in Guatemala. Venezuelan encephalitis virus (as well as other agents) was isolated from 5 sites in Mexico, in Veracruz State.

In May a horse epizootic-human epidemic of Venezuelan encephalitis started in Guatemala and spread through much of eastern Guatemala, El Salvador, southern Honduras, and a part of Nicaragua. Personnel from Cornell University Medical College working with physicians from the San Carlos University Medical School encountered and studied widespread human disease in Guatemala.

Aviary studies were continued in order to better quantify the reactions of birds to infections with arboviruses.

One trainee received her Ph.D. degree, the subject of her thesis being "Studies of Selected Biological Properties of Arthropod-Borne and Other Animal Viruses in Mosquitoes." One predoctoral fellow formed part of the team that followed the epidemic in Guatemala in July-August, and 3 trainees participated in the field program in Mexico in the same period. One predoctoral and one postdoctoral fellow began their studies at Cornell University Medical College in September.

#### AMRO-0200, Malaria Technical Advisory Services (Interzone)

*Purpose:* Provision of assistance and technical advisory services in malaria eradication, in fields in which permanent country advisers are not required.

*Probable duration:* 1955-1973.

*Assistance provided:* 2 parasitologists, 1 program analyst (medical officer), 1 economist, 1 laboratory adviser, 9 short-term consultants, and 1 secretary; equipment and supplies.

*Work done:* Technical assistance for the improvement of laboratory diagnostic services was furnished to 15 national malaria eradication programs. The services included evaluation of laboratories and training of microscopists; review of procedures for evaluating drug-resistant strains of *P. falciparum*; and advice on the field testing and evaluation of various chemotherapeutic regimens. Advisory services were rendered to Brazil in connection with data processing, and assistance was given to Paraguay in conducting the study on the economic impact of malaria eradication.

#### PAHO/SMF, WHO/RB

#### AMRO-0201, Malaria Technical Advisory Services (Zone II)

*Purpose:* Assistance to and coordination of malaria eradication work in Zone I.

*Probable duration:* 1957-1965; 1969.

*Assistance provided:* 1 medical officer, 1 secretary, and advisory services by staff of projects -0200 of Guyana and Surinam.

*Work done:* Among 38,194 blood smears examined in Surinam during the year, 741 were found to be positive

## VIII. PROJECT ACTIVITIES

(1.9%); among 70,121 smears in Guyana, 25 were positive (0.07%); and among 7,000 in French Guiana, 52 were positive (0.7%). No indigenous malaria cases were reported in the islands of the Caribbean.

Elimination of residual infections by the programs in the attack and consolidation phases was slow, because of inadequate coverage and surveillance in the remote areas. A considerable number of malaria cases continued to be exported from such areas to the adjacent maintenance-phase or non-malarious areas or to neighboring countries. Passive case-detection by the general health services continued to be unsatisfactory.

### PAHO/SMF

#### **AMRO-0203, Malaria Technical Advisory Services (Zone III)**

*Purpose:* Assistance to the countries of Zone III in their malaria eradication work, by providing technical and administrative advisory services, coordinating research activities, and collaborating in the training of personnel.

*Probable duration:* 1958-

*Assistance provided:* 1 Zone malaria adviser, 1 epidemiologist, 2 administrative methods officers, 1 draftsman, and 1 secretary; equipment and supplies.

*Work done:* Assistance was rendered to all countries of the Zone. The eradication programs in Central America were completing the 2nd year of their 3-year regional plan of attack against malaria; considerable emphasis was therefore placed on assisting them to evaluate the effectiveness of the operations in interrupting transmission. It was found that, while significant progress was being made, the attack methods employed in areas of high vector-resistance to DDT were not adequate to interrupt transmission. Accordingly, studies were being made of alternative techniques and insecticides and of additional changes in the plans of operations. Administrative methods were also revised and personnel training was continued.

See also the -0200 projects of Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

### PAHO/RB, PAHO/SMF

#### **AMRO-0216, Research on Epidemiology of Malaria Eradication in Problem Areas**

*Purpose:* Investigation of possible methods for interrupting the transmission of malaria in areas where technical problems have been encountered.

*Probable duration:* 1967-

*Assistance provided:* 1 entomologist; local costs; equipment and supplies.

*Work done:* The programs concerning acceptance of Camoprime syrup (Honduras) and the feasibility of using Camolar (Guatemala) were completed in 1969, and the project provided technical guidance and assistance in their evaluation.

In El Salvador the large-scale field trial of quarterly spraying with 2 g/m<sup>2</sup> of OMS-33 was completed in April. The epidemiological evaluation showed that OMS-33 was

effective in interrupting transmission of malaria under the trial conditions in most of the areas having limited contact with other regions. It also revealed that this insecticide can be safely used with the precautions normally required for DDT spraying. The evaluation of the effectiveness of DDT, used alone or in combination with other attack measures in areas in which the vector has varying levels of resistance to this insecticide, was also completed in El Salvador. A comparative study was made of the evolution of the epidemiological situation and the degree of resistance to DDT. The study confirmed the ineffectiveness of this insecticide in areas where the vector is resistant.

A local field trial was carried out involving partial spraying of houses with OMS-33; the findings were favorable and served as a basis for planning a broader field trial with this method of attack, to be started in 1970.

The National Malaria Control Campaign (CNAP) of El Salvador cooperated actively in the activities of this project.

### PAHO/SMF

#### **AMRO-0217, Field Investigations of Mass Drug Treatment for Malaria**

*Purpose:* Investigation of methods for increasing the effectiveness of mass drug treatment programs for malaria eradication and their acceptance by the general population.

*Probable duration:* 1966-

*Assistance provided:* 2 short-term consultants, and advisory services by Headquarters and project AMRO-0203 staff; contractual services.

*Work done:* Studies on mass drug distribution programs in several countries revealed a marked reduction in acceptance of drugs by the population after prolonged treatment. Among the possible explanations were the side-effects reported from some sources and community apathy in areas where the risk of malaria diminished greatly as the prevalence of the disease was reduced. To ascertain whether the reported side-effects were a primary cause of reduced acceptance, a field test was begun in an area of Costa Rica, using a combination of chloroquine and primaquine.

### PAHO/SMF

#### **AMRO-0218, Health Services and Malaria Eradication Campaigns**

*Purpose:* Participation of health services in all phases of the malaria eradication campaign; and intensification of efforts aimed at extending the health services to rural communities, utilizing, where possible, the resources and work systems of the malaria program.

*Probable duration:* 1967-1972.

*Assistance provided:* 1 medical officer and 2 secretaries.

*Work done:* In Bolivia (Tarija) and Ecuador (Portoviejo) training seminars were held for general health service physicians working in consolidation-phase areas of the malaria program; 61 and 43 professionals, respectively, attended.

In Peru the National Malaria Eradication Service (SNEM) and the Health Areas of Cuzco, Madre de Dios, Apurimac, and Puno intensified their coordination activities with a view

to transferring a malarious region of 131,216 km<sup>2</sup>, inhabited by 121,355 persons, from SNEM to those Areas in January 1970.

In the Department of Cochabamba, Bolivia, the medical care services provided by certain health centers to rural health posts were expanded; and a short course on malaria was held for 90 5th-year medical students. The targets set for 1969 in matters of coordination were accomplished to an extent of more than 70%.

#### PAHO/RB, PAHO/SMF

#### AMRO-0220, Field Research in Malaria Eradication (Interzone)

*Purpose:* Implementation of short-term programs, field studies, or pilot projects for research into the epidemiological, toxicological, entomological, and operational aspects of malaria eradication.

*Probable duration:* 1969-

*Assistance provided:* Contractual services.

*Work done:* The Second Meeting of the PAHO Advisory Committee on Malaria Eradication made a detailed review of the status of malaria eradication programs and analyzed the administrative, operational, and technical factors affecting their progress. The Committee, composed of public health administrators, epidemiologists, and economists, as well as malariologists, conducted their review in the light of the World Health Assembly resolution requesting the re-examination of the global strategy of malaria eradication.

In Colombia the data collected on various drug regimens were transferred to automatic data processing so as to expedite their analysis. Collections of anopheline vectors were made in several countries of South America to determine whether genetic anomalies could account for apparent differences in vector efficiency of taxonomically similar strains.

#### PAHO/SMF

#### AMRO-0300, Smallpox Eradication

*Purpose:* Eradication of smallpox by vaccinating at least 80% of the population of the countries where the disease is endemic; and organization of suitable systems of epidemiological surveillance and maintenance vaccination.

*Probable duration:* 1951-

*Assistance provided:* 1 medical officer, 1 statistician (part of the year), 1 short-term consultant, and 1 secretary; contractual services; equipment and supplies.

*Work done:* All the countries except Brazil were in the maintenance phase. Argentina had its most recent cases of smallpox in 1967, and Paraguay and Peru in 1966. Brazil continued its mass vaccination program, vaccinating 21,864,352 persons (approximately 50% of the population) in 1969. The programs calling for a coverage of 80% of the population over a period of about 3 years fell behind schedule in several countries because of budgetary difficulties. However, all the countries having agreements with the Organization carried on their activities at varying levels depending on their budgetary circumstances.

Assistance continued to be provided for the following ac-

tivities: establishment or reorganization of laboratories for the production of freeze-dried vaccine and for diagnosis; training fellowships; consultation; advisory services in epidemiology, statistics, and evaluation; provision of equipment and supplies, vehicles, launches, jet-injectors, and other equipment; and the services of a reference laboratory to test the potency, purity, and stability of the vaccine produced.

#### PAHO/RB, WHO/RB

#### AMRO-0304, Smallpox Eradication (Zone IV)

*Purpose:* Cooperation with the Governments of the countries of the Zone in the eradication of smallpox, as part of the hemisphere-wide eradication plan, with a view to protecting at least 80% of the population.

*Probable duration:* 1967-1972.

*Assistance provided:* 1 medical officer, 1 statistician, and advisory services by staff of Headquarters and of projects Peru-0300 and AMRO-0104.

*Work done:* A total of 5,831,683 persons were vaccinated in the countries of the Zone: 295,355 in Bolivia, 3,280,096 in Colombia, 929,413 in Ecuador, and 1,028,184 in Peru. The proportion of takes in persons vaccinated for the first time ranged from 92.8 to 96.8%.

Evaluation operations were made a regular activity and were staffed with specific personnel. Epidemiological surveillance activities continued to be carried out in international seaports and airports.

Training was provided to laboratory and executive personnel of the projects in Ecuador and Peru.

See also the -0300 projects for Bolivia, Colombia, Ecuador, and Peru.

#### WHO/RB

#### AMRO-0306, Smallpox Eradication (Zone VI)

*Purpose:* Eradication of smallpox from the countries of the Zone, by means of vaccination of 90% of the population.

*Probable duration:* 1967-1972.

*Assistance provided:* 1 medical officer and 1 statistician.

*Work done:* A total of 1,932,706 persons were vaccinated in the countries of the Zone. Epidemiological surveillance services were established in the countries that initiated their vaccination programs. Production of vaccine amounted to 27,364,850 doses.

Courses for physicians and for technical and auxiliary personnel were held in Argentina, Paraguay, and Uruguay. Two imported cases of smallpox were reported in Uruguay.

Financial difficulties impeded the programs in Argentina and Uruguay, and vaccination was administered on a preferential basis in border areas.

See also the -0300 projects of Argentina, Chile, Paraguay, and Uruguay.

#### WHO/RB

#### AMRO-0400, Tuberculosis Control (Interzone)

*Purpose:* Planning, implementation, and evaluation of the programs for operational studies and research in tuberculosis control; and training of personnel.

*Probable duration:* 1957-

*Assistance provided:* 2 short-term consultants, and advisory services by Headquarters staff.

*Work done:* The Governments continued to receive assistance in promoting effective, low-cost control of tuberculosis through rational application of available knowledge and resources; in improving the collection of statistical, epidemiological, and operational data; and in training medical and technical personnel. They also received assistance in their efforts to utilize the network of basic health services in the control of tuberculosis.

The Organization cooperated with the Governments of Barbados, Dominica, Grenada, and Jamaica in their efforts to obtain better information on the problem of tuberculosis. The evaluation of the epidemiological situation and of the programs in those countries should provide a basis for a technical and administrative reorientation and gradual extension of existing activities.

With the health authorities of Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua a study was made on reorientation of programs begun in the "verification areas" and their inclusion in the general health services.

In Brazil assistance was given with a study on reorganization of the national tuberculosis control program; with the organization of a network of regional bacteriology laboratories; and with the restructuring of the epidemiological and statistical services of the Tuberculosis Department of the State Ministry of Health of São Paulo. An agreement was reached to continue using the integrated-services area of the Special Public Health Service, located in the south of Bahia State, as a training ground for professionals from other countries.

An expert was sent to Argentina, Brazil, Chile, Cuba, Ecuador, and Paraguay to furnish advice on the production of BCG vaccine, with emphasis on the selection of strains and on production techniques and quality control. The same expert had previously visited Colombia, Mexico, Peru, and Venezuela for the same purpose. Another consultant assisted with the reorganization of freeze-dried BCG vaccine production laboratories in Cuba, Mexico, and Venezuela. The information thus obtained served as a basis for an extensive discussion of BCG vaccination at an international seminar held in Mexico under the auspices of the International Union against Tuberculosis, with assistance from the Organization. It was recommended that an international agreement be concluded for the purpose of adopting standard procedures for the production of freeze-dried BCG vaccine in 2 or 3 regional laboratories to be supported by all the countries.

Further support was provided to the training of personnel in Colombia.

In cooperation with the Government of Venezuela, the Organization sponsored the 1st international course on tuberculosis epidemiology and administration of control programs (project AMRO-0409) and the 3rd international course on tuberculosis bacteriology (project AMRO-0410), both held in Caracas.

See also the -0400 projects of Argentina, Bolivia, Chile, Colombia, the Dominican Republic, Ecuador, Mexico, and Nicaragua.

#### WHO/RB

#### AMRO-0402, Tuberculosis Control (Zone II)

*Purpose:* Development of tuberculosis control programs in the countries of the Zone; integration of tuberculosis activities into the general health services; and training of personnel.

*Probable duration:* 1969-

*Assistance provided:* 1 medical officer.

*Work done:* Cooperation was extended to the authorities of the National Tuberculosis Control Campaign in Mexico. The agreements with Cuba and the Dominican Republic were reviewed and a new one was prepared for Cuba. A detailed study on the damage caused by tuberculosis in Haiti was carried out as a preliminary step toward possible control activities in the future.

See also the -0400 projects for Cuba, the Dominican Republic, and Mexico.

#### WHO/RB

#### AMRO-0403, Tuberculosis Control (Zone III)

*Purpose:* Provision of advisory services to the Governments of the countries in the Zone concerning the execution of their tuberculosis control programs.

*Probable duration:* 1963-

*Assistance provided:* 1 medical officer; and costs of the working group meeting on tuberculosis.

*Work done:* In Costa Rica the working group on tuberculosis held its 3rd meeting, at which recommendations were made on integration of services, uniform technical and administrative standards, and adequate systems of data collection and recording.

In Honduras all health services were brought into the program. The number of cases detected amounted to 62.8% of the target figure; 100% of the scheduled consultations were completed; and 62.1% of the estimated number of susceptible persons were vaccinated.

Projects for the formulation of control programs integrated into the basic health services were prepared in El Salvador, Guatemala, and Nicaragua. In Costa Rica, integration of these services proceeded at a rapid pace from the beginning of the year.

Training courses were promoted in all the countries.

#### PAHO/RB

#### AMRO-0404, Tuberculosis Control (Zone IV)

*Purpose:* Incorporation of activities for tuberculosis control into the general health services; training of medical and auxiliary personnel in modern tuberculosis control techniques; and study, organization, implementation, and evaluation of control programs.

*Probable duration:* 1962-

*Assistance provided:* 1 medical officer (part of the year).

*Work done:* Incorporation of tuberculosis control work into the regular activities of the health services was carried forward in all 4 countries in the Zone.

Bolivia completed its program of simultaneous BCG and smallpox vaccination in rural areas, performing 225,359 BCG

vaccinations (about 80% of the target), and began a tuberculosis control program in March at the Tarija Health Unit. An operational scheme was drawn up for tuberculosis control in the mining areas, where the Bolivian Mining Corporation has responsibility for medical care.

Colombia launched a national program of BCG vaccination and continued the training of personnel at all levels.

See also project Ecuador-0400.

## WHO/RB

### AMRO-0409, Courses on Tuberculosis Epidemiology

*Purpose:* Training in epidemiology, planning, evaluation, and operations research for administrators and supervisors who will participate in the work of incorporating tuberculosis control programs in the national health services.

*Probable duration:* 1969-1970.

*Assistance provided:* 4 short-term consultants, and advisory services by Headquarters staff; 1 grant.

*Work done:* In cooperation with the Government of Venezuela, the Organization sponsored an international course on tuberculosis epidemiology and administration of control programs, attended by 20 physicians from 16 Latin American countries.

## WHO/RB

### AMRO-0410, Courses on Tuberculosis Bacteriology

*Purpose:* Training of personnel in tuberculosis bacteriology methods and techniques, with emphasis on their importance in regard to epidemiological information, follow-up of treatment, and evaluation of programs.

*Probable duration:* 1969-1970.

*Assistance provided:* 2 short-term consultants, and advisory services by Headquarters staff; costs of course.

*Work done:* The 3rd international course on tuberculosis bacteriology, held in Caracas under the sponsorship of the Organization and with the cooperation of the Government of Venezuela, was attended by 14 physicians and technicians from 13 Latin American countries.

## WHO/RB

### AMRO-0500, Leprosy Control

*Purpose:* Determination of the prevalence and characteristics of leprosy in the Americas; and control of the disease.

*Probable duration:* 1958-

*Assistance provided:* 1 leprologist, and advisory services by the epidemiologist assigned to project AMRO-0106; a limited amount of supplies.

*Work done:* Assistance continued to be rendered to Governments for the improvement of their leprosy control programs in the areas of statistics, epidemiology, surveillance, administration, evaluation, and personnel training.

The control programs, particularly those of Costa Rica, Cuba, Ecuador, Guatemala, Nicaragua, and Panama, were reviewed, and it was recommended that prevention and treatment of disabilities be included in the programs of Costa

Rica, Cuba, and Panama. Nicaragua was considering the establishment of a committee to draw up a control program and review the control techniques and procedures and the system of data recording. Assistance was given to Bolivia in the training of personnel.

A report on the leprosy problem in Cuba was presented to the Government of that country.

## PAHO/RB

### AMRO-0504 (-149 and -263), Leprosy Control (Zone IV) (1960-1969) WHO/RB

The purpose was study of the leprosy problem; organization, implementation, and evaluation of control programs; and training of professional and auxiliary personnel. The Organization provided 1 short-term fellowship in 1960 and 2 in 1962, and 1 leprologist from 1963 to May 1969.

Assistance was provided to the national authorities of Bolivia, Colombia, Ecuador, and Peru in the investigation of the leprosy problem, design of control programs, improvement of administrative and statistical systems, evaluation of results, and training of personnel.

Studies were made of the frequency of disabilities caused by leprosy, and personnel were trained in the use of non-surgical rehabilitation techniques. All countries in the Zone participated in the Seminar on Administrative Methods for Leprosy Control Programs, held in 1968 in Guadalajara, Mexico.

In 1969 the Bolivian national authorities were assisted with a training course on leprosy attended by professional and auxiliary personnel and held in Monteagudo, Chuquisaca.

In Colombia the reorganization of the leprosy control program was carried to completion and the central registry of leprosy cases was also reorganized.

In Ecuador work was continued on the evaluation of the national program, which despite financial problems has been applying the recommendations of the Cuernavaca Seminar (1963).

In Peru the leprosy survey in the Ucayali region was completed.

See also the -0500 projects of Bolivia and Ecuador.

### AMRO-0600, Yaws Eradication and Venereal Disease Control

*Purpose:* Provision of advisory services on yaws eradication and venereal disease control.

*Probable duration:* 1961-

*Assistance provided:* 2 short-term consultants, and advisory services by the epidemiologists assigned to projects AMRO-0102, -0103, -0104, and -0106; teaching material.

*Work done:* A course for interviewers was held in Colombia as part of a project for the control of venereal diseases in Bogotá.

Studies on the immunology of treponematoses were sponsored at the School of Medicine of Baylor University in Houston, Texas, USA.

The Organization continued to encourage the participation of the countries in the interlaboratory evaluation of test



performance undertaken yearly by the WHO International Reference Center at the USPHS National Communicable Disease Center in Atlanta, Georgia. Costa Rica, Curacao, Ecuador, Guyana, and Jamaica were added in 1969 to the 13 countries that began to participate in 1968.

## PAHO/RB

### AMRO-0700, Pan American Zoonoses Center

*Purpose:* Strengthening of veterinary medical services, with emphasis on zoonoses control programs; conduct of research on the zoonoses of greatest prevalence and significance; and training of personnel.

*Probable duration:* 1956-

*Assistance provided:* 1 director, 1 zoonoses specialist, 1 assistant virologist, 1 laboratory animal specialist, 1 audiovisual media officer, 1 assistant scientist, 1 administrative officer, local personnel and other costs; supplies.

*Work done:* The work of the Center fell under the headings of advisory services, research, and training.

Advisory services were rendered to Argentina, Bolivia, Mexico, Paraguay, Uruguay, and Venezuela in connection with programs to combat brucellosis, encephalitis, hemorrhagic fever, hydatidosis, and rabies, and activities related to laboratory animal care.

With the cooperation of all Governments of the Hemisphere, the Rabies Surveillance System for the Americas was established; monthly reports were sent to the participating countries. The Center's laboratories continued to provide the countries with biologicals and with such services as reference diagnosis, quality control of vaccines and antigens, and typing of microbial strains.

Nine research studies on brucellosis, 5 on hydatidosis, and 11 on rabies produced results of practical value.

The Center conducted an international course on *Brucella* vaccine production and control; a seminar on rabies vaccines; and a course on the care and breeding of laboratory animals. It also gave assistance in courses on rabies diagnosis and vaccine production, held in Brazil; on laboratory aspects of brucellosis, in Mexico; on applied epidemiology, in Peru; and on general subjects, in Colombia.

Seventeen professional workers from 11 countries received training at the Center, for periods of from a few weeks to a year, in various subjects related to brucellosis, leptospirosis, rabies, hydatidosis, and tuberculosis.

Twelve papers for publication were prepared by staff of the Center.

The proceedings of the First International Seminar on Rabies in the Americas were published in Spanish by the Center (*Scientific Publication PAHO 169*).

The Scientific Advisory Committee met at the Center from 10 to 12 November.

*See also* Chapter I of this Report.

## PAHO/RB, PAHO/OF, WHO/RB

Government of Argentina, Burroughs-Wellcome Foundation, Ltd., National Communicable Disease Center (USA), Barbara Blood Ferro Fund

### AMRO-0702, Veterinary Public Health (Zone II)

*Purpose:* Development of veterinary public health services and education, with special reference to zoonoses control and food protection.

*Probable duration:* 1968-

*Assistance provided:* 1 public health veterinarian, and advisory services by Headquarters and project AMRO-0700 staff.

*Work done:* Advisory services on the control of rabies, brucellosis, and leptospirosis and on veterinary medical education were rendered to Cuba. Arrangements were made to hold a seminar on zoonoses there in 1970.

In the Dominican Republic, the rabies situation was studied and a national control program was prepared. The Organization furnished 2,000 human rabies treatments.

A training program for veterinarians in Haiti was under study.

In Mexico a national epidemiological surveillance system for rabies was established; it was integrated with the Rabies Surveillance System for the Americas of the Pan American Zoonoses Center. Two courses on brucellosis laboratory techniques were held for veterinarians of the health and agricultural services.

## PAHO/RB

### AMRO-0703, Veterinary Public Health (Zone III)

*Purpose:* Development of veterinary public health services and education, with special reference to zoonoses control and food protection.

*Probable duration:* 1957-

*Assistance provided:* 1 public health veterinarian, and advisory services by staff of Headquarters and of projects AMRO-0700 and -0800.

*Work done:* A Summary of the 1968 Status of the Zoonoses was prepared and distributed to the public health and agricultural authorities of the countries of Central America and Panama.

Fourteen inspectors from the Ministries of Health and Agriculture in British Honduras participated in a course on meat hygiene held in March.

In Costa Rica a significant reduction in cases of rabies was achieved as a result of the control campaign.

A rabies surveillance system was developed in El Salvador. The health authorities were assisted with the investigation of an outbreak of Venezuelan equine encephalitis during which 1,500 horses died and 14 cases and 6 deaths in man occurred. More than 125,000 animals were vaccinated to bring the outbreak under control.

In Guatemala assistance was given during a Venezuelan equine encephalitis outbreak which resulted in the loss of 5,200 horses; 112,000 animals were immunized against the disease.

In Honduras the vaccination campaign personnel immunized approximately 58,000 horses during an epidemic of Venezuelan equine encephalitis which caused 1 human death and the loss of 1,200 horses.

A national plan for the control of rabies in Nicaragua was

prepared. A vaccination campaign was carried out for the control of an outbreak of Venezuelan equine encephalitis.

In Panama programs for rabies prevention and for food protection were reorganized.

## WHO/RB

### AMRO-0704, Veterinary Public Health (Zone IV)

*Purpose:* Development of veterinary public health services and education, with special reference to zoonoses control and food protection.

*Probable duration:* 1968-

*Assistance provided:* 1 public health veterinarian, and advisory services by staff of Headquarters and of projects AMRO-0700 and -0800.

*Work done:* The School of Veterinary Medicine of Santa Cruz, Bolivia, was assisted with the teaching of public health, preventive medicine, and biostatistics, and with the reorganization of the Clinical Department. Several teachers from the School received training outside of the country in various specialties. Six veterinarians completed postgraduate training at the University of San Marcos and two more studied at the University of São Paulo, Brazil. The Government was assisted in preparing a request for a loan from the Inter-American Development Bank for the control of foot-and-mouth disease, brucellosis, and bovine rabies.

In Colombia, PAHO staff assisted with the teaching in the Schools of Public Health and of Veterinary Medicine at the University of Antioquia, Medellín. Seventeen Colombian veterinarians participated in the seminar on rabies in Lima (AMRO-0717). A professor from the School of Veterinary Medicine of Bogotá participated as a PAHO/WHO fellow in the Inter-Regional Seminar on Food Hygiene, held in Copenhagen.

Technical assistance was given to Ecuador in the investigation of a Venezuelan equine encephalitis outbreak that occurred along the coast in the first half of the year; 16 human deaths, 30,000 deaths of horses, and many clinical cases were reported. Three veterinarians received training at the Pan American Zoonoses Center in procedures for the investigation of brucellosis, tuberculosis, and rabies. One technician from the National Institute of Health participated in the seminar on rabies vaccines held at the Center.

In Peru a vaccination program was carried out for the control of goat brucellosis in Lima and Ica. Assistance was provided during the seminar on rabies held in Peru, for the countries of the Zone IV. A course on applied epidemiology of the zoonoses and foot-and-mouth disease was conducted for veterinarians and physicians of public health and agricultural services, the Armed Forces, hospitals, and universities in the country.

## WHO/RB

### AMRO-0710, Rabies Control (Mexico-United States of America Border)

*Purpose:* Control of canine rabies along the United States-Mexico border.

*Probable duration:* 1966-1971.

*Assistance provided:* 1 public health veterinarian, 1 secretary, and advisory services by Headquarters staff; local costs.

*Work done:* A total of 100,000 dogs were vaccinated; 9 of the 12 cities included in the program achieved 80% of the target in vaccinating owned dogs. Approximately 25,000 dogs were captured; 6 cities captured and sacrificed more than 20% of the estimated dog population. During 1969, cases of canine rabies in animals were reduced by 15%. Eight cities which reported the disease in 1967 or 1968 were freed of canine rabies.

An evaluation of the project was completed.

## PAHO/OF

### National Communicable Disease Center (USA)

### AMRO-0716, Seminar on Rabies Vaccine Production and Control

(Buenos Aires, Argentina; 17-28 November 1969) PAHO/RB

The purpose was to review and provide training in modern laboratory techniques for the production and control of rabies vaccines.

The Organization provided 3 short-term consultants, covered the costs of the Seminar, and arranged for teaching services by the staff of project AMRO-0700 and of Headquarters.

The Seminar was attended by 25 physicians, veterinarians, and laboratory specialists from 14 countries of the Americas. A review was made of the techniques of vaccine production and control, in accordance with the recommendations of the WHO Study Group on Rabies Research. Laboratory practices and demonstrations of all techniques were performed during the Seminar. A manual of laboratory procedures was subsequently prepared by the Pan American Zoonoses Center for distribution in the Region.

### AMRO-0717, Seminar on Rabies (Zone IV)

(Lima, Peru; 6-11 October 1969) PAHO/RB

The purpose was to review the rabies situation in the four countries of the Zone and to study methods of formulating coordinated control programs.

The Organization covered the costs of the meeting and provided the advisory services of staff of the Zone IV Office, project AMRO-0700, and Headquarters.

The Seminar was attended by 80 professional workers from the 4 countries, 6 advisers from the Organization, a delegate from the National Health Service of Chile, and an observer from FAO. Several papers were presented on each of the 6 main subjects: resources and personnel for rabies control programs; diagnostic services; case-reporting and surveillance services; health education; vaccine production and requirements; and planning and financing of national control programs. There was also a special session on paralytic rabies in cattle. The Seminar's recommendations were set forth in the final report.

**AMRO-0800, Pan American Foot-and-Mouth Disease Center**

*Purpose:* Control and prevention of foot-and-mouth disease and vesicular diseases; conduct of research related to the preparation and testing of vaccines; and training of personnel.

*Probable duration:* 1951-

*Assistance provided:* 1 director, research and field personnel of the Center, and 28 short-term consultants (4 served 2 consultantships); technical assistance provided by the Center; 1 grant; 36 short-term fellowships—Barbados, Bolivia (2), Brazil (4), Chile (4), Colombia (3), Costa Rica, Cuba, Dominican Republic, Ecuador (3), El Salvador, Guatemala, Guyana (2), Haiti (2), Honduras, Nicaragua, Panama, Paraguay, Peru (2), Surinam, Trinidad and Tobago, Uruguay, and Venezuela.

*Work done:* The Center maintained cooperation with the countries affected by foot-and-mouth disease as well as with those in the disease-free area.

The diagnostic reference laboratories received from the various countries 580 epithelium samples, of which 488 were positive for foot-and-mouth disease and 18 positive for vesicular stomatitis. A total of 822 cc of hyperimmune serum representing 11 strains of both these diseases were delivered to 11 countries to assist them in their investigations. In addition, 102 cc of hyperimmune serum were sent to the World Reference Laboratory. Staff of the Center collaborated with the U.S.-Argentine Advisory Committee on Foot-and-Mouth Disease in the vaccine trials conducted in Argentina. A meeting of representatives of Argentina, Brazil, Chile, and Uruguay was held to review procedures for vaccine potency testing.

Assistance was rendered to Chile, Ecuador, Paraguay, and Venezuela in connection with control programs and vaccine production. Staff of the Center collaborated with the authorities of Bolivia and Peru in the preparation and review of applications to the Inter-American Development Bank for loans to finance control campaigns.

The authorities of the Preventive Program of Panama-OIRSA (International Regional Organization for Health in Agriculture and Livestock) were assisted in maintaining the vaccination and surveillance activities in the Chocó area (Panama-Colombia).

Three international courses were conducted: one on diagnosis of vesicular diseases (held at the Center, 16-28 June), with 14 participants from 12 countries; and two on preventive measures for disease-free countries (Cuayaquil, Ecuador, 1-13 September, and Maracay, Venezuela, 1-13 December, with a total of 24 veterinarians from 16 countries participating. Assistance was given by the Center's staff to national courses in Brazil, Chile, Colombia, and Peru. Twenty-one fellows were trained under supervision of the Center.

Research activities during the year led to the discovery of a difference between subtype A<sub>24</sub> and A Strain of Uruguay/68 virus, which had been used for many years for vaccine production and control. Cross immunity tests in cattle confirmed the difference; the World Reference Laboratory was requested to include it in the international classification of the subtypes of type A Vallecé virus.

Approximately 100 typings, subtypings, and titrations were conducted each month.

Studies on inactivated and modified live-virus vaccines constituted the majority of the research activities of the Center. Some of the general research studies included: marker studies of foot-and-mouth disease virus; cross immunity tests in cattle; convalescence immunity in swine and sheep; and effects of polyionic compounds on plaque production in some strains of vesicular stomatitis virus.

The following meetings took place in Rio de Janeiro: the Second Inter-American Meeting on Foot-and-Mouth Disease and Zoonoses Control (14-17 May); the Scientific Advisory Committee of the Center (5-7 November); and the Subcommittee on Foot-and-Mouth Disease of the Committee on Animal Health of South America (COTERSA) (12-15 November).

*See also Chapter I of this Report.*

**PAHO/RB, PAHO/OF**

**Government of Brazil,  
AID (USA)**

**AMRO-0900, Plague Control**

*Purpose:* Control of plague and development of epidemiological studies in the plague endemic areas of countries of the Americas where the disease is endemic.

*Probable duration:* 1966-

*Assistance provided:* 2 short-term consultants, and advisory services by the epidemiologist assigned to project AMRO-0104.

*Work done:* In 1969, 424 cases of plague were reported to the Organization: 293 in Brazil, 95 in Bolivia, 23 in Ecuador, 8 in Peru, and 5 in the United States of America. Of the cases in Bolivia, 80 were the result of an outbreak which occurred during February-March in Apolo Canton, Caupolicán Province (La Paz). A short-term consultant assisted with the study of the outbreak.

*See also projects Brazil-0901, Ecuador-0900, and Peru-0900.*

**WHO/RB**

**AMRO-1000 (-0107), Parasitic Diseases**

*Purpose:* Planning and execution of research and control programs related to parasitic infections; establishment of priorities; and development of better control procedures.

*Probable duration:* 1966-

*Assistance provided:* 1 parasitologist, and 1 secretary; a limited amount of equipment and supplies.

*Work done:* Project staff participated in the Second Meeting of the Caribbean Committee on Bilharziasis (Schistosomiasis) Research held in Maracay, Venezuela; consulted with authorities in Brazil, Colombia, Costa Rica, Peru, Puerto Rico, and Venezuela concerning problems of parasitic diseases; participated in a WHO conference to review schistosomiasis control programs; and took part in a review of the status of schistosomiasis in Brazil.

The program of advisory services and distribution of information to research workers was continued. A consultant reviewed the problem of helminthiasis control in El Salvador,

and another visited centers in five countries with the objective of collecting information on existing centers for research training in parasitology.

#### PAHO/RB

#### AMRO-1007 (-0901), Schistosomiasis

*Purpose:* Development of national programs of schistosomiasis control and research.

*Probable duration:* 1960.

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters staff; 1 grant; and supplies.

*Work done:* In Brazil consultants reviewed problems of schistosomiasis associated with irrigation schemes and with the program for development of water resources in the San Francisco Valley. Plans for national programs were drawn up in the Dominican Republic and Surinam, and in Puerto Rico the island-wide program was reviewed with the aim of improving control methods and evaluation techniques.

Support for the Schistosomiasis Snail Identification Center for the Americas, in Brazil, was continued.

The Caribbean Committee on Bilharziasis (Schistosomiasis) Research met in February in Maracay, Venezuela.

#### PAHO/RB

#### AMRO-1008 (-0902), Chagas' Disease

*Purpose:* Determination of the epidemiological characteristics of the disease, its prevalence, and its severity; support for national control programs; and encouragement of research and training activities related to national programs.

*Probable duration:* 1960.

*Assistance provided:* 4 short-term consultants, and advisory services by Headquarters staff; 1 grant for research; contractual services; and supplies.

*Work done:* The project to select a standardized diagnostic antigen was continued, tests being made of 8 antigens against sera for specificity. Three antigens were discarded as un-specific; the others were being tested for sensitivity.

Support was given to research studies on modification of strains of the parasite in culture.

A bibliography on Chagas' disease was being compiled, with grant funds from the Wellcome Trust and the collaboration of the U.S. Department of Agriculture (Index Catalog of Medical and Veterinary Zoology).

Short training courses in laboratory diagnosis were conducted in El Salvador and Panama.

An agreement for a collaborative control program was signed with Uruguay.

Assistance was given to a meeting held in Bahia, Brazil, to plan systematic studies on the cardiac form of the disease.

#### PAHO/RB, PAHO/OF

The Wellcome Trust

#### AMRO-1010 (-0911), Study Group on Chagas' Disease (Washington, D.C.; 2-8 September 1969) PAHO/RB

The purpose was to appraise the status of existing programs for the control of Chagas' disease and formulate rec-

ommendations on the content of future programs. The Organization provided 4 professional staff members, travel and per diem for 13 specialist consultants, and costs of the meeting.

The principal conclusions of the Group were that: control of the disease by systematic use of insecticides against the vector is feasible and has been successful in some areas; more countries should develop broad control programs; methods of control should be standardized and programs should follow a logical process starting with collection of baseline data and continuing with control activities that are properly evaluated; research studies should be a part of each control program; because of the importance of the disease, Governments should give increased support to programs for its control.

The Group prepared a report, with recommendations, which was printed in Spanish and distributed throughout the Region (*Scientific Publication PAHO 195*). An English version was in the process of publication.

#### AMRO-1011 (-0917), Research on Chagas' Disease

*Purpose:* Support of research on the enzyme systems of *Trypanosoma cruzi*, with the objective of learning how it damages the host and how it responds to other organisms associated with it.

*Probable duration:* 1969-1970.

*Assistance provided:* A grant to a staff member of the Department of Zoology, Whitman College, Walla Walla, Washington, U.S.A.

*Work done:* The grant was made in late 1969 and no results were reportable by the year's end.

#### PAHO/RB

#### AMRO-2100, Environmental Sanitation

*Purpose:* Technical assistance to the Governments in the planning and execution of their environmental sanitation programs.

*Probable duration:* 1958-

*Assistance provided:* 1 short-term consultant, and advisory services by staff of Headquarters and of the Zone Offices; contractual services; and supplies.

*Work done:* Assistance was rendered to the countries in the field of solid waste collection and disposal. In Venezuela advice was given on waste disposal in metropolitan Caracas, in connection with a prospective United Nations project that will include also other problems of this metropolitan area.

The Government of Honduras was assisted with the preparation of specifications for the purchase of garbage trucks for use in Tegucigalpa. In Chile the bases were prepared for a feasibility study on collection and final disposal of solid wastes in 3 districts of metropolitan Santiago. Cooperation was also extended in a study on the improvement of sanitary landfills in another 5 districts of Santiago.

In Argentina further assistance was rendered in connection with studies under way to solve the problem of solid-waste disposal in Buenos Aires and 60 other communities with 30,000 or more inhabitants.

## VIII. PROJECT ACTIVITIES

Surveillance Network, coordinated by the Center, comprised 22 stations, 9 of them financed by the Organization and 13 by the participating countries. The stations were situated in Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay, and Venezuela. The first report of the Network was distributed in March. Equipment for 10 new stations financed by the Organization was ordered. At the request of the respective countries, evaluations of the air pollution programs were made in Argentina, Colombia, and Cuba and legislation was reviewed in Argentina, Chile, Colombia, and Peru.

Collaboration was extended to national housing and urbanization authorities in Argentina, Bolivia, Chile, and Peru. The Inter-Agency Committee on Housing and Urban Development (OAS, UN, ECLA, AID, IDB, and PAHO) was assisted with the planning of the second pilot project on rural housing which will be conducted in Colombia, Ecuador, and Venezuela. Advisory services in rural housing and physical planning were given to the project for the development of the Huallaga River Basin in Peru.

The final report on the UNDP project related to the Institute of Occupational Health and Air Pollution Research was prepared by the Center's staff. El Salvador was assisted with a study of industrial hygiene legislation.

Assistance was given in the planning and conduct of conferences, courses, or seminars on air pollution, housing, and industrial hygiene in Bolivia, Chile, Colombia, El Salvador, Mexico, Paraguay, and United States of America.

Three meetings were held at the Center: an AIDIS (Inter-American Association of Sanitary Engineering) Executive Board meeting, a meeting of PAHO staff to discuss housing policy, and a meeting of PAHO Zone engineers.

Assistance was given to Zone and Country Offices on matters related to fellowships and training programs for professionals working in specialized fields.

**PAHO/RB, WHO/RB, WHO/OF****AMRO-2200, Water Supplies**

*Purpose:* Advisory services to the countries with respect to the planning, financing, administration, and execution of national water supply and sewerage programs and to the organization and administration of central and local agencies providing such services.

*Probable duration:* 1959-

*Assistance provided:* 2 sanitary engineers, 2 specialists in administration, 4 short-term consultants (1 of them served 3 consultantships), and 3 secretaries; supplies.

*Work done:* Two documents were published: 1 on the establishment of revolving funds for rural water supply programs and 1 on new approaches to work in rural areas. Assistance in the field of administrative improvements was given, through teams of specialists, to national institutions in Bolivia, the Dominican Republic, and Uruguay. Ten countries were assisted with the implementation of recommendations on construction, operation, and maintenance of water systems. Advice was rendered to the engineering school of a national university on measures to improve its administrative system. Eight training courses were offered for a total of 263 staff members of water and sewerage agencies.

The total allotments in the national budgets for water supply and sewerage works in 1969 was approximately \$212,350,000, of which \$65,350,000 was derived from international loans and \$147,000,000 from national counterpart funds and other domestic sources.

It is estimated that 5 million persons were benefited by the construction of new facilities or expansion of existing systems.

**PAHO/RB****AMRO-2203, Water Supplies (Zone III)**

*Purpose:* Development of the water supply and sewerage programs of the countries in the Zone.

*Probable duration:* 1964-

*Assistance provided:* 1 sanitary engineer, 1 administrative methods consultant, 1 consultant in well-drilling, 1 short-term consultant, and 2 secretaries.

*Work done:* A report on revision and evaluation of the 1967 and 1968 water supply, sewerage and latrine construction programs of the Central American Isthmus, presented by the Permanent Sanitation Committee of Costa Rica, was approved at the III Meeting of the Central American Public Health Council and XIV Meeting of Ministers of Public Health of Central America and Panama (San José, Costa Rica, June 1969). Implementation of the recommendations contained in the study on the National Water Supply and Sewerage Service (SNAA) of Costa Rica was awaiting signature of the agreement and of the contract for the Inter-American Development Bank loan requested by SNAA. In Honduras the National Autonomous Water Supply and Sewerage Service (SANAA) began to implement a number of the recommendations in the feasibility study on the water supply program for the capital, prepared by an Organization consultant; SANAA also received advisory services in connection with water rates. In Nicaragua the National Department of Water Supply and Sewerage Services (DENACAL) continued to implement the recommendations of the advisory team and received assistance in regard to project engineering, accounting, personnel, and organization of the Hydrogeology Section. In Panama an assessment was made of the situation of the Water and Sewerage Institute.

The well-drilling programs of the countries of the Zone were provided with technical assistance, principally in connection with organizational structure and work standards, construction methods, equipment operation and maintenance, and personnel training.

Assistance was given with the formulation of emergency environmental sanitation measures for the areas affected by the situation between Honduras and El Salvador.

The administrative methods consultant advised 3 countries outside Zone III on the preparation of diagnoses and surveys of the status of water supply services, as a basis for team advisory services. The consultant in well-drilling assisted with various courses offered in 2 countries outside the Zone.

**PAHO/RB**

**AMRO-2213, Studies and Investigation of Water Resources**

*Purpose:* Over-all study of the potential water resources of the Region and their present and future use, with emphasis on the provision of additional water supplies; and study of the problems of waste water disposal and the resultant pollution of surface water and groundwater.

*Probable duration:* 1965-1970.

*Assistance provided:* 1 sanitary engineer, and advisory services by staff of the Zone Offices and of country projects.

*Work done:* The mission for evaluation and planning of water and sewerage services and for study of water pollution problems in the Central American countries and Panama carried on its activities. The planning mission completed the first draft of its report on the use of water resources of the Paraíba do Sul River Basin in Brazil. A start was made on verification of the data for Uruguay to be included in the final report on the study of water resources in that country.

The Organization participated in a number of ECLA activities dealing with water resources in the countries of the Region.

**WHO/UNDP****AMRO-2215, Applied Research on Water Supplies**

*Purpose:* Promotion of research and studies on problems relating to public water supply and sewerage systems and to water pollution.

*Probable duration:* 1968-

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters staff; 1 grant.

*Work done:* A start was made on the preparation of a basic document on the status of water pollution problems in the countries of the Region and on relevant research activities under way in public and private universities and other institutions. A manual was prepared for use in PAHO-sponsored research activities in this field. At the University of Buenos Aires research on the use of stabilization ponds for waste-water treatment was continued.

**PAHO/RB****AMRO-2219, Water Meters**

*Purpose:* Development of a plan of operations for a program of research and training in connection with household water meters.

*Probable duration:* 1969-1970.

*Assistance provided:* 1 short-term consultant; costs of preparing a course.

*Work done:* The Organization, with financial assistance from the Inter-American Development Bank, prepared a reference manual on household water meters.

The University of São Paulo, Brazil, the National University of Colombia, and San Carlos University in Guatemala started concurrent research projects on the use and operation of water meters in São Paulo, Bogotá, and Guatemala City, respectively.

**PAHO/OF****IDB****AMRO-2300, Aedes aegypti Eradication**

*Purpose:* Coordination and evaluation of the *A. aegypti* eradication programs in the Americas.

*Probable duration:* 1954-

*Assistance provided:* 1 medical officer, 1 entomologist, and 1 sanitary inspector; equipment and supplies.

*Work done:* Following the reinfestation of Colón, in Panama, assistance was given to the Government of that country in reinstating the eradication campaign.

The authorities of Jamaica, the Netherlands Antilles, and the Cayman Islands were assisted with the planning of national campaigns.

Cooperation was extended to the health authorities of Mexico and of the United States of America in the holding of a technical meeting at El Paso, Texas, to study the problem of reinfestation of Mexico by *A. aegypti*.

Eradication activities were continued in the areas of northern Brazil reinfested by *A. aegypti* (São Luis, Tiririca, and Rabamar, in Maranhão State).

In Jamaica the timing tests with Abate were completed and another series of tests were started to assess the effectiveness of 4 new insecticides.

**PAHO/RB****AMRO-2301, Aedes aegypti Eradication (Caribbean Area)**

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1950-

*Assistance provided:* 1 medical officer, 3 sanitary inspectors, and advisory services by project Surinam-2300 staff; spraying equipment and insecticides (Baytex and Abate) to 9 countries and territories.

*Work done:* Eradication campaigns (attack phase) were in operation in Barbados, Guadeloupe, Guyana, French Guiana, Martinique, Surinam, and St. Lucia. Preparatory work for campaigns was carried out in Antigua, Grenada, Jamaica, and the Netherlands Antilles. Control programs were continued in the Bahamas and in Venezuela.

Epidemics of dengue occurred in Jamaica, Puerto Rico, and Venezuela. Dengue virus types 2 and 3 were isolated in Jamaica, which indicated the possible presence of hemorrhagic dengue.

Susceptibility tests conducted by the PAHO Testing Unit revealed no evidence of vector resistance to the organophosphorus insecticides.

More than 250 field inspectors were trained in the area.

See also the -2300 projects of Barbados, Guyana, Surinam, and Venezuela.

**PAHO/RB, WHO/UNDP****AMRO-2303, Aedes aegypti Eradication (Zone III)**

*Purpose:* Eradication of *A. aegypti*.

*Probable duration:* 1968-

*Assistance provided:* 1 sanitary inspector; a limited amount of supplies.

*Work done:* For budgetary reasons, the campaign in El

Salvador continued to be limited to the city of San Salvador and to Ilopango airport and its immediate area. In the 3rd verification cycle 77,099 houses were treated and 51,628 inspected, with 2,281 found positive. In the course of 2 verification cycles at Ilopango, 1,135 and 1,178 houses were inspected. In the 2nd verification, 2 houses were found to be positive and were immediately treated.

See also the -2300 projects for Guatemala, Honduras, and Panama.

#### PAHO/RB

#### AMRO-2400, Public Health Aspects of Housing and Urbanization

*Purpose:* Improvement of housing conditions in urban and rural areas of the countries of the Region, with special reference to sanitation and health aspects.

*Probable duration:* 1962-1971.

*Assistance provided:* 1 sanitary engineer, and advisory services by staff of Headquarters, Zone IV Office, and project AMRO-2114.

*Work done:* The Organization continued to cooperate with the Inter-American Housing and Planning Center (CINVA) of the Organization of American States, in Bogotá, Colombia. It provided assistance in the following courses offered by the Center: 1st course on housing design and construction (3 February-28 March), for 17 professionals from 5 countries; 1st course on housing planning at the institutional level (3 February-28 March), for 22 professionals from 8 countries; 4th advanced course on housing (7 April-25 September), for 13 professionals from 6 countries; and a course on social aspects of housing and urban development (20 October-19 December), for 25 professionals from 3 countries. It also took part in the 9th regional course on rural housing, held in La Paz, Bolivia (18 June-16 August), for 14 professionals from 4 countries, and in a course on housing cooperatives, in Córdoba, Argentina (26 May-18 July), for 24 professionals from 4 countries, which were also organized by CINVA.

About 400 copies of the publication on minimum urbanization standards for the Central American countries, prepared by the OAS and the Organization, were printed and distributed to housing and urban planning institutions throughout the Region.

The final version of the basic document for a research project on design criteria and standards and costs of sanitation works for housing developments was completed.

The first pilot project of rural housing sponsored by the Inter-Agency Committee on Housing and Urban Development was completed in Central America, and a detailed report was prepared thereon. Initial steps were taken to organize the second pilot project in this series, which will possibly be carried out in 3 South American countries.

See also projects Venezuela-2400 and AMRO-2114.

#### PAHO/RB

#### AMRO-3107, Public Health Administration (Caribbean Area)

*Purpose:* Assistance to the Governments of the eastern

Caribbean area in the formulation and implementation of health programs, within their socioeconomic development plans and with a view to the maximum utilization and coordination of local resources and the sharing of specialized services.

*Probable duration:* 1963-

*Assistance provided:* 1 medical officer, 1 nurse educator (part of the year), 1 administrative methods officer, and 1 secretary; supplies.

*Work done:* Assistance was given in the preparatory work for a National Health Plan for Anguilla, Nevis, and St. Kitts. The diagnosis of the health situation was the subject of a workshop held in October. A study on the administration of the Joseph France General Hospital and another on the general administration of the health services in St. Kitts were completed.

In Barbados a comprehensive study of the administration of the Queen Elizabeth Hospital was completed and an over-all study of the administration of the health services was in progress. Assistance was given in a study of the activities of 5 infirmaries taken over from the local government.

In Guyana, 4 intermediate-level administrators were trained and a public health nurse began an academic course in nursing administration.

The integrated health program in Montserrat was evaluated and a nursing resources study was under way.

#### PAHO/RB, WHO/RB

#### AMRO-3108, Field Office: United States-Mexico Border

*Purpose:* Cooperation in the joint study and planning of health activities along the United States-Mexico border; exchange of epidemiological information between the two countries; and performance of the duties of Secretariat of the United States-Mexico Border Public Health Association.

*Probable duration:* 1952-

*Assistance provided:* 1 medical officer, 1 sanitary engineer, 1 nurse, 1 short-term consultant (5 consultantships), and secretarial and conference services.

*Work done:* The XXVII Annual Meeting of the United States-Mexico Border Public Health Association was held in Santa Fe, New Mexico, in June. The resolutions approved dealt with epidemiological surveillance along the border, nutrition education activities, study of the problem of brucellosis, *Aedes aegypti*, air pollution control, the role of the nurse in environmental sanitation programs, prevention of rheumatic fever, research on syphilis vaccine, and tuberculosis control. In addition, recommendations were approved on the exchange of public health personnel and on establishment of a center to train professionals in analytical methods for measuring the residual effect of pesticides.

A joint meeting was held in Nuevo Laredo, Tamaulipas, in April to discuss the treatment of pulmonary tuberculosis; it was attended by 60 federal, state, and local officials from the 2 countries.

The binational committees focused special attention to venereal diseases.

The Binational Environmental Sanitation Committee met

to assess the progress of the environmental sanitation project for Laredo, Texas, and Nuevo Laredo, Tamaulipas, and some of its members visited the border cities to evaluate the problem of solid wastes.

A joint meeting was held in September in El Paso, Texas, to study the problem of *A. aegypti* invasion from the United States to Mexico.

In the field of nursing, a training program for professional and auxiliary personnel was prepared.

Training courses were offered for nursing auxiliaries, empirical midwives, restaurant owners, food handlers, and nursing and health statistics volunteers. A binational seminar on housing was attended by 55 persons.

The Border Association's Permanent Committee on Education and Training discussed the possibility of establishing a Permanent Evaluation Committee which could undertake a continuing assessment of the results of the Association's efforts in behalf of the health of the population in the border areas.

During the year, 8 local councils operating in the border area held meetings at intervals of 2 or 3 months to examine major health problems.

The survey of border health resources was continued.

The Field Office was represented at meetings of the International Border Commission for Economic Development and Friendship and of the International Good Neighbor Council.

#### PAHO/RB, WHO/RB

#### AMRO-3110, Research Development and Coordination

*Purpose:* Development and implementation of a biomedical research program in fields that are directly relevant to health problems of the Region; promotion of multinational cooperative efforts among biomedical scientists so as to make the best possible use of existing resources for research and research training; strengthening of biomedical communications and resources; and improvement of the effectiveness of health expenditures through the application of operations research methodologies to the planning and administration of programs.

*Probable duration:* 1962.

*Assistance provided:* 50 short-term consultants (1 of them served 2 consultantships and 2 others served 3) and secretarial services; costs connected with the meeting of the PAHO Advisory Committee on Medical Research; and publications.

*Work done:* The Eighth Meeting of the PAHO Advisory Committee on Medical Research was held in June. Perinatal factors affecting human development was the subject of the Committee's special session; *Scientific Publication PAHO 185* recorded the papers and discussions presented. During the Advisory Committee meeting there was also a symposium on the subject of iron metabolism and anemia, the proceedings of which were published in *Scientific Publication PAHO 184*. Other subjects considered by the Committee included dental health studies, geographic distribution and possible northward movement of Venezuelan encephalitis virus in Central America and Mexico, operations research on health

economics and medical care, and the role of molecular biology in health and medicine.

A comprehensive summary of current knowledge on Argentine hemorrhagic fever, completed by an exhaustive bibliography, was published (*Scientific Publication PAHO 183*).

In accordance with the Committee's recommendations, the unit on operations research, established at Headquarters in November 1968 and staffed with a research analyst, pursued its objective of promoting the application of the concepts and methodologies of such research to the description and solution of health problems in order to maximize returns on investments. During 1969 various methodologies were applied to problems in the health field, including the development of a classification procedure based on the activities normally performed in a group of 20 hospitals, prediction of the flow of medical school students and graduates according to different administration policies, and determination of a typology for the American countries based on mortality structures. The "critical-path" method was used for the planning, programming, and evaluation of project Colombia-6204 (Experimental Studies on Health Services). Data were collected at the blood bank in Kingston, Jamaica, for use in the study of blood-bank inventory procedures.

**PAHO/RB, PAHO/OF** Cyanamid International, Merck, Sharp and Dohme International, NIH, Special Committee for the International Biological Program, U.S. Army

#### AMRO-3122, Development of the River Plate Basin

*Purpose:* Incorporation of the analysis of health sector problems (especially those of sanitation, nutrition, and medical care) into the studies aimed at identifying the projects to be undertaken for the development of water resources, and into the preinvestment studies of regional interest designed to promote the over-all development of the River Plate Basin.

*Probable duration:* 1967.

*Assistance provided:* 1 sanitary engineer, 4 short-term consultants, and advisory services by Headquarters staff; costs of a meeting.

*Work done:* A study was made of the quality of water in the River Plate Basin; the preliminary report was completed and was submitted to the Argentine, Brazilian, Paraguayan, and Uruguayan National Commissions on the Basin and to the Intergovernmental Coordinating Committee. Work was continued on the establishment of uniform methods of water analysis and strengthening of a network of laboratories to continue and expand the system of information on water quality in the Basin.

The programming of health activities as an integral part of the development program for the Basin was begun with an over-all study of health conditions in a pilot project for the development of the Santa Lucía River Basin in Uruguay.

**PAHO/RB, PAHO/OF**

**IDB**



**AMRO-3129, Research Training in Biomedical Sciences**

*Purpose:* Provision of research training in the biomedical sciences so as to enable workers from Latin America and the Caribbean area to broaden their experience within the Hemisphere.

*Probable duration:* 1969-

*Assistance provided:* Processing of applications, and general administration by Headquarters staff.

*Work done:* A three-year experimental program for advanced training in clinical research was launched in late 1968. A panel was appointed to assist in the technical appraisal of applications received; it comprised 8 members chosen from the fields of immunology, endocrinology, hematology, parasitic diseases, clinical medicine, pediatrics, surgery, and rehabilitation. Five applications were received and reviewed; 2 were in the final stage of processing.

**The Wellcome Trust****AMRO-3200, Nursing Services**

*Purpose:* Assistance to countries in the development of long- and short-range plans to meet the nursing needs of the health programs and services; and strengthening of the administration and organization of the nursing services in order to improve patient care.

*Probable duration:* 1968-

*Assistance provided:* 1 short-term consultant (2 consultant-ships); a limited amount of materials and supplies.

*Work done:* A study of the nursing component of 6 general health services projects was carried out, the ultimate purpose being to improve the effectiveness and efficiency of the advisory services provided at the country level in this field. The report was in preparation.

Reference materials were provided to assist in the development of nursing services.

**PAHO/RB****AMRO-3201, Nursing (Zone I)**

*Purpose:* Development of systems of nursing in the countries of Zone I, in order to prepare nursing personnel adequate in quantity and quality to meet the needs.

*Probable duration:* 1959-

*Assistance provided:* 1 nurse and 1 secretary; supplies.

*Work done:* As a part of national health planning, nursing activity studies were carried out in Guyana and Montserrat and inventories of health personnel were conducted in Guyana and St. Kitts. Assistance continued to be given in the improvement of diploma and university-level nursing schools, as well as in continuing education and in postbasic programs in psychiatric and public health nursing. A guide for the training and utilization of nursing assistants in the English-speaking areas was prepared during a multidisciplinary seminar.

**PAHO/RB****AMRO-3202, Nursing (Zone II)**

*Purpose:* Development of systems of nursing in the countries of Zone II in order to prepare nursing personnel adequate in quantity and quality to meet the needs.

*Probable duration:* 1963-

*Assistance provided:* 1 secretary, and advisory services by project Mexico-6300 staff; a limited amount of equipment and supplies.

*Work done:* Assistance was rendered to projects in the 4 countries of the Zone, in connection with the planning of nursing programs, identification of needs and resources, and definition of activities to achieve the established objectives. Guidance was given to permanent staff and short-term consultants of projects Cuba-3100, Dominican Republic-3100 and -6300, Haiti-3100 and -6300, and Mexico-6300. Two of the 4 countries conducted nursing resources studies and one defined its system of nursing. In all countries there was an increase in the number of formally trained auxiliaries, thereby improving the ratio of nursing manpower to population.

**PAHO/RB****AMRO-3203, Nursing (Zone III)**

*Purpose:* Development of systems of nursing in the countries of Zone III in order to prepare nursing personnel adequate in quantity and quality to meet the needs.

*Probable duration:* 1963-

*Assistance provided:* 2 nurses and 1 secretary; supplies.

*Work done:* In El Salvador, Guatemala, Honduras, and Panama progress was made in the organization of nursing units at the central level charged with establishing standards and exercising supervision over the nursing services. In Guatemala the nursing activities study was completed and preparations were being made for the analysis of its findings. In Honduras the hospital nursing services were improved and progress was made in the integration of nursing with general public health activities.

Nursing personnel in the health services was increased from 2.5 nurses and 5.4 auxiliaries per 10,000 inhabitants in 1966-1967 to 2.7 nurses and 9.0 auxiliaries for 1969-1970.

A total of 181 nurses from 60 hospitals in British Honduras, El Salvador, Guatemala, Honduras, Nicaragua, and Panama were trained.

**PAHO/RB****AMRO-3204, Nursing (Zone IV)**

*Purpose:* Development of systems of nursing in the countries of Zone IV in order to prepare nursing personnel adequate in quantity and quality to meet the needs.

*Probable duration:* 1952-

*Assistance provided:* 1 nurse and 1 secretary.

*Work done:* Assistance was rendered to the countries of the Zone in the identification of needs for advisory services, in the redefinition of functions, and in the conduct of activities. In Bolivia the first national seminar on nursing services, held in La Paz, was attended by 92 participants. Its purpose

was to lay emphasis on the need for introducing changes in nursing care. A study of nursing manpower was initiated.

In Colombia the basic provisions were drawn up for an agreement between the Colombian Association of Nursing Schools, the Ministry of Public Health, and the Organization for the establishment of a human resources development plan. The International Conference on Nursing-Midwifery Education for Latin America, held in Cali, was attended by 11 midwives and 26 nurses from 11 countries.

In Ecuador the first seminar on nursing education was conducted in Cuenca, with 48 participants. Initial work was done on the organization of nursing services at the central and regional levels.

In Lima, Peru, the second national congress of nurses was attended by 1,315 participants. In Colombia and Peru the administrative nursing structure at the central level was redefined.

#### PAHO/RB

#### AMRO-3206, Nursing (Zone VI)

*Purpose:* Development of systems of nursing in the countries of Zone VI in order to prepare nursing personnel adequate in quantity and quality to meet the needs.

*Probable duration:* 1963-

*Assistance provided:* 1 nurse, 1 short-term consultant, and 1 secretary; a limited amount of supplies.

*Work done:* There were changes in the nursing field in all 4 countries of the Zone. Inservice training programs were expanded at all levels and meetings of service and education personnel were held to discuss common problems.

In the field of education, the major changes were in the area of midwifery; certain universities in Argentina and Chile began to require training in nursing as a prerequisite for midwifery studies. In Argentina a tentative 5-year plan was prepared at the national level for the preparation of professional and auxiliary nursing personnel, with a view to reducing the present shortage.

#### PAHO/RB

#### AMRO-3210, Hospital Nursing Services

*Purpose:* Development of continuing education programs in nursing service administration.

*Probable duration:* 1966-

*Assistance provided:* Equipment and teaching materials.

*Work done:* Pending the recruitment of a project nurse to fill the post vacancy, assistance was limited to the provision of equipment and other teaching materials for continuing education programs.

#### PAHO/RB

#### AMRO-3211, Seminars on Planning for Nursing

*Purpose:* Assistance to the countries in the development of systems of nursing in accordance with their level of socio-economic development and their nursing needs as expressed in the national health plans.

*Probable duration:* 1969-1971.

*Assistance provided:* Advisory services by staff of Headquarters and Zone Offices; costs of seminar.

*Work done:* A seminar was held in Mexico (20-29 October) for a group of 27 nurses and nurse educators representing 10 countries of Latin America. The steps in the planning and implementation of local and national programs in nursing, as well as the nursing component of the health planning process, were reviewed and discussed.

#### WHO/RB

#### AMRO-3300, Laboratory Services

*Purpose:* Collaboration with the Governments in improving health laboratory services, in establishing new sections in existing laboratories, and in the production and control of biological products.

*Probable duration:* 1955-

*Assistance provided:* 2 short-term consultants, and advisory services by staff of Headquarters, Zone Offices, and project AMRO-3303; supplies.

*Work done:* Through November, 47 requests were received from 9 countries; 37 of them came from Argentina and Brazil. More than half of all the requests were for standards for use in the production and control of biologicals. The 684 items supplied included viral and bacterial strains, tissue cultures, diagnostic antigens and sera, standard vaccines, toxins and antitoxins, and sera for quality control of immunizing agents.

A review was made of the serologic techniques in use in Barbados, Jamaica, and Trinidad and Tobago. Barbados requested to be included in the interlaboratory evaluation of test performance undertaken by the WHO International Reference Center in Atlanta, Georgia. Plans were being made to hold a short course in the laboratory diagnosis of venereal diseases for the countries of the Caribbean area in 1970.

#### WHO/RB

#### AMRO-3301, Laboratory Services (Caribbean Area)

*Purpose:* Training of intermediate-level laboratory personnel for the English-speaking Caribbean area.

*Probable duration:* 1964-

*Assistance provided:* Advisory services by the medical officer assigned to project Jamaica-3100.

*Work done:* Fourteen students were trained at the University of the West Indies, with fellowships awarded under other projects.

The manual on laboratory methods and techniques, issued with PAHO/WHO financial support in 1967, was widely distributed as a basic text for teaching.

#### AMRO-3303, Laboratory Services (Zone III)

*Purpose:* Assistance to the countries of Zone III in the expansion of public health laboratory services and in the establishment of local laboratories according to the needs

and means, in keeping with the respective national health plans.

*Probable duration:* 1965-

*Assistance provided:* 1 laboratory specialist; costs of a seminar; and supplies.

*Work done:* In British Honduras equipment was supplied, with UNICEF funds, for 5 district laboratories and 1 training laboratory.

In Costa Rica a manual of technical standards for health unit laboratories was prepared, and a start was made on redistribution of duplicate equipment or items not being used at certain health centers. The material thus made available was used to strengthen the Central Laboratory and the laboratories at Puriscal, Turrialba, Alajuela, Pérez Zeledón, and Cartago.

In Guatemala advisory assistance was rendered to the study groups on laboratory services of the Ministry of Public Health and Social Welfare. Cooperation was also provided for the control of outbreaks of encephalitis and shigellosis. The equipment purchased with UNICEF funds was received.

In Honduras work was begun on the preparation of a manual of standards for local laboratories, and the facilities of the Central Health Laboratory in San Pedro Sula were expanded.

In Nicaragua the laboratory at the Salvadorita Health Center in Managua was remodeled. The Chemistry Laboratory and 10 health-center laboratories received materials and equipment supplied by UNICEF and the Organization. The preparation of a manual of standards for local laboratories was begun.

The III Meeting of the Working Party of Directors of Health Laboratories of the Central America Isthmus was held in Managua (26-31 May), its central topic being the courses of instruction at the schools of medical technology. The final report and other documents of the meeting served as a basis for the recommendations of the XIV Meeting of Ministers of Public Health of Central America and Panama.

In Panama the installations of the Central Laboratory were expanded.

A course was offered in Honduras for the training of 20 laboratory assistants to be employed by governmental, autonomous, and private institutions. Guatemala and Panama held similar courses; and British Honduras, El Salvador, and Nicaragua were preparing the programs for courses of this kind in 1970.

## PAHO/RB

### AMRO-3311, Training of Laboratory Personnel

*Purpose:* Training of laboratory personnel in short intensive courses on specific subjects.

*Probable duration:* 1968-

*Assistance provided:* Advisory services by staff of Headquarters and Zone Offices.

*Work done:* A regional training course on the production and control of rabies vaccine was held (17-28 November) at the Pan American Zoonoses Center under the direction of the Center's staff and with the assistance of short-term consultants. It was attended by 25 specialists from 14 countries;

17 were from national laboratories and 8 from private laboratories. All phases of production and control, of both human and animal vaccines, were studied.

### AMRO-3314, Trinidad Regional Virus Laboratory

*Purpose:* Development of the activities of the Trinidad Regional Virus Laboratory as part of the network of virus disease surveillance centers in Latin America.

*Probable duration:* 1969-1971.

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* A proposal for a virus disease surveillance program for the Caribbean area was prepared. A resident virologist-epidemiologist was recruited, and he will assume his duties in January 1970.

### AMRO-3315, Immunology Research and Training Center (São Paulo)

*Purpose:* Provision of postgraduate training in basic immunology for candidates from Latin American countries, and development of immunological research projects directly or indirectly related to public health problems in those countries.

*Probable duration:* 1969-

*Assistance provided:* 2 short-term consultants.

*Work done:* Four 8-month training courses on the theory and laboratory techniques of immunology have been conducted at the Center, located at the Butantan Institute in São Paulo, Brazil, since 1966, when it began operating under the aegis of WHO. The last 2 courses included students from Argentina, Chile, Jamaica, Peru, and Uruguay, as well as Brazilian trainees.

Visiting lecturers and examiners from the United States of America and Europe have participated in both the teaching and the research aspects of the Center's activities. In 1969 research included work on the responses of patients with Brazilian pemphigus foliaceus to treatment with immunosuppressive drugs; on the biological significance of the heterogeneity of immunoglobulins for the purpose of determining which ones afford protection against infectious agents and which ones contribute to tissue damage by hypersensitivity reactions (allergy and immunopathology); and on the mechanism of hemorrhagic reaction produced in the skin of normal laboratory animals by the sera of Brazilian pemphigus foliaceus patients.

## PAHO/RB

### AMRO-3400, Health Education

*Purpose:* Assistance to Governments in the establishment and efficient operation of specialized health education services within the framework of the national health programs and organization; inclusion of educational components in ongoing health programs; training of health personnel in health education and related subjects; and development of prototype educational materials for use in the teaching of health education techniques to personnel at various levels in health

agencies, schools for the training of health professionals, and similar institutions (schools for training of teachers, agricultural extension workers, community promoters, etc.).

*Probable duration:* 1968-

*Assistance provided:* 3 short-term consultants, and advisory services by Headquarters staff.

*Work done:* Special attention was focused on the holding of a number of regional meetings. The Latin American Seminar on Health Education in relation to Health Planning was held in Paracas, Peru, from 20 to 26 April. The Regional Seminar on the Training of Health Professionals in Health Education and Behavioral Sciences was held in Buenos Aires, Argentina, from 28 August to 5 September.

A Workshop on the Educational Components of Health and Family Welfare Programs in Latin America, held in Quito, Ecuador (24-29 November), was attended by 72 educators from 21 countries and territories in the Region. It offered an opportunity for the exchange of technical information, views, and experience on effective ways of including health education as part of such programs.

Representatives of the Schools of Public Health of São Paulo (Brazil), Santiago (Chile), and San Juan (Puerto Rico), at a meeting in Buenos Aires in September, discussed the needs of their health education departments and recommended the preparation of a program for exchanging professors and educational and research specialists among the three schools, with possible technical assistance from the Organization.

Continuing assistance was given the various Caribbean countries and territories in promoting community participation in health programs and in providing training in health education to personnel of national institutions. Special assistance was given to Barbados, Dominica, Grenada, Jamaica, St. Vincent, and St. Lucia.

In Colombia and Trinidad, the Organization assisted the Ministries of Health in developing the educational component of their family planning programs.

A health education guide on rabies, for use by teachers, was published (*Scientific Publication PAHO 188*).

#### PAHO/RB

#### AMRO-3401, Health Education (Caribbean Area)

*Purpose:* Development of health education programs, and training of personnel in this field.

*Probable duration:* 1963-

*Assistance provided:* 1 health educator, and advisory services by staff of Headquarters and projects Surinam-0200, AMRO-0201, and -2301; supplies.

*Work done:* In Barbados and Dominica there were newly appointed health educators, and a new post in health education was created in Grenada. The health education component was incorporated in the *Aedes aegypti* eradication programs in Barbados, Montserrat, and St. Lucia. The rabies control program in Grenada was enlisting full community participation. Nineteen community health groups were organized in St. Vincent; their attention was directed first to problems of sanitation and gastroenteritis. In Surinam, very good public support of the attack measures against malaria

(mainly medicated salt) was obtained; all villages except one were accepting the salt.

#### WHO/UNDP

#### AMRO-3407, Regional Center for Functional Literacy in Rural Areas of Latin America (CREFAL)

*Purpose:* Training of personnel, through international courses and meetings, for the conduct of health education activities within a functional literacy program.

*Probable duration:* 1961-

*Assistance provided:* 1 medical officer, and advisory services by Zone II staff; supplies.

*Work done:* A functional literacy course was held at the Center from July to December for 16 students, almost all from the general education sector and the majority from the Latin American countries.

An 8-day seminar on functional literacy in Latin America held by the Center in Quito, Ecuador, was attended by 31 participants from nearly all the countries.

#### WHO/RB

#### AMRO-3408, Regional Seminar on Postgraduate Preparation of Health Workers in Health Education and Related Behavioral Sciences

(Buenos Aires, Argentina; 28 August-5 September 1969)

WHO/RB, Grant to PAHO: Government of Argentina

The purpose was to study postgraduate training in health education in the light of a review of problems, policies, and activities in this field. The Organization provided 6 short-term consultants, advisory services by staff from PAHO Headquarters and Zone VI Office, simultaneous interpretation and secretarial services, and other costs of the meeting.

The Seminar was jointly sponsored by the Government of Argentina, WHO, and PAHO. There were 44 participants and 25 observers from 14 countries of the Region. The 5 principal subjects, discussed by 4 working groups, were: educational and social components of the health problems and programs in Latin America; influence of educational and social factors on maternal and child health and family welfare in the Region; bases for the development of a health education policy in the training and utilization of health manpower; teaching of health education and behavioral sciences in the schools of public health; and resources needed to strengthen the health education and behavioral science components in the training of professional public health workers.

The Seminar's recommendations were contained in the final report.

#### AMRO-3409, Study Group on Health Education and Planning

(1968-1969) PAHO/RB

The purpose was to promote recognition of the value of health education as an essential component of health planning. In 1968 the Organization provided 4 short-term consultants; in 1969, 3 short-term consultants, funds for ex-

penses of the meeting, and advisory services by Zone IV Office staff; and in both years, advisory services by Headquarters staff.

As an initial step toward the organization of a seminar, a meeting of 9 specialists in health administration, planning, and education was held in Washington, D. C., to review a basic document on "The Social and Educational Components in the Health Planning Process." The Seminar was held in Paracas, Peru, from 20 to 26 April 1969 and was attended by 38 senior officials from health agencies of 19 Latin American countries. It discussed and agreed upon more suitable means for introducing, strengthening, and integrating the social and educational components in health planning, and defined the most urgent fields of research for bringing this about. The Seminar also discussed the role of the educator as a member of the health team.

#### AMRO-3500, Health Statistics

*Purpose:* Formulation of a regional program to improve basic statistical data for use in health programs, to extend education and training in this field, and to develop statistical research.

*Probable duration:* 1960.

*Assistance provided:* Advisory services by Headquarters staff; supplies.

*Work done:* See project AMRO-6208.

#### PAHO/RB

#### AMRO-3501, Health Statistics (Zone I)

*Purpose:* Assistance to the countries and territories of Zone I in the improvement of their vital and health statistics systems.

*Probable duration:* 1964.

*Assistance provided:* 1 statistician, 1 medical records librarian, and 1 short-term consultant.

*Work done:* Assistance was rendered in the preparation of morbidity, mortality, and population data for quadrennial projections in Guyana and St. Kitts. Plans were drawn up for the tabulation of data obtained in the health manpower survey under way in the Caribbean area.

Good progress was made in the consolidation and centralization of records in the Central Hospital in Paramaribo, Surinam.

Medical records surveys were carried out in Kingstown (St. Vincent), St. George's (Grenada), and Nassau (Bahamas), and visits to give orientation in this field were made to Barbados, Guyana, Jamaica, and Trinidad and Tobago. A 2-year program for the development of medical records training and demonstration centers in Zone I was drawn up; the participating establishments will include the University College Hospital and Spanish Town Hospital in Jamaica, Central Hospital in Surinam, and Port-of-Spain General Hospital in Trinidad.

#### PAHO/RB

#### AMRO-3502, Health Statistics (Zone II)

*Purpose:* Assistance to the Governments of the countries of Zone II in the improvement of their vital and health statistics systems.

*Probable duration:* 1958.

*Assistance provided:* 1 statistician and 1 secretary.

*Work done:* The new system for obtaining hospital morbidity statistics was introduced in 6 hospitals in Havana, Cuba. The programs for training in statistics at the first and second levels were revised.

In the Dominican Republic, the Department of Statistics in the Ministry of Public Health and Social Welfare completed the analysis of mortality statistics in accordance with the agreement reached with the National Statistics Office. Additional institutions were incorporated in the new system for obtaining hospital morbidity statistics; 75% of the hospital beds in the country have already been included.

In Haiti a national committee for the development of statistics was created.

The national census of health resources was concluded in Mexico, and tabulation of the data was proceeding. Work was continued in connection with the Inter-American Investigation of Mortality in Childhood, and a new system for obtaining hospital statistics was adopted. A plan to organize statistics departments within the headquarters of the Coordinated Public Health Services in all states was being tried out in the State of Hidalgo. Guides and norms for the organization of such departments were prepared.

#### WHO/RB

#### AMRO-3503, Health Statistics (Zone III)

*Purpose:* Assistance to the Governments of the countries of Zone III in the improvement of their vital and health statistics systems; and advisory services on the use of statistical data for national health planning and on the statistical aspects of projects.

*Probable duration:* 1955.

*Assistance provided:* 1 statistician; funds for the meeting of the Permanent Central American Commission on Health Statistics; supplies.

*Work done:* The Permanent Central American Commission on Health Statistics, a technical organ of the Central American Public Health Council, held its II Meeting in Tegucigalpa, Honduras; the degree of implementation of the recommendations of the I Meeting was evaluated and a study was made to determine the statistical data required for the programs of environmental sanitation, nutrition, and health education. The meeting was sponsored by PAHO/WHO and the Organization of Central American States (ODECA).

In British Honduras a plan for the collection and tabulation of health statistics was prepared.

El Salvador continued the basic survey for the Inter-American Investigation of Mortality in Childhood (project AMRO-3513), compiling information on 2,328 deaths among children under 5 years of age and on a control group.

The basic data for the study of nursing resources and requirements in Guatemala were collected and tabulated. A total of 52,579 observations were made in 9 hospitals, 10 health centers, and 10 health posts.

The statistical section of the Ministry of Health of Panama was reorganized, and new methods, to be put into use in 1970, were developed for the collection, tabulation, arrangement, and analysis of data.

The General Hospital in British Honduras, the Bloom Hospital in El Salvador, and the Santo Tomás Hospital in Panama drew up plans for the reorganization of their statistics and medical records departments.

In the training field, the 5-month course in medical records and statistics in Costa Rica was offered for the fourth time; 14 students received the certificate qualifying them as hospital records officers and 3 students received certificates of attendance at the course. In El Salvador and Panama, two 4-week courses on the 8th Revision of the *International Classification of Diseases* were attended, respectively, by 22 and 31 coders of morbidity and mortality data. In addition, an 8-week course was offered in El Salvador for 19 health statistics auxiliaries, and a 4-week course in Guatemala for 18 auxiliaries.

**PAHO/RB, WHO/RB**

**UNICEF**

#### **AMRO-3504, Health Statistics (Zone IV)**

*Purpose:* Assistance to the Governments of the countries of Zone IV in the improvement of their vital and health statistics systems.

*Probable duration:* 1956-

*Assistance provided:* 1 statistician, and advisory services by the statistician assigned to AMRO-0304.

*Work done:* Two intermediate-level courses in health statistics were held, in Lima and in Medellín; a total of 49 students participated, including one fellow from Ecuador and 3 from Bolivia.

In Colombia a survey of the organization and staff of hospital records departments was completed. The findings of the survey, which included 80% of all hospitals, will be used to ascertain the training needs in this field. The Ministry of Public Health initiated a system of periodic supervisory visits to regional and local statistics offices.

Ecuador's Ministry of Public Health prepared a program of training courses in statistics and hospital records for auxiliary personnel. The first subsidiary civil registry offices were installed in the 46 health posts in Manabí Province.

In Peru the new Permanent Commission on Statistics, in the Ministry of Health, made plans for strengthening the Central Health Statistics Office and for expanding the training of auxiliary staff. Special courses for instructors in civil registration were included in the program of the School of Public Health.

*See also the -3500 projects of Bolivia and Peru.*

**WHO/RB**

#### **AMRO-3506, Health Statistics (Zone VI)**

*Purpose:* Assistance to the Governments of the countries of Zone VI in the improvement of their vital and health statistics systems.

*Probable duration:* 1959-

*Assistance provided:* 1 statistician and 1 secretary; supplies.

*Work done:* The statistics activities in the Zone were directed largely to 3 objectives: improvement of systems of continuous collection; expansion of personnel training programs; and special research studies. With the introduction of electronic data processing, the countries were working toward the organization of national health information systems.

The national vital and health statistics program of Argentina entered its second year of operations. On the basis of a national sample, a nation-wide morbidity survey was begun. An inventory was made of available human and material resources, and the survey on the utilization of medical care resources was completed. The Computer Center in Health was in process of expanding its field of activity. The Biostatistics and Demography Center at the School of Medicine of the National University in Buenos Aires inaugurated its activities.

In Chile the study on utilization of medical care resources was continued. The Inter-American Investigation of Mortality in Childhood was under way in Argentina and in Chile.

In Uruguay a new system for the registration and collection of hospital statistics was put into effect, and the processing and publication of mortality statistics was given new impetus.

In the training field, 2 courses for 79 intermediate-level technicians and 10 courses for 241 hospital statistics auxiliaries were conducted. In Paraguay 1 course for 15 statistics auxiliaries was offered. In Argentina and in Chile plans were made to hold advanced-level courses for the training of biostatisticians and of specialists in medical records and hospital statistics.

**PAHO/RB**

#### **AMRO-3513, Inter-American Investigation of Mortality in Childhood**

*Purpose:* Study of mortality in childhood in 13 areas in Latin America in order to obtain accurate and comparable data on underlying and associated causes of death, and study of probability samples of households and living children, taking into account the significance of nutritional, sociological, and environmental factors.

*Probable duration:* 1966-1972.

*Assistance provided:* 1 medical officer, 2 statisticians, 9 short-term consultants, secretarial services, and advisory services by Headquarters staff; equipment and supplies; local personnel and other costs of the 13 projects in Latin America (field staff in these projects number approximately 192, including 87 physicians and 55 nurses and social workers).

*Work done:* The field work was in progress in the 13 projects, and the completed questionnaires on deaths under 5 years of age and on samples of households and living children were transmitted routinely to the Headquarters Office for processing.

The preliminary findings were used for the Project Review conducted by the U.S. Agency for International Development (18 June), and at the meetings of WHO Working Groups on

Multiple Causes of Death and on the 1975 Revision of *International Classification of Diseases*, held in October in Geneva. Probably the most important finding was the high proportion of deaths of children in whom nutritional deficiency was found to be the underlying or associated cause. Nutritional deficiency was clearly the leading health problem in children under 5 years of age in almost all the areas. A second important result was the evidence of the seriousness of measles in young children in Latin America. As an outcome of this finding, measles immunization programs were undertaken in 1969 in Recife, Brazil, and La Paz, Bolivia.

The Investigation was also revealing the inadequacy of registration of deaths occurring in the first day and the first month of life.

As a result of the Investigation, improvements in vital statistics systems were already being made. The findings were being utilized locally as well as nationally for health planning purposes. This research program was thus having a major impact on health programs in Latin America.

**PAHO/OF****AID****AMRO-3514, Study on Multiple Causes of Death (1967-1969)** Grant to PAHO: NIH (USA)

The purpose was to evaluate the completeness and accuracy of the reporting of underlying and associated causes on death certificates, by comparing them with those reported on clinical records and/or autopsy reports, and to study the frequency of combinations of causes in relation to age, sex, and place of residence. The Organization provided the advisory services of its Headquarters staff and, with funds received from the National Center for Health Statistics of the U.S. Public Health Service, 1 short-term consultant, 1 physician, 1 programmer, and clerical services.

For the study of multiple causes, use was made of the data collected in 2 cities, by means of questionnaires, on 3,506 persons aged from 35 to 74 years who died from natural causes and for whom autopsy and clinical records were available. Analyses of the data were completed in 1969 and the findings were transmitted to the National Center of Health Statistics. They indicated the value of the additional information available in autopsy and clinical records not only for the correct designation of underlying causes of death but also for the determination of the associated causes and the frequency of causes contributory to death.

The report on the study served as a reference document for the WHO Working Group on Multiple Causes of Death, and also for the WHO Study Group on the *International Classification of Diseases*. In the 1975 Revision of the *Classification*, it is expected that provision will be made for coding and tabulating multiple causes.

**AMRO-3600, Administrative Methods and Practices in Public Health (Interzone)**

*Purpose:* Assistance to Governments in improving the organization and administration of health services and the training of health personnel in administration.

*Probable duration:* 1959-

*Assistance provided:* 9 short-term consultants (1 of them

served 2 consultants) and 1 secretary; 1 grant to defray costs of the course and seminar.

*Work done:* The Fifth Latin American Course on Administration for Public Health Personnel was held at the Institute of Organization and Administration (INSORA) of the University of Chile. Of the 25 students, 22 were PAHO/WHO fellows.

The Fourth Seminar on Organization and Administration of Health Services in South America was held in Maracay, Venezuela, in November. The subject was "Training in Administration for Health Services Personnel." This Seminar brought together, for the first time, participants from schools of public administration, public health, and medicine, as well as medical administrators and specialists in administration, to formulate recommendations on training in administration for all levels of health personnel. All countries in South America participated. The Seminar report was distributed to ministries of health and to schools of public health and public administration.

**PAHO/RB****AMRO-3601, Administrative Methods and Practices in Public Health (Zone I)**

*Purpose:* Assistance to the Governments in redefining policies for the health sector and in developing adequate organization and administrative methods and procedures for the health services, in order to contribute to the general improvement of health standards sought by the countries.

*Probable duration:* 1968-

*Assistance provided:* 1 administrative methods officer and 6 short-term consultants; seminar costs.

*Work done:* Fundamental changes were introduced in the organization and administrative procedures of the Ministries of Health of Guyana and of Trinidad and Tobago. Partial surveys were concluded in selected areas in Barbados (Queen Elizabeth Hospital) and Jamaica (Personnel Division, Ministry of Health). A study of the administrative services of the Ministry of Health in St. Kitts was completed. A simplified method to be used in the analysis of administrative services in the Zone was formulated.

The series of courses begun in 1966 for intermediate-level administrative personnel was continued with a course in Guyana for 32 participants from the Region. A seminar on management was held in Trinidad and Tobago for 28 top medical officers of the Government. The Fourth Seminar on Organization and Administration of Health Services in South America was held in Maracay, Venezuela, with 60 participants (*project* AMRO-3600). The project adviser served as coordinator.

**PAHO/RB****AMRO-3603, Administrative Methods and Practices in Public Health (Zone III)**

*Purpose:* Assistance to the Governments in the organization and administration of health services.

*Probable duration:* 1963-

*Assistance provided:* 1 consultant in administrative methods for health services.

*Work done:* Comprehensive studies on the status of administrative services were made in British Honduras, El Salvador, and Guatemala.

See also projects Panama-3100 and -6200.

## PAHO/RB

### AMRO-3606, Administrative Methods and Practices in Public Health (Zone VI)

*Purpose:* Improvement of structures, methods, and procedures in the health sector of the countries of the Zone, in order to strengthen the planning and execution of programs.

*Probable duration:* 1963-

*Assistance provided:* 1 consultant in administrative methods for health services, and advisory services by staff of projects Chile-3100 and Uruguay-3100; a limited amount of supplies.

*Work done:* Further assistance was given to the Secretariat for Public Health of Argentina in the design of a model program-budget and control system. The School of Public Health of the National University of Buenos Aires held its 4th intensive course in public health administration for administrative officials. Five officials were invited to participate in the Fourth Seminar on Organization and Administration of Health Services in South America, held in Maracay, Venezuela.

The authorities of the National Health Service in Chile performed an analysis of the agency's administration. A study was made of the classification of 26,000 posts of administrative and service employees. Advisory services were rendered in the areas of personnel and supply management. A catalog of some 6,000 items was prepared. A total of 104 courses (7,992 hours in all) on various specialized branches of administration were offered during the year; they were attended by 1,756 persons (84% of the target).

A central accounting system was organized in the Ministry of Public Health and Social Welfare of Paraguay to facilitate the recording of operations involved in the preparation of the program-budget.

Uruguay's Ministry of Public Health completed the organization of the Planning and Budget Division of the Department of Administrative Rationalization. A review was made of the central organization, health legislation, documents and records management, leave records, and central accounting system. Thirty-eight administrative officers received training in accounting and budget operations. Two PAHO fellows attended the course at the Institute of Organization and Administration (INSORA) in Santiago, Chile.

In cooperation with the University of Chile and the Chilean Ministry of Public Health, INSORA conducted the Fifth Latin American Course on Administration for Public Health Personnel (project AMRO-3600).

## PAHO/RB

### AMRO-3700, Health Planning

*Purpose:* Cooperation with the Governments of the countries of the Region in those aspects of the planning process

that by their nature require special attention; and strengthening of cooperation with other international agencies that promote economic and social development in the Region, in particular the United Nations Children's Fund (UNICEF).

*Probable duration:* 1961-

*Assistance provided:* 1 medical officer, 1 liaison officer, 5 short-term consultants (1 of them served 2 consultantships), and 1 secretary; common services.

*Work done:* Further assistance was rendered to the countries in the improvement of the health planning process. Quadrennial Projections of the collaboration which the Organization will furnish the countries of the Region within the framework of long-term planning were developed. The program to coordinate activities with UNICEF and other agencies was carried forward.

A working document entitled "Financing of the Health Sector" was prepared for the Technical Discussions of the XIX Meeting of the PAHO Directing Council.

## PAHO/RB, WHO/RB

### AMRO-3701, Health Planning (Zone I)

*Purpose:* Implementation of health planning in the countries and territories of Zone I, and improvement in the organization and administration of health services.

*Probable duration:* 1965-

*Assistance provided:* 1 medical officer and 1 secretary.

*Work done:* St. Kitts-Nevis was ready to produce the first National Health Plan. The diagnosis of the health situation was completed, and a very successful workshop on the subject was held.

In Guyana, which was almost ready to produce its National Health Plan, the assessment of the health situation was completed. The Planning Unit in the Ministry of Health and the National Health Planning Committee were both functioning well.

A pilot study for the diagnosis of the health situation was conducted in one parish in Jamaica.

Advisory services in planning activities were requested by Grenada.

In Venezuela the diagnostic stage of the health planning process was completed for the northeastern region.

Two officials from Venezuela and one from Trinidad and Tobago attended the health planning course held in Chile.

## PAHO/RB, WHO/RB

### AMRO-3703, Health Planning (Zone III)

*Purpose:* Cooperation with the Governments of the countries of Zone III in the formulation and implementation of health plans; organization of planning units in the ministries of health; and training of personnel in planning techniques.

*Probable duration:* 1965-

*Assistance provided:* 1 medical officer.

*Work done:* The National Department of Public Health of Costa Rica published an action plan entitled "Basic Programs and Area No. 1 Coordinated Health Services." Implementation of this plan was begun in the Puriscal District with a view to gaining experience in coordinated health and



medico-social care activities and eventually extending integration on a gradual basis to the 19 health districts of the country.

El Salvador and Honduras began to evaluate their plans with the aim of improving them; these activities included short training courses in each country. Owing to the situation between the two countries, this work was discontinued when in an advanced stage. Both countries formulated emergency health plans, which were in operation.

Guatemala continued the reorganization of the Ministry of Public Health and Social Welfare. Both Guatemala and British Honduras were formulating their health plans, which were scheduled to go into operation in 1970.

Panama was adapting the organization and operation of the Ministry of Public Health to the goals and needs of the Health Plan.

#### PAHO/RB

#### AMRO-3704, Health Planning (Zone IV)

*Purpose:* Cooperation with the Governments of the countries of Zone IV in the formulation and implementation of health plans; organization of planning units in the ministries of health; and training of personnel in planning techniques.

*Probable duration:* 1963-

*Assistance provided:* 1 medical officer.

*Work done:* In Bolivia further advisory services were rendered to the authorities in the reformulation of the National Health Plan, and assistance was given in the organization and holding of a national planning course to train the personnel that will participate in these activities.

The authorities in Colombia were assisted with the implementation of national health schemes forming part of the National Plan. The introduction of program-budgeting in the health sector continued to be the subject of feasibility studies.

In Ecuador, the Organization assisted with the compilation of information on all health establishments in five provinces, as part of a scheme for arriving at a better assessment of the sector; continued to cooperate in planning the health sector structure; and furnished advice on the revision of the Health Code designed to facilitate integration of health services and coordination with autonomous institutions.

#### PAHO/RB

#### AMRO-3706, Health Planning (Zone VI)

*Purpose:* Cooperation in planning the health sector in the context of economic development in each country in the Zone, and in the investigation and experimental use of methodological tools for facilitating the planning process.

*Probable duration:* 1963-

*Assistance provided:* 1 medical officer.

*Work done:* In Argentina assistance was provided through the Pan American Health Planning Program (project AMRO-3715) and its technical staff in connection with the health manpower study (project Argentina-6201). The Secretariat for Public Health and the School of Public Health of the National University of Buenos Aires were aided in the

design of a model form to allow better use of the data obtained from the study.

In Chile the health planning process was carried forward, with emphasis on the programming of activities at the hospital level, participation at the local level, and fixing of yearly targets. The evaluation of programs at the national level was completed and the corresponding report was published.

In Paraguay a Planning Unit was established in the Ministry of Public Health; the work during the second year of the Two-Year Plan (1967-1968) was evaluated; and the targets for the first year of the Five-Year Plan were revised.

A Planning and Budget Division was added to the Ministry of Public Health of Uruguay. With assistance from the Organization, the Administrative Secretariat of the Ministry developed a program of administrative rationalization.

#### PAHO/RB

#### AMRO-3707, Special Meeting of Ministers of Health of the Americas

(1968-1969) PAHO/RB, Government of Argentina

The purpose was to make a study of the Declaration of the Presidents of America (Punta del Este, Uruguay, April 1967) and to formulate recommendations for the implementation of those aspects of the Declaration that are related to health. The Organization provided, in 1968, 1 short-term consultant (3 consultantships) and 9 temporary advisers, background documents that served as the basis for the discussions, simultaneous interpretation and secretarial services, and defrayed other costs of the meeting; in 1969, it covered the cost of printing the proceedings.

The Special Meeting of Ministers of Health of the Americas was held in Buenos Aires, Argentina, from 14 to 18 October 1968. The recommendations of the Ministers were incorporated into the general policy of PAHO. In 1969 the proceedings of the meeting (*Official Documents PAHO 89 and 90*) were published in English and in Spanish.

#### AMRO-3715, Pan American Health Planning Program

*Purpose:* Design and execution of research required for improving the health planning process within the framework of economic and social development planning; training of health planners; and advice to the countries on health planning research.

*Probable duration:* 1968-

*Assistance provided:* 3 medical officers (1 program director and 2 consultants in training and research) and 7 short-term consultants; common services; equipment and supplies.

*Work done:* The health planning methods developed by the Organization and adopted by most of the countries in the Region were reviewed. This review led to the preparation of a model geared to the use of computers, in order to facilitate the application of these methods under varying theoretical and practical conditions.

In the field of research, advisory services continued to be rendered to the program of the School of Public Health of the University of Chile and to the research program in progress in Argentina.

The 8th international course in health planning was attended by 28 officials from 12 countries of the Region. Technical and administrative arrangements were made for the international health planning course for English-speaking countries, to be held in 1970 with the cooperation of the University of the West Indies in Jamaica.

A number of articles and papers on health planning, for use as teaching material or for general distribution, were prepared and published.

#### PAHO/RB, WHO/UNDP

#### AMRO-4100, Maternal and Child Health

*Purpose:* Planning and training activities in the field of maternal and child health, coordinated with family planning programs where these exist.

*Probable duration:* 1969-1972.

*Assistance provided:* 2 short-term consultants.

*Work done:* Studies were carried out in 3 countries with a view to the expansion and improvement of maternal and child health activities. The short-term consultants gave advisory services in connection with program operations and teaching activities.

See projects Chile-4103, Colombia-4101, and Uruguay-4101.

#### WHO/RB

#### AMRO-4103, Maternal and Child Health (Zone III)

*Purpose:* Development of maternal and child health programs in the countries of the Zone.

*Probable duration:* 1968-1970.

*Assistance provided:* 1 medical officer.

*Work done:* In Costa Rica work was continued on the integration of specific maternal and child care activities with those concerning regulation of fertility, nutrition, and health education.

El Salvador was assisted with the reformulation of maternal and child health and family planning programs within the framework of the national health plan. At the request of the School of Medicine of the National University, advisory services were provided in the organization of its pediatrics department.

In Guatemala and Panama assistance was given in the establishment of Maternal and Child Health Departments as part of the general reorganization of the Ministries of Health of both countries. In Panama basic guidelines were developed for the formulation of a maternal and child health program that will include family planning activities.

Honduras was assisted with the design of a work program to be carried out at the new Maternal and Child Hospital.

Project staff took part in the seminars on health and population dynamics held in Antigua, Guatemala, and Panama City under the sponsorship of the Latin American Center for Demography and the Pan American Federation of Associations of Medical Schools, and in the Regional Seminar on Education of the Public in Maternal and Child Health, conducted in San Salvador.

#### PAHO/RB

#### AMRO-4108, Clinical and Social Pediatrics

*Purpose:* Postgraduate training in social pediatrics for specialists in pediatric medicine holding responsible positions in teaching or health care fields.

*Probable duration:* 1961-1972.

*Assistance provided:* Advisory services by Headquarters and Zone VI Office staff and by the PAHO/WHO Country Representatives in Chile and Colombia; 10 short-term fellowships: Brazil (2), Ecuador, Haiti (2), Nicaragua, Panama, Peru (2), and Venezuela.

*Work done:* Two courses in clinical and social pediatrics were given in Santiago, Chile (5 May-31 July) and Medellín, Colombia (1 September-24 November), for 23 and 24 participants, respectively, mostly pediatricians, but also including 10 nurses.

See also projects Chile-4103 and Colombia-4101.

#### PAHO/OF

#### UNICEF

#### AMRO-4109, Nursing-Midwifery

*Purpose:* Assistance to countries in the improvement of maternity care services and in the training of midwives.

*Probable duration:* 1962-

*Assistance provided:* 1 nurse-midwife; supplies.

*Work done:* Direct technical advisory services were given in both service and educational aspects of nursing-midwifery programs to 10 countries of Latin America. A conference on education in this specialty (project AMRO-4115) was planned and organized. A guide for the training and supervision of traditional birth attendants was prepared and published. Assistance was given in the planning and conduct of 10 seminars in 7 countries, and in the planning of 2 inter-American congresses of midwives.

A working document was presented at the XV International Congress of Midwives held in Santiago, Chile. The directories of nursing-midwifery programs and of midwifery associations were updated for distribution in the Region. To keep the staff abreast of current developments, annotated bibliographies and other literature were sent out periodically.

#### PAHO/RB

#### AMRO-4115, Conference on Nursing-Midwifery Education

(Cali, Colombia; 3-13 November 1969) PAHO/RB

The purpose was to establish criteria to serve as the basis for the development of nursing-midwifery education programs in Latin America. The Organization provided advisory services through 1 short-term consultant, staff of Headquarters, Zone IV Office, and nursing projects, as well as secretarial services and equipment and supplies for the Conference.

The Conference, co-sponsored by the Ministry of Health and the University of Valle, was attended by 28 nurses, nurse-midwives, and midwives from 11 countries. The group drew up criteria and guidelines for the preparation of a guide on nursing-midwifery education for use in the countries of Latin America.

**AMRO-4200, Nutrition Advisory Services**

*Purpose:* Development of nutrition activities at the central, zone, and local level with the framework of the general health services program.

*Probable duration:* 1958-

*Assistance provided:* 4 short-term consultants (2 served 2 consultantships each); contractual services; and supplies.

*Work done:* The document covering general standards for the planning of PAHO/WHO nutrition programs was brought up to date. The current status of nutrition programs in the Region was reviewed and plans were worked out for their future operations.

The short-term consultants made a study of activities in Latin America dealing with atherosclerotic disease, diabetes, obesity, and endemic goiter. New evidence was found of the influence of environmental conditions on severe atherosclerosis and of a rising incidence of the disease in Latin America. In addition, new knowledge was obtained on the pathophysiology of endemic goiter, supporting the use of iodized oil as a means of preventing the disease. Continued research on endemic goiter was recommended.

**PAHO/RB, WHO/RB****AMRO-4201, Nutrition Advisory Services (Zone I)**

*Purpose:* Cooperation with the countries and territories of Zone I in the study and assessment of their problems and current needs in the field of nutrition; in the planning, in close cooperation with national and international institutions, of nutrition education programs and activities, with a view to increasing the production of nutritious foods; and in the integration of nutrition programs into health services at all levels.

*Probable duration:* 1961-

*Assistance provided:* 1 medical officer.

*Work done:* The nutrition surveys of vulnerable groups in Dominica, St. Kitts, and St. Lucia, for a 3-year longitudinal study, were completed. Assistance was also given with a nutrition survey in Barbados, in preparation for the start of an applied nutrition program. Courses were given for nurses, teachers, students of nursing and education, health inspectors, food handlers, and hospital supply officers. Advisory services continued to be rendered to the Eastern Caribbean area and to Guyana.

**WHO/RB****AMRO-4203, Institute of Nutrition of Central America and Panama**

*Purpose:* Development of the program of the Institute of Nutrition of Central America and Panama involving advisory services to the member countries, research, and training.

*Probable duration:* 1949-

*Assistance provided:* 1 director, 4 medical officers, 5 scientists, 1 administrative officer, 1 statistician, 1 nutritionist, 1 technical officer, 1 editor, and operating costs; 8 short-term consultants; and 35 long-term fellowships: Costa Rica 5, El Salvador 5, Guatemala 7, Honduras 3, Nicaragua 8,

and Panama 7. In addition, 92 short-term fellowships were awarded through INCAP: Costa Rica 9, El Salvador 10, Guatemala 40, Honduras 6, Nicaragua 8, Panama 10, United States of America 8, and Brazil 1.

*Work done:* Advisory services were rendered to INCAP member countries, with special emphasis given to: the planning of programs based on the reports of the nutrition surveys conducted in 1967, the information from which was analyzed in 1968; nutrition rehabilitation services; and nutrition research and education.

The sales of Incaparina continued to increase in Guatemala. Market studies and other activities for the regular distribution of the product in El Salvador, Honduras, Nicaragua, and Panama. In Colombia the Incaparina line of products was enlarged with the introduction of a "White Incaparina" based on rice and soybean. The commercial distribution of Ternerina, a formula used as a substitute for milk in the feeding of calves, was begun by an industrial concern in Costa Rica, with INCAP's authorization and technical advice.

The Regional Food Reference Laboratory, which is being installed in the new INCAP building, will perform analyses of food samples submitted mainly by the private sector.

A total of 135 students from 15 countries participated in the Institute's training program: 97 from member countries, 5 from other Latin American countries, 29 from the United States of America, and 4 from other Regions. The first group of students at the School of Nutrition and Dietetics were graduated in 1969; 16 students received the university degree in nutrition.

The research program was continued, with many of its activities redirected in the light of the findings of the nutrition surveys in 6 countries of the area. Special emphasis was given to the enrichment of sugar with vitamin A; enrichment of rice with essential amino acids, vitamins, and minerals; introduction of genetically improved varieties of corn (Opaque-2); studies on interrelationships of nutrition and infection; indicators of nutritional status; and relationship between nutritional deficiencies and mental development in children.

See also Chapter II-B of this Report.

**PAHO/RB, PAHO/SFHP, PAHO/OF,<sup>1</sup> WHO/RB****AMRO-4204, Nutrition Advisory Services (Zone IV)**

*Purpose:* Strengthening of food and nutrition programs; and incorporation of these programs in local health services.

*Probable duration:* 1956-

*Assistance provided:* 1 medical officer and 1 secretary; supplies.

*Work done:* In Bolivia assistance was rendered to the health services and the Mining Corporation in the formula-

<sup>1</sup> Grants received in 1969:  
Agency for International Development  
Baylor University College of Medicine  
German Federal Republic  
Josiah Macy, Jr., Foundation  
Massachusetts Institute of Technology  
Nestlé Foundation  
Nutrition Foundation, Inc.  
Research Corporation  
U.S. Army  
U.S. Department of Health, Education, and Welfare  
U.S. National Institutes of Health  
World Health Organization

tion of applications to the World Food Program (WFP) for 2 food aid programs. Advice was given to the health services of the Departments of Cochabamba and Tarija in the conduct of their activities.

In Colombia the final evaluation was made of the food aid program carried out in the coffee-growing areas of Caldas Department with the cooperation of the WFP, which benefited 25,000 preschool-age children and 15,000 mothers. This program will operate in the future as part of the National Nutrition Education and Food Supplementation Program (PRONENCA), which will provide aid to preschoolers, schoolchildren, pregnant women, and infants over a 5-year period. The Integrated Applied Nutrition Program (PINA) received a new contribution from UNICEF and extended its activities to the Departments of Nariño, Valle del Cauca, and the Special District of Bogotá. PINA was operating in 13 districts of the country.

The program of community development and feeding of vulnerable rural groups (Andean Mission) in Ecuador constructed warehouses in Guasán, installed a bottling and sealing machine, trained personnel, and prepared teaching material for use in the project. A dietitian was engaged to direct the technical operations. Advisory assistance was given the Government in the preparation of a request to the WFP to provide food aid to hospitals. A law making the iodization of salt for human consumption compulsory was put into force in November. The National Institute of Nutrition continued the national survey on endemic goiter prevention, completing the studies for the Provinces of Carchi, Cotopaxi, and Imbabura.

The Government of Peru was assisted in preparing requests to the WFP for 2 programs. One of these, providing for food aid to 18,000 preschoolers and 7,000 mothers per year over a 5-year period, was approved in 1969. The other, involving assistance to hospital nutrition and dietetic services in the Peruvian highlands and jungle areas, has yet to be approved by the WFP.

See also projects Colombia-4200, Ecuador-4202, -4203 and -4204, and Peru-4200 and -4202.

## WHO/RB

### AMRO-4207, Caribbean Food and Nutrition Institute

*Purpose:* Improvement of the nutritional status of the populations of the countries and territories of the area by means of personnel training in community nutrition, coordination activities, advisory services, and field investigations.

*Probable duration:* 1963-

*Assistance provided:* 1 director, 1 medical nutritionist, 1 nutritionist, 1 administrative assistant, and 9 short-term consultants; extensions of fellowships awarded in 1968.

*Work done:* The major activity of the Center (CFNI) was the implementation of the new interdisciplinary course leading to the Diploma in Community Nutrition of the University of the West Indies. In this 1-year academic course (9 months), students complete 3 months of training in Jamaica, 3 months of field experience in selected Caribbean countries, and 3 months of supervised field investigation in their own countries, and submit a detailed analytical report on the

project. Twenty-nine students from the English-speaking Caribbean area completed the course.

A national food and nutrition survey was undertaken in Barbados, in collaboration with the Government and FAO.

A national food consumption survey was begun in Trinidad and Tobago. The collection of data on food consumption by young children in the Caribbean area was continued. A joint FAO/PAHO/CFNI team undertook a 2-month survey to study the feasibility of producing within the area a processed protein food, designed especially for young children.

PAHO/RB, PAHO/OF,  
WHO/RB

Research Corporation

### AMRO-4210, Evaluation of Applied Nutrition Programs

(1964-1969) PAHO/RB, FAO, UNICEF, U.S. Public Health Service

The purpose was to evaluate, jointly with FAO, the applied nutrition programs operating in countries of the Americas. The Organization provided a full-time adviser for the duration of the project and a short-term consultant to help with tabulation of the data furnished by the countries and to assist with a seminar.

The project began in September 1964. In December 1965 a small technical committee was convened by PAHO and FAO to prepare a provisional guide for countries to use in establishing baseline data and in evaluating their programs as of 1966.

The Latin American Seminar on the Planning and Evaluation of Applied Nutrition Programs was held in Popayán, Colombia, in November 1966. The report of the meeting included a revised guide for evaluating the programs (*Scientific Publication PAHO 160*).

The programs have been under way in the Hemisphere for approximately 10 years. In that period 18 countries undertook programs, although these are at present in operation in only 14 countries.

The methodology developed had as one of its objectives the periodic evaluation of activities as a means of ensuring the maintenance of effective programs. An analysis was made of the evaluations for 1967-1968 submitted by 8 of the 12 countries with programs in operation for 2 or more years. The procedure followed was that evolved at the Popayán Seminar. Recommendations were made on the basis of the results of the evaluations, the problems encountered by the countries, and their current nutrition situation.

### AMRO-4212, Research on Nutritional Anemias

(1965-1969) Grant to PAHO: Research Corporation

The purpose was to establish a Regional Reference and Training Center for Applied Research in Nutritional Anemias (Caracas, Venezuela).

The Organization provided 3 short-term consultants in 1966, 2 in 1967, and 3 in 1968; the costs of two meetings; 1 fellowship award in 1966 and an annual grant for laboratory services and for the training of fellows (holding awards granted under other projects); and a limited amount of supplies in 1969.

This project was the result of meetings held in Caracas in 1963 and in Colombia in 1964 with representatives of several Latin American countries. In 1965 a study on nutritional anemias during pregnancy was carried out with the cooperation of workers from 7 countries; among the subjects covered were the availability of food iron, the role of hookworm infection, and the importance of protein-calorie malnutrition anemia. The Center also conducted investigations of the prevalence of nutritional anemias and made cross-checks of data reported by the 7 participating laboratories. In 1968 progress was reviewed during a meeting of the PAHO Scientific Group on Nutritional Anemias.

In the course of the project, 6 research workers received training. A total of 1,782 serum folate, 1,429 B<sub>12</sub>, and 200 serum iron determinations were carried out. The research conducted led to improvement in the work of all the laboratories collaborating in the study.

**AMRO-4218, Latin American Nutrition Society**  
(1965-1969) Grant to PAHO: Research Corporation

The purpose was to establish a professional society of scientists working in the field of nutrition in Latin America, and to advise the society on the preparation of a journal for the publication of scientific articles in this field. The Organization provided the advisory services of staff of Headquarters and of INCAP.

The Latin American Nutrition Society, comprising scientists interested in the public health, research, and other aspects of the subject, was created late in 1965. The Organization assisted in organizing the Society and gave advice on the publication of its new journal *Archivos Latinoamericanos de Nutrición* (the former *Archivos Venezolanos de Nutrición*). It also assisted in promoting the circulation of the journal and the contribution of articles by investigators in nutrition and allied sciences.

**AMRO-4221, Seminar on National Food and Nutrition Policies**

(Washington, D.C.; 19-23 May 1969) PAHO/RB

The purpose was to establish general guidelines for the formulation and implementation of food and nutrition policies in the Latin American countries. The Organization provided 3 short-term consultants and advisory services by Headquarters staff.

The Group discussed the general guidelines for a food and nutrition policy, the factors for arriving at a diagnosis of food and nutrition situation, and the issuance of recommendations on minimum food consumption levels in each country. Also examined were governmental measures for expanding the production of selected foods; consumer education; systems for improving the diet of special groups; and technical and institutional aspects of food and nutrition policy. The report of the meeting was issued as *Scientific Publication PAHO 194*.

**AMRO-4223, Nutrition Education Materials**  
(1968-1969) PAHO/RB, WHO/RB

The purpose was to convene a conference with the object of recommending Spanish-language texts on nutrition and related subjects for use in the training of nutritionists-dietitians, physicians, nurses, and other health personnel. The Organization provided 2 short-term consultants in 1968 and 1 in 1969, and covered the costs of the meeting and the travel and per diem of participants.

A group of teaching staff from 8 schools of medicine, public health, nutrition and dietetics, and nursing in Latin America met in 1969 to review available textbooks and teaching materials. Its report (*Scientific Publication PAHO 192*) included recommendations for the translation into Spanish and Portuguese of a number of English-language texts, as well as for the preparation of new texts, and set forth guides for faculty members to use in the selection of teaching materials.

**AMRO-4225, Graduate Course in Public Health Nutrition**

*Purpose:* Development in the Department of Preventive Medicine, in the School of Medicine of the University of Puerto Rico, of a curriculum in public health nutrition for graduate students.

*Probable duration:* 1969-

*Assistance provided:* 1 nutrition educator.

*Work done:* The University began the program in 1967 and, in order to be able to meet the requests of Latin American students for admission to the course, the Department sought assistance from PAHO. In 1969 students from Brazil, Canada, Ecuador, Peru, and Venezuela were admitted to the course. The curriculum was being oriented to help students both to gain a deeper understanding of nutrition and to recognize the importance of finding practical solutions to the nutrition problems in their own countries.

The 12-month course is open to physicians, nutritionist-dietitians, nutrition researchers, and university faculty members seeking a Master's degree in public health nutrition.

The Coordinator of the program received a traveling fellowship (project United States of America-3103) to review nutrition program activities in Brazil, Colombia, Costa Rica, Guatemala, and Mexico.

**WHO/RB**

**AMRO-4228, Conference on Endemic Goiter Control**

Expenses incurred in 1968 were liquidated.

**PAHO/OF**

**Research Corporation**

**AMRO-4230, Nutrition Training**

*Purpose:* Strengthening of nutrition training in Latin America.

*Probable duration:* 1969-

*Assistance provided:* 1 nutrition adviser.

*Work done:* In accordance with the recommendations of

the Caracas Conference (1966) on the training of nutritionists-dietitians, 15 schools were offering university-degree programs; most of the schools graduated their first class in 1969.

Efforts were centered on the revision of curricula, concurrent field work, and the planning of special training for faculty members. In Puerto Rico the Organization assisted in a graduate program in public health nutrition for physicians, nutritionists-dietitians, and biochemists; 2 students from Puerto Rico and 5 from Latin American countries and Canada were attending the course, which leads to a Master's degree. Two short courses in nutrition, for practicing physicians and members of medical school faculties, were assisted by the Organization. In all these courses, emphasis was placed on the incorporation of nutrition in the curriculum of medical schools.

#### PAHO/RB

##### AMRO-4300, Mental Health

*Purpose:* Strengthening of mental health programs in the countries, with emphasis on care, prevention and rehabilitation services, training of personnel, and research.

*Probable duration:* 1965-

*Assistance provided:* Advisory services by Headquarters staff; and costs of the Conference on Mental Health in the Americas (San Antonio, Texas, 4-8 December 1968).

*Work done:* General mental health programs were discussed by a working group that met in Viña del Mar, Chile (project AMRO-4311).

Visits were made to Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela to discuss with the pertinent authorities the best way of utilizing certain institutions as international training centers.

In Brazil, El Salvador, Guyana, and Jamaica consideration was given to the possibility of seeking assistance from the World Food Program for the purpose of improving conditions in psychiatric hospitals.

A specialist from the American Psychiatric Association provided advice in the planning of international courses in basic psychiatry for general physicians.

The Organization collaborated with the World Federation for Mental Health and the Inter-American Council of Psychiatric Associations in the holding of their meetings.

With the cooperation of the Inter-American Children's Institute, a course on early stimulation of children with brain damage was organized in Montevideo, Uruguay; it was attended by fellows from 4 countries.

Consultants in community psychiatry and in planning and administration of mental health services were sent to Brazil, Panama, St. Vincent, and Venezuela.

#### PAHO/RB, PAHO/OF Inter-American Council of Psychiatric Associations

##### AMRO-4311, Working Group on the Administration of Psychiatric and Mental Health Services

(Viña del Mar, Chile; 14-18 April 1969) PAHO/RB, Grant to PAHO: Government of Chile

The purpose was to study the bases for the design and operation of national mental health programs. The Organ-

ization provided 6 short-term consultants (2 served 2 consultantships), who assisted in organizing the meeting and formed part of its secretariat; advisory services by Headquarters and Zone VI Office staff; and funds to defray costs of the meeting.

Forty-four psychiatrists, nurses, social workers, and public health administrators from 22 countries of the Americas attended the meeting, which dealt primarily with the programming of activities in this field, the development of community mental health services, and the new role of the psychiatric hospital.

##### AMRO-4400, Dental Health

*Purpose:* Incorporation of dental health in the national plans for the protection, promotion, and restoration of health; and strengthening of research activities in the dental health services with a view to increasing their efficiency and productivity.

*Probable duration:* 1954-

*Assistance provided:* 4 short-term consultants, and advisory services by Headquarters staff; equipment and supplies.

*Work done:* The School of Hygiene and Public Health of the University of São Paulo, Brazil, continued to offer courses in public health for dentists. The School of Public Health of Antioquia University, in Medellín, Colombia, began regular courses for public health dentists; they were attended by 7 students from 5 Latin American countries.

In Chile the building to house the experimental community-service clinic of the School of Dentistry of Concepción University was under construction.

Simplified equipment, designed by Organization staff, was used in a project under way in a district of Medellín, Colombia, to increase the productivity of dental clinics. The "popular clinics" operated by the Dental Society of Antioquia were further increased in number, and were setting a pattern for other countries.

The School of Public Health of the Peruvian Ministry of Public Health also inaugurated regular courses for dentists.

In Venezuela, information concerning the State of Zulia continued to be gathered for the purpose of designing the national dental health plan. The final selection of localities where simplified methods of large-scale dental care will be tested was made in December.

#### PAHO/RB

KF

##### AMRO-4407, Dental Epidemiology

*Purpose:* Development of epidemiological studies and research on dentistry in the Americas; operation of an international center for the conduct of research in dentistry; and training of dentists in epidemiology and research.

*Probable duration:* 1964-

*Assistance provided:* 2 short-term consultants, and advisory services by Headquarters staff; supplies.

*Work done:* In Brazil the International Center for Dental Epidemiology and Research continued the research to test the effectiveness of self-applied fluoride compounds in reducing the incidence of dental caries; began distribution of

Spanish and Portuguese versions of a manual for a course of programmed instruction on the design of research projects; and furnished advisory services to public health dentists in various countries.

In Colombia the report of a nation-wide epidemiological survey was published. In Venezuela work was begun on the tabulation of data from an epidemiological survey of the country's entire population. The School of Dentistry of Zulia University conducted an epidemiological study of dental conditions in its work area, as a basis for planning the curriculum of the new Dental School. The School also trained 3 dentists—using the methods developed in San Francisco, California, by the USPHS Dental Health Center—in the utilization of dental indices for the classification of research on simplified materials.

With the cooperation of WHO (Geneva), initial arrangements were made for a coordinated plan of epidemiological research in various countries and for the possible establishment of an epidemiological center at the School of Dentistry of the University of Antioquia.

#### PAHO/RB

##### AMRO-4409, Fluoridation of Water Supplies

*Purpose:* Promotion of fluoridation of public water supplies by means of training courses for engineers and others responsible for initiating, designing, and operating fluoridation installations.

*Probable duration:* 1967-1971.

*Assistance provided:* 1 dentist, 1 sanitary engineer, and 13 short-term consultants (2 of them served 3 consultant-ships); costs of courses.

*Work done:* Training courses in fluoridation engineering techniques were conducted in Maracaibo, Venezuela; Medellín and Cali, Colombia; Santiago, Chile; and Rio de Janeiro, Brazil. To supplement these courses, a 2-week traveling seminar for 6 engineers was conducted in the United States of America.

A laboratory manual for training in fluoride analysis was completed and published in Spanish. Other publications in preparation were the Spanish edition of a text on fluoridation of potable water; a training manual for water plant operators; and the report of a census of fluoridation in Latin America.

Laboratory equipment was installed in 2 countries to facilitate fluoride analysis and research.

Advisory services were rendered to Costa Rica, Ecuador, and Mexico in connection with specific fluoridation projects. Medellín, Colombia, was among the cities that started fluoridation of their water supplies during the year.

A paper on engineering's contribution to the advancement of fluoridation was presented at a meeting of the International Dental Federation.

#### PAHO/RB, PAHO/OF

KF

##### AMRO-4410, Dental Materials

*Purpose:* Establishment in Caracas, Venezuela, of an international pilot center as a basis for promoting national pro-

grams to improve the quality of dental materials used by public institutions and dentists in private practice, control the quality of dental products produced locally or imported, establish up-to-date national specifications for dental products, train teachers and researchers in this field, and conduct applied dental-materials research.

*Probable duration:* 1968-1970.

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* A grant was obtained from the W. K. Kellogg Foundation for the Central University in Caracas, where the laboratory for the testing of dental products will be established. A seminar was held to discuss the services to be rendered by the center throughout the country.

The Minister of Health and Social Welfare announced the inauguration of the National Dental Products Control and Standards Laboratory.

The Venezuelan Dental Association, with assistance from the Organization, prepared a publication on standardization of dental materials, which was distributed throughout the Americas.

With assistance from the U.S. Public Health Service, courses were held in Medellín, Colombia, and Maracaibo, Venezuela, and a research program on simplified dental materials was drawn up to facilitate dental care in the rural areas.

A survey was begun on teaching and research in the field of dental materials in Latin American schools of dentistry.

##### AMRO-4411, Human and Material Resources in Dentistry

*Purpose:* Study of human and material resources in dentistry; and formulation of plans for the development of dental resources.

*Probable duration:* 1967.

*Assistance provided:* 1 dentist, 1 secretary, and advisory services by Headquarters staff; a limited amount of supplies.

*Work done:* At the Universidad del Valle in Cali, Colombia, studies were under way to establish a center for the utilization of simplified equipment and modern techniques in providing dental care to large population groups.

Two pilot demonstration courses on the manufacture and use of simplified dental equipment were given at the Schools of Dentistry of the University of Antioquia in Medellín, Colombia, and the University of Zulia in Maracaibo, Venezuela. They were attended by faculty members of both schools, dentists in private practice, dental students, and dental technicians. Initial work was done on the preparation of a manual dealing with this subject.

A set of simplified equipment was installed at the Department of Public Health in Medellín on a 1-year trial basis to determine the optimum characteristics of similar equipment to be purchased later.

The national health survey in Venezuela continued in the areas of human and material resources and dental education.

In Zulia State, emphasis was given to the preparation of a model curriculum in which instruction will be combined with dental care to rural, urban, and metropolitan areas and will

include the use of simplified techniques, equipment, medication, and dental products by properly trained auxiliary personnel.

The report of a survey on the use of auxiliary personnel in dentistry was prepared.

See also project AMRO-6608.

## PAHO/RB

### AMRO-4500, Health Aspects of Radiation

*Purpose:* Formulation of well-defined programs of radiation protection by national health services; teaching of radiation physics, radiobiology, and radiation protection in medical, dental, public health, veterinary, and other professional schools; use of radioisotopes in medicine; and collaboration with the member countries of the Pan American network of sampling stations for determining radioactive contamination of air, food, and water.

*Probable duration:* 1958-

*Assistance provided:* 4 short-term consultants; supplies.

*Work done:* Advisory services were rendered to authorities and technical personnel in the course of visits made to Argentina, Bolivia, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Jamaica, Panama, Peru, and Venezuela.

Assistance was given in the preparation of standards and regulations on radiation protection. A short-term consultant advised the Ministry of Public Health of Ecuador in the drafting of the relevant chapter of the Health Code. Cooperation was provided in the preparation of training programs; in the installation and operation of radiotherapy equipment and film dosimetry laboratories; in the drafting of a manual of clinical radiation dosimetry; and in the promotion of research projects in the field of radiobiology, including studies on manganese poisoning in occupationally exposed persons, on the effects of high levels of background radiation in certain areas of Brazil, and on the use of radioimmunological techniques in the determination of hormone levels.

## WHO/RB

### AMRO-4507, Radiation Health Protection

*Purpose:* Cooperation with Governments in the adoption of administrative or technical measures for protection against radiation hazards.

*Probable duration:* 1964-

*Assistance provided:* 1 radiation physicist; and supplies.

*Work done:* An agreement was signed with Ecuador for a 4-year cooperative program; Jamaica extended its program for 3 years; and negotiations were held with Chile and Venezuela for the signature of similar agreements.

Argentina, Colombia, and Peru were supplied with equipment for film dosimetry services and the control of work hazards. Assistance was given with basic training courses in Chile, Colombia, and Ecuador. Agreements were signed with the nuclear energy commissions of Bolivia and Chile, and negotiations for similar arrangements were entered into with Colombia and Peru. Argentina and Bolivia enacted legislation on radiation protection. Ecuador drew up the pertinent articles of the Health Code.

See also the -4500 projects of Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Jamaica, and Peru.

## PAHO/RB

### AMRO-4509, Radiation Surveillance

*Purpose:* Organization of programs for the radiation surveillance of air and food, especially milk, in order to determine the amounts and kind of radionuclides present and thereby assess the possible health hazards to the population.

*Probable duration:* 1963-

*Assistance provided:* Advisory services by project AMRO-4507 staff; a limited amount of supplies.

*Work done:* An air sampling station was established in Cuenca, Ecuador, bringing the total number to 12 (the other 11 are in Buenos Aires, La Paz, Bogotá, Santiago, Guayaquil, Quito, Georgetown, Kingston, Lima, Trinidad, and Caracas.) Analysis of milk samples was continued at 6 stations (Bogotá, Santiago, Guayaquil, Montego Bay, Lima, and Caracas). High levels of Cesium-137 continued to be found in milk in Jamaica. The study undertaken with the cooperation of New York University (USA) to determine the cause of this problem showed that there is a significant inverse relationship to the potassium content of the soil. Similar findings were recorded in certain parts of Florida.

## PAHO/RB

### AMRO-4511, Meeting of Working Group on Radiation Protection

(Guayaquil, Ecuador; 24-28 November 1969) WHO/RB

The purpose was to discuss with a group of national health administrators and technical officials the best procedures for strengthening specific programs of radiation protection.

The Organization defrayed the costs of the meeting, which was attended by officials from the ministries of health of Argentina, Brazil, Chile, Colombia, Ecuador, Jamaica, Mexico, Peru, and Venezuela, and by representatives of national nuclear energy commissions and the International Atomic Energy Agency.

Recommendations were adopted on coordination of health and nuclear energy programs in this field; the need to develop specific national programs of radiation protection, including administrative, regulatory, and training aspects; and the desirability of carrying out cooperative multinational programs. The report of the meeting will be published and distributed to health and nuclear energy authorities and individual specialists in this field.

### AMRO-4610 (-4609, -4613, and -4616), Manganese Poisoning and Metabolic Disorders

*Purpose:* Research on the mental and neurological syndrome produced by chronic inhalation of dust containing manganese.

*Probable duration:* 1964-1970.

*Assistance provided:* 3 short-term consultants (1 of them served 2 consultantships); administrative costs; and supplies.



*Work done:* In Chile 8 patients with Parkinson's syndrome were treated with dihydroxyphenylalanine (L-DOPA) and an evaluation was made of the results of the treatment on the motor function. No appreciable changes were observed over a period of 90 days. In one case a state of somnolence resulted and was being evaluated by electroencephalographic means.

**PAHO/OF**                      **National Center for Urban and Industrial Health (USA)**

#### **AMRO-4700, Food and Drug Control**

*Purpose:* Improvement of the national services responsible for control of the health aspects of the preparation and sale of foods, drugs, and biological products, whether of local origin or imported.

*Probable duration:* 1959.

*Assistance provided:* 1 food and drug specialist and 1 secretary; supplies.

*Work done:* Advisory services were rendered to Brazil, which was developing plans for the new Food and Drug Department as a part of the recently created Superintendency of Control in the Ministry of Health.

The Organization made a comprehensive study of the food and drug situation in Costa Rica and presented the Government with detailed recommendations on the organization and financing of its control activity, including suggestions on how the existing units could be utilized to establish an improved national agency.

Technical advice was rendered to Mexico, Peru, and Venezuela on procedures for expanding the capability of the drug testing laboratories.

The Organization participated in the First Conference of Caribbean Health Ministers, which considered the possibility of joint action by the Governments of that area to achieve an improved drug control program. It also participated in the First National Symposium on Food and Drug Control, held in Buenos Aires, Argentina, which dealt with measures to ensure the safety and efficacy of drugs utilized in the country.

**PAHO/RB**

#### **AMRO-4703, Food Reference Laboratory (Zone III)**

*Purpose:* Establishment of a Reference Laboratory for Food Analysis, as a division of the Institute of Nutrition of Central America and Panama, with the twofold purpose of furnishing analysis services to the countries in the area that lack adequate facilities of this kind and of serving as a center for training personnel for national food-testing laboratories.

*Probable duration:* 1964.

*Assistance provided:* 1 laboratory adviser, secretarial services, and advisory services by Headquarters and project AMRO-4203 staff; supplies.

*Work done:* A proposal for assistance in the financing of this project was under consideration by the UNDP-SF.

The Gas Chromatography Section, installed at INCAP, began its work with analyses of pesticide residues in foods, edible fats and oils, amino acids, and other substances.

The laboratory adviser participated in the training activities conducted by INCAP and by the Governments.

Advisory services were rendered during the Fifth Seminar on Food and Drug Control for Central America and Panama. Paraguay was given advice on techniques for the enrichment of flour, and British Honduras was assisted with the installation of a laboratory for analysis of fish products and with a course on the control of animal products.

**PAHO/RB, WHO/RB**

#### **AMRO-4708, Training Center for Food Inspectors**

*Purpose:* Training of inspectors in modern techniques and procedures for the registration, inspection, and control of foodstuffs.

*Probable duration:* 1967.

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* Negotiations were continued with the Preventive Medicine and Public Health Department of the School of Medicine of the University of Puerto Rico, for the establishment of a training center for food inspectors.

#### **AMRO-4709, Drug Control Center**

*Purpose:* Establishment of an international laboratory for the quality testing of pharmaceutical products, and for training and research in this field.

*Probable duration:* 1967.

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* Architectural plans for the building to house the proposed Pan American Drug Quality Institute, in Montevideo, Uruguay, were completed. Financing was under consideration.

#### **AMRO-4710, Food and Drug Administration (Zone III)**

*Purpose:* Establishment within the health ministries of units for the registration and analysis of all foodstuffs and drugs; promotion of effective legislation; and training of personnel in this field.

*Probable duration:* 1964.

*Assistance provided:* 1 short-term consultant, and advisory services by staff of Headquarters and of projects AMRO-0703 and -4703; costs of the Seminar.

*Work done:* The Fifth Seminar on Food and Drug Control for Central America and Panama was held in Managua, Nicaragua, from 26 to 31 May. Participants included 13 health ministry officials of the Zone III countries, representatives of INCAP, of the Central American Institute for Industrial Research and Technology (ICAITI), and of the U.S. Food and Drug Administration, as well as observers from the food and pharmaceutical industry in the countries. The Seminar reviewed the activities carried out in each country in compliance with the recommendations of the four previous Seminars. Special attention was given to food intoxication,

use of gas chromatography in food analysis, drug standards, use of plastic containers, and standardization of food colors.

Assistance was rendered to Guatemala and Honduras in the preparation of food control regulations.

## WHO/RB

### AMRO-4800, Medical Care Services (Interzone)

*Purpose:* Cooperation with the Governments in the improvement of medical care administration, with emphasis on the coordination of health services, hospital planning, and general problems of hospital administration.

*Probable duration:* 1961-

*Assistance provided:* 26 short-term consultants, advisory services by Headquarters staff, and 2 secretaries; costs of 2 meetings; supplies.

*Work done:* Cooperation was extended to the Government of Peru in the revision of a document on structural integration of the health sector and of a preliminary legislative proposal for the establishment of a Social Security Institute. Uruguay made plans for the creation of national health insurance.

The Government of Venezuela was furnished technical assistance in connection with the proposed establishment of a unified national health service.

Advice was given to the Governments of Cuba, Guatemala, Guyana, and Panama on coordination and regionalization of their health services, and to the Government of Argentina on the design of studies on the cost and quality of medical care.

A Study Group on the Coordination of Medical Care Services of Ministries of Health, Social Security Institutions, and Universities assembled in Washington, D. C., in August under the joint sponsorship of the Organization and the OAS. Fifteen specialists from the countries of the Americas participated.

Staff members of the Organization submitted papers on coordination of health care services to the First American Congress on Social Security Medicine, held in Mexico City; to the World Round-Table Conference on the Contribution of Social Security Systems to Public Health Programs, in Oaxtepec, Morelos, Mexico; and to the Greater Colombian Seminar on Social Security and Medical Education, in Quito, Ecuador.

As in previous years, lectures on the coordination of medical care services were given in the course sponsored by the Inter-American Center for Social Security Studies, in Mexico City.

The dissemination of information continued on a regular basis.

A Study Group on the Training of Specialists in Physical Medicine and Rehabilitation assembled in Santiago, Chile, and formulated recommendations which it was hoped would serve as a guide for making training in this field more uniform.

## PAHO/RB, WHO/RB

### AMRO-4803, Medical Care Services (Zone III)

*Purpose:* Cooperation in the planning of medical care services, with emphasis on the coordination of health services, hospital planning, and general problems of hospital administration.

*Probable duration:* 1962-

*Assistance provided:* 1 medical officer.

*Work done:* The countries of the Zone focused their attention on the higher administrative levels of medical care, including the relevant ministerial divisions or departments, and on teaching hospitals, which are expected to perform the additional role of national demonstration and training centers on modern hospital administration techniques.

*See also the -4800 projects of Costa Rica, Guatemala, Honduras, Nicaragua, and Panama.*

## PAHO/RB

### AMRO-4804, Medical Care Services (Zone IV)

*Purpose:* Cooperation in the planning of medical care services, with emphasis on the coordination of health services, hospital planning, and general problems of hospital administration.

*Probable duration:* 1963-

*Assistance provided:* 1 medical officer and 1 secretary.

*Work done:* In the area of service coordination, Bolivia adopted a Hospital Statute governing all establishments irrespective of their ownership. In other fields, progress was also made in coordinating the services of the Ministry with those of decentralized institutions. Colombia updated the standards for the administration of medical care services and determined the levels of medical care to be provided by the different services. Ecuador completed the draft amendments to the Constitution and the Organic Law of the Ministry of Health to bring the Social Welfare Agencies into association with the Ministry and also drew up a bill for regionalization of health services. Peru enacted an Organic Law reorganizing the Ministry; the law assigns responsibility to the Ministry for the establishment of policy for the entire health sector, places the Special Health Service and the technical units of the National Health Fund and Social Welfare Agency under its supervision, integrates the Institutes of Health, Nutrition, Veterinary Research, and Occupational Health, and lays down guidelines for improving the internal coordination within the Ministry and between the latter and autonomous institutions in the sector.

In regard to hospital planning, Bolivia evaluated the results attained in the first year of operation of the program for the extension and development of health services in Cochabamba and reviewed the plans for two new hospitals: the Children's Hospital in La Paz, and the University Hospital in Sucre. Colombia completed the preliminary arrangements for a hospital equipment and personnel survey, as a basis for determining actual needs and drawing up a national plan of hospital investments. Ecuador formulated functional programs for the new university hospitals in Guayaquil and Quito and the General Hospital for the suburbs of Guayaquil. Peru reviewed the architectural plans and functional programs for the Central Aeronautics Hospital and the

intensive care unit of the new San Juan de Dios Hospital in Callao.

In the area of service administration, performance evaluations were made and guidelines established for the improvement of the following services: in Bolivia, the Health Units in Santa Cruz and Cochabamba and the Clinical Hospital in La Paz, San Juan de Dios Hospital in Santa Cruz, and Viedma Hospital in Cochabamba; in Colombia, the regional services for Boyacá, Valle del Cauca, Bolívar, and Cauca, and the Medellín, Popayán, and Santa Marta Hospitals (the intensive care unit of San Juan de Dios Hospital in Bogotá was fitted out); and in Peru, the Central Employees' Hospital and the Workers' Hospital. In Ecuador the study for regionalization of health services was completed.

In the training program, Colombia offered its first short courses for rural promoters; Ecuador established a new policy for the training of personnel abroad, which is expected to improve the administration of fellowships awarded by international agencies; and Peru held its first health planning course for nurses, with emphasis on planning in the nursing field.

All 4 countries in the Zone conducted the regularly scheduled courses, as well as a number of special courses, at the schools of public health and at the Ministries of health for professional (postgraduate) and auxiliary personnel.

See also projects Bolivia-3100, Colombia-3100, Ecuador-3100, Peru-3100, and AMRO-4813, -4815, and -4816.

#### PAHO/RB

#### AMRO-4810, Chronic Diseases

*Purpose:* Study and control of chronic diseases, in particular cardiovascular, pulmonary, metabolic, and rheumatic disorders.

*Probable duration:* 1967-

*Assistance provided:* 1 adviser specialized in chronic diseases (three-fourths of the year), 1 secretary, and advisory services by Headquarters staff; a limited amount of supplies.

*Work done:* Visits were made to Argentina, Brazil, Chile, Guyana, Jamaica, Trinidad and Tobago, and Uruguay to give advice on current problems and programs related to chronic diseases. Policy guides for the planning of programs in this field were developed. Liaison was established with the Inter-American Society of Cardiology and with the Inter-American League Against Rheumatism. Assistance was rendered to the American Heart Association in developing its Latin American program. A paper on the epidemiology of coronary artery disease in the Americas was presented at the International Congress of Cardiology in Venezuela. The project adviser participated in the WHO-sponsored conference on myocardial pathologies of Chagas' disease held in Brazil.

#### PAHO/RB

#### AMRO-4813, Hospital Planning and Administration

*Purpose:* Improvement of present hospital and medical care facilities; establishment of maintenance programs; and planning of new facilities to meet the increasing demand for services.

*Probable duration:* 1968-

*Assistance provided:* 1 maintenance engineer, 1 short-term consultant, advisory services by Headquarters staff, and 1 secretary; supplies.

*Work done:* The Governments of Ecuador and Honduras were furnished assistance in connection with plans for the establishment of teaching hospitals in Guayaquil and Tegucigalpa.

The Hospital of San Luis Potosí University School of Medicine in Mexico received advisory services in an assessment of the productivity of installed hospital capacity and its implications in regard to the requirements for the teaching of the health professions.

In Panama the architectural designs for the master plan of Santo Tomás Hospital were prepared.

Advisory services in maintenance engineering were rendered to the Workers' Social Security Hospital in Lima, Peru, to hospitals in Barbados, St. Kitts, Trinidad, and Venezuela, and to the intensive care unit in Bogotá, Colombia, and Belo Horizonte, Brazil.

Intermediate-level pilot courses were given for hospital maintenance personnel at the Hospital Maintenance and Engineering Center in Caracas, Venezuela. Another pilot course, on hospital engineering, was held at the Latin American Center for Medical Administration, in Buenos Aires, Argentina.

#### PAHO/RB

#### AMRO-4815, Training for Medical Care and Hospital Administration

*Purpose:* Development of the programs of training in administration of medical care and hospital services at schools of public health, schools of medicine, and other institutions in Latin America.

*Probable duration:* 1967-

*Assistance provided:* 1 specialist in medical care and hospital administration and 3 short-term consultants (including 1 on 2 different missions); costs of seminar.

*Work done:* The activities were mainly directed to obtaining information on the magnitude of the training problem and on current programs. The first Venezuelan symposium on administrative hospital residencies was attended by 25 instructors, directors, and key officials of the Ministry of Health and Social Welfare.

Advisory assistance was rendered to the School of Public Health of the University of Antioquia (Colombia) in the planning of the first course leading to a Master's degree in medical care and hospital administration, a 1-year program to be inaugurated in 1970.

With a view to the introduction of this subject into the medical education process in Latin America, a first seminar on medical care and hospital administration was held at the Latin American Center for Medical Administration. The meeting was attended by 15 professors of preventive and social medicine, heads of clinical departments, and directors of university hospitals from 6 universities in Argentina, Chile, Paraguay, and Uruguay.

#### PAHO/RB, WHO/RB

**AMRO-4816, Progressive Patient Care**

*Purpose:* Cooperation in the establishment of 6 intensive care units in Latin American university hospitals that will serve as teaching units in medical education and nursing programs, for the purpose of demonstrating the application of the concept of progressive patient care and bringing about improved utilization of resources and higher-quality medical care.

*Probable duration:* 1967-1970.

*Assistance provided:* 1 nurse, and advisory services by Headquarters staff; equipment and supplies.

*Work done:* The university hospitals at Belo Horizonte (Brazil), Bogotá (Colombia), Santiago (Chile), and Maracaibo (Venezuela) inaugurated their intensive care units.

Programs of theoretical and practical training were conducted at Belo Horizonte, Bogotá, and Maracaibo; and formal programs of orientation and training in the use of monitoring equipment were offered for medical personnel in the Clinical Hospital in Belo Horizonte, the San Juan de Dios Hospital in Bogotá, and the University Hospital in Maracaibo.

A meeting was held in Washington to examine the risks involved in the use of electronic equipment in the care of patients; it was attended by 15 experts from the United States of America.

**PAHO/RB, PAHO/OF**

**KF**

**AMRO-4819, Latin American Seminar on Cancer Registries**

(Cali, Colombia; 15-20 September 1969) PAHO/RB

The purpose was to provide an opportunity for the exchange of the experience already gained by the existing cancer registries in Latin America; to recommend guidelines for the organization and administration of registries; to determine the basic professional and technical staff needed for their effective operation; to discuss methods for training the required manpower; and to promote cancer registration activities in the most suitable areas. The Organization provided 6 short-term consultants and advisory services by staff of Headquarters and Zone IV Office, and covered the costs of travel and per diem for 24 participants from 20 countries, simultaneous interpretation services, and other costs of the Seminar.

The participants concluded that much of the statistical data needed for cancer control could be collected from the usual sources of health statistics; that it was essential to improve the quality of health statistics in general, prior to the development of cancer incidence registries; that hospital cancer registries could contribute significantly to the improvement of patient care; and that other epidemiological methods should also be used in the search for causal agents.

**AMRO-4900, Health and Population Dynamics**

*Purpose:* Development of activities in health and population dynamics.

*Probable duration:* 1968.

*Assistance provided:* 2 medical officers, 1 specialist in educational materials, 47 short-term consultants, and secre-

tarial services; costs of educational meetings; teaching materials; and 20 short-term fellowships: Argentina, Brazil, Colombia (2), Nicaragua (2), Paraguay (2), Peru, Trinidad and Tobago (4), Uruguay (6), and Venezuela; and 5 long-term fellowships: Bolivia, Brazil, Peru, Trinidad and Tobago, and Venezuela.

*Work done:* Technical assistance was rendered to 15 countries in various aspects of health and population dynamics. An analysis of the current status of maternal and child health and family planning was undertaken in Panama. Operational plans for programs were prepared in Haiti, Ecuador, and Peru. Technical advisers were assigned to assist with a World Bank review of the family planning program in Jamaica and to participate in a United Nations team investigation of training programs and requirements in Central America and the Caribbean area.

Six medical schools in Central America and Panama reviewed current curricula and practices in the various departments in connection with the teaching of reproductive physiology, obstetrics, and social and clinical aspects of population. In all, 64 departments in the schools and 14 related programs were included in these studies.

A study on training facilities in this field in Latin America was carried out by a group of short-term consultants. Their report was reviewed by a Committee on Health and Population Training.

Orientation programs were held for the PAHO staff in Zones I and III. Seminars for nurses and midwives held in August in Panama and in Trinidad were attended by 85 participants from 23 countries. Another for medical practitioners took place in Trinidad in November.

The Technical Group on Maternal Nutrition and Family Planning in the Americas was convened in Washington in October. The workshop on educational components of population dynamics and family health services in Latin America, held in November in Quito, Ecuador, was attended by 72 health educators from 22 countries.

A guide for the teaching of demography to undergraduate medical students was prepared by a short-term consultant. The manuscript was being reviewed for publication.

**PAHO/OF**

**AID**

**AMRO-4901, Health and Population Dynamics (Zone I)**

*Purpose:* Assistance to the Governments of the countries of Zone I in the development of national family planning programs as an integral part of basic health services, in particular those for maternal and child health.

*Probable duration:* 1968.

*Assistance provided:* 1 medical officer.

*Work done:* In Barbados the family planning program was assessed and suggestions were made for integrating these activities into the maternal and child health services.

In Guyana the maternal and child health services, government laboratory services, and venereal disease programs were reviewed with a view to outlining a plan of action for integration of family planning and cervical cytology services into the maternal and child health programs.

In Jamaica assistance was provided to a World Bank Mission in a review of the family planning program.

In St. Vincent and St. Lucia plans for an integrated family planning-maternal and child health program were reviewed.

See also project Trinidad and Tobago-4900.

#### **PAHO/RB, PAHO/OF Columbia University (USA)**

##### **AMRO-5000 (-4807), Rehabilitation**

*Purpose:* Advisory services in rehabilitation related to medical problems.

*Probable duration:* 1962-

*Assistance provided:* 1 specialist in rehabilitation.

*Work done:* The project adviser continued to be stationed in Mexico City. The principal activity was the planning and execution of the course for Latin American teachers of physiotherapy, held in Mexico City from 3 March to 28 November. Plans were made to hold a rehabilitation conference there in October 1970.

Cuba was assisted with the implementation of a rehabilitation program.

See also the -5000 projects of Argentina, Chile, and Venezuela.

#### **PAHO/RB**

##### **AMRO-5007 (-4818), Teaching of Physiotherapy (1968-1969) WHO/RB**

The purpose was to conduct a course in Mexico for the preparation of Latin American teachers of physiotherapy. The Organization provided 1 physiotherapist in 1968; and in 1969, 4 short-term consultants (3 physiotherapists and 1 administrator), costs of the course, supplies, and 15 fellowships (awarded under other projects): Argentina 3, Brazil 2, Chile 2, Colombia 2, Guatemala 2, Uruguay 2, and Venezuela 2.

During 1968 the course was planned by the Regional Adviser in Rehabilitation (who also served as tutor during the course) and the Mexican authorities. The course took place from 3 March to 28 November 1969. The aforementioned 15 fellows and 4 Mexican students, all of them trained in this specialty, completed the course, which included a review of the techniques of therapy as well as training in teaching methods.

##### **AMRO-6000, Medical Education: Textbooks and Teaching Materials**

*Purpose:* Raising the level of medical education by providing suitable low-cost textbooks to students; development of a cooperative arrangement with the medical schools in order to ensure the selection of texts of the highest scientific and pedagogical quality; and establishment of a revolving system for the funds that are collected, in order to ensure the continuity of the program.

*Probable duration:* 1967-

*Assistance provided:* 1 medical officer, 16 short-term consultants (one of them served 2 consultantships), and secre-

tarial services; grants; books; and costs of printing of reports.

*Work done:* A total of 108 Latin American universities have adhered to the program by signing letter-agreements with the Organization.

Faculty surveys were carried out with a view to choosing the professors to serve on the expert committees that are to submit recommendations for the selection of the textbooks most widely used in the teaching of histology, embryology, gynecology, obstetrics, surgery, and psychiatry.

The committees of experts on internal medicine and morphology (composed of 15 professors in all) held their first meetings, which dealt with anatomy, histology, and embryology.

Ten thousand copies of the *Tratado de patologia*, 9,855 of *Bioquímica*, 7,904 of *Fisiología humana*, and 7,245 of the *Manual de farmacología* were distributed. Approximately 60% of the copies of the first two books were sold (80% on a cash basis and the rest on installments). The system of book rental was used only to a negligible extent.

The reports of the first 6 committees (on the teaching of pathology, biochemistry, physiology, pharmacology, pediatrics, and preventive and social medicine) were published as separate booklets.

See also the -6000 project of the respective country.

#### **PAHO/SFHP**

##### **AMRO-6100, Schools of Public Health**

*Purpose:* Strengthening of the schools of public health in the Region.

*Probable duration:* 1963-

*Assistance provided:* 1 medical officer and 2 short-term consultants; a limited amount of supplies.

*Work done:* Among the main activities was the organization of the VI Conference of Directors of Schools of Public Health, held in Medellín, Colombia (30 November-5 December), which dealt with the role of the schools under changing socioeconomic conditions in Latin America.

The report on the comparative study of the 10 schools of public health in Latin America was prepared and published; it will serve as a baseline for future actions.

An intensive training program in epidemiology was carried out in Argentina under the sponsorship of the Ministry of Public Health and with the collaboration of PAHO. It included 6 one-week seminars, one 1-month intermediate-level course, and a 3-month diversified course, in which a total of 163 persons received training.

Advisory services were given to the university authorities in Argentina, Brazil, El Salvador, Panama, and Paraguay.

#### **PAHO/RB, WHO/RB**

##### **AMRO-6101, Health Manpower Studies (Zone II)**

*Purpose:* Development and evaluation of long-range plans for strengthening health manpower resources in the Caribbean area, through collaboration with the University of the West Indies and the Governments concerned.

*Probable duration:* 1969-1971.

*Assistance provided:* 8 short-term consultants (7 of them served 2 consultantships), and advisory services by project AMRO-3701 staff; supplies.

*Work done:* A manpower study in the sanitary engineering and environmental sanitation sectors was begun. In Guyana and St. Kitts the study was expanded to include all health personnel.

## WHO/RB

### AMRO-6107, Seminars on Schools of Public Health

*Purpose:* Calling of biennial meetings of deans and professors of Latin American schools of public health for the discussion of mutual problems and the study of specialized areas of education.

*Probable duration:* 1957-

*Assistance provided:* 1 short-term consultant; travel and per diem of participants and other costs of the meeting (the University of Antioquia, where the Conference was held, provided secretariat services).

*Work done:* The VI Conference of Directors of Schools of Public Health of Latin America was held in Medellín, Colombia, from 30 November to 5 December. Its central topic was "The role of schools of public health under changing socioeconomic conditions in Latin America." It was attended by 37 participants from Argentina, Brazil, Chile, Colombia, Cuba, Peru, Puerto Rico, the United States of America, and Venezuela, officials of PAHO, and observers.

The Conference discussed 5 working papers prepared by the Organization and examined the major advances made by the Latin American public health sector during the 1960's. It emphasized the importance of proper planning in the development of health manpower and the required characteristics of such planning; assessed the training currently offered at Latin American public health schools; and examined the problems that need to be solved by these schools if they are to meet the challenges posed by social and economic change accompanying the development of their countries.

## WHO/RB

### AMRO-6200, Medical Education

*Purpose:* Cooperation with the Governments in their efforts to improve the programs for the teaching of medicine, with special reference to preventive and social medicine, basic sciences, and medical pedagogy.

*Probable duration:* 1953-

*Assistance provided:* 1 medical officer, 5 short-term consultants (1 of them served 3 consultantships), and advisory services by Headquarters staff; secretarial services; and supplies.

*Work done:* A meeting of officials of the Pan American Federation of Associations of Medical Schools and of PAHO was held in Washington. Its purpose was to describe the activities being carried out and strengthen the channels of coordination and communication that can be useful for the improvement of medical education in Latin America. The I Meeting of the Health Sciences Education Information Center

(CIECS), held at PAHO Headquarters, was attended by 43 representatives of 26 private, governmental, and international institutions providing technical and financial assistance to education in the health sciences in Latin America. The activities of the Center were expanded to cover training programs. A "Directory of Latin American Schools of Dentistry, Medicine, Nursing, Nursing-Midwifery, Public Health, and Veterinary Medicine" was prepared for the meeting.

Assistance was given in the preparation of the project to establish the Latin American Center for Perinatology and Human Development in Uruguay.

The preliminary stage of the program of "institutional fellowships" was begun with the evaluation of the Milbank Memorial Fund program of fellowships for professors.

Advisory services were extended to the medical education programs in Argentina, Bolivia, Brazil, Chile, Colombia, Cuba, Ecuador, Mexico, Panama, Peru, and Venezuela.

The Organization participated in the II Pan American Conference on Medical Education, in Mexico; the International Evaluation Congress in Edmonton, Canada; the Josiah Macy, Jr., Foundation conference on "The Doctor's Assistant in Latin America"; and a special meeting with officials of the W. K. Kellogg Foundation on cooperation in the field of medical education.

The quarterly journal *Educación médica y salud* continued to be published regularly, in an edition of 5,000 copies.

## PAHO/RB, PAHO/OF

## Milbank Memorial Fund

### AMRO-6202, Medical Education (Zone II)

*Purpose:* Improvement of the medical education programs in the countries of Zone II, with special reference to preventive and social medicine and medical pedagogy.

*Probable duration:* 1967-

*Assistance provided:* Advisory services by Headquarters and Zone II Office staff.

*Work done:* In Cuba a seminar on behavioral sciences was held, and assistance was given in connection with the revision of programs and the reorganization of the instruction.

In Haiti advisory services were provided in medical education and medical architecture.

In Mexico advice on the teaching of anatomy and hospital administration was rendered to the School of Medicine of San Luis Potosí University. The Organization participated in the XII Annual Meeting of the Mexican Association of Medical Schools.

See also the -6200 projects of Cuba, Dominican Republic, Haiti, and Mexico.

### AMRO-6204, Medical Education (Zone IV)

*Purpose:* Cooperation with the Governments of the countries of Zone IV in activities aimed at strengthening medical education at the undergraduate, postgraduate, and continuing education levels, promoting the integration of preventive and social medicine, and increasing the number and quality of teaching staff.

*Probable duration:* 1966-

## VIII. PROJECT ACTIVITIES

*Assistance provided:* 1 medical officer, and advisory services by Headquarters staff.

*Work done:* See projects Bolivia-6200; Colombia-6200, -6201, -6203, and -6204; Ecuador-6200; and Peru-6200.

### PAHO/RB

#### AMRO-6208, Teaching of Statistics in Medical Schools

*Purpose:* Promotion of the teaching of medical and health statistics in schools of medicine and public health in Latin America.

*Probable duration:* 1961-

*Assistance provided:* 1 short-term consultant, and advisory services by Headquarters staff.

*Work done:* The services of a short-term consultant were provided for a 3-month period in Argentina, Brazil (São Paulo and Ribeirão Preto), Chile, and Uruguay. Classes on design of experiments and analysis of variance as well as special sessions on medical statistics problems were given in the institutions visited. In Argentina assistance was given in planning the future training activities of the Biostatistics and Demography Center of the University of Buenos Aires School of Medical Sciences. In Ribeirão Preto, Brazil, several lectures were given in the Department of Mathematics Applied to Biology, of the School of Medicine. In the School of Public Health in Chile plans were made for a revised 2-year course (March 1970-December 1971) for professors of medical statistics and biostatisticians. In Uruguay plans were being made for conducting a course in mathematics and statistics in the first year of the Medical School.

### PAHO/RB

#### AMRO-6210, Teaching Methods and Administrative Organization of Medical Schools

*Purpose:* Strengthening of medical education through a better pedagogical approach to the teaching of medicine.

*Probable duration:* 1964-

*Assistance provided:* 1 medical officer, 1 short-term consultant, and advisory services by Headquarters staff; contractual services; supplies.

*Work done:* The respective associations of medical schools conducted laboratories of human relations and medical teaching in Porto Alegre, Brazil, and Ciudad Bolívar, Venezuela. Similar laboratories were conducted in Argentina (3) and Colombia.

In Colombia the 1st seminar on definition of educational objectives and curriculum design, held in Medellín (20-25 October), was attended by 14 members of the administrative and teaching staff of the medical schools of the country, one representative of the Colombian Association of Medical Schools, and 2 Venezuelans holding PAHO fellowships.

### PAHO/RB

#### AMRO-6214, Faculty Training for Medical Schools

*Purpose:* Raising the level of medical education through the award of fellowships to teaching personnel to enable

them to pursue a program of training in their respective disciplines and in pedagogical techniques at the School of Medicine of the University of Antioquia, Colombia, and through the supply of teaching and laboratory equipment to the fellows when they return to their institutions.

*Probable duration:* 1969-1971.

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* A study was made of the postgraduate programs at the School of Medicine of the University of Antioquia and of matters relating to the participation of PAHO fellows in those programs.

Three requests for teaching and laboratory equipment were received from the fellows who completed their training at the School; these requests were being processed in accordance with the terms agreed upon.

#### AMRO-6216, Medical Education and the Teaching of Preventive and Social Medicine

*Purpose:* Assessment of the status of medical education and of the teaching of the preventive and social aspects of medicine.

*Probable duration:* 1965-

*Assistance provided:* 1 medical officer, 2 short-term consultants, and advisory services by project AMRO-6200 staff; secretarial services; supplies.

*Work done:* Work was continued on the collection of information on medical education and the teaching of preventive and social medicine in certain schools in Argentina, Brazil, and Chile. The study was extended to Haiti and Jamaica.

The general analysis of the data obtained was completed and the data were published in the journal *Educación médica y salud* (Vol. 3, No. 2).

In view of the fact that many Latin Americans are studying medicine in Spain, a similar survey was conducted in 11 Spanish medical schools, in agreement with the WHO Regional Office for Europe.

### PAHO/RB, PAHO/OF

### Milbank Memorial Fund

#### AMRO-6223, Teaching of Behavioral Sciences

*Purpose:* Holding of seminar-courses on behavioral sciences in the medical schools of Latin America, in order to provide professors of behavioral sciences with information on the underlying theory of these disciplines and with training in the basic methodology of the social sciences and the use and development of suitable models for instruction; and provision of basic bibliographic material in Spanish.

*Probable duration:* 1969-

*Assistance provided:* 1 short-term consultant (3 consultantships), and advisory services by staff of Headquarters, Zone I, II and VI Offices, and projects Uruguay-6200, Venezuela-6200, and AMRO-6200; costs of the seminar-courses.

*Work done:* Seminars of 5 to 9 days' duration were held in Cuba, Uruguay, and Venezuela for 40, 46, and 21 professors, respectively. Plans for other seminars were prepared.

### PAHO/RB

**AMRO-6224, Faculty and Research Training Centers**

*Purpose:* Improvement and systematization of programs for the training of teaching and research personnel in the medical schools of Latin America, by promoting the development of institutions that can be used as international training centers for professors and research workers.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* At the School of Medicine of the University of Valle in Colombia, a review was made of the progress of the Latin American Program for Training in Pathology, in which the Organization cooperates (project Colombia-6203), and recommendations on the organization and development of the Program's instructional and administrative activities were drawn up.

Preliminary discussions were held in Mexico with a view to organizing a training program in pharmacology.

**AMRO-6225, Evaluation of Fellowship Program**

*Purpose:* Evaluation of the fellowship program of the Organization in order to assess the results achieved and their effects on the health programs, and to guide the Governing Bodies in the determination of future policy in this field; and conduct of a study on the possible award of within-country fellowships as a means of promoting optimum utilization of resources available for training personnel in the home countries.

*Probable duration:* 1969-

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* The evaluation of the fellowship program was held up during the year, owing to budgetary limitations.

In compliance with Resolution XXV of the XVIII Meeting of the Directing Council, a document was prepared setting forth general criteria for the award of within-country fellowships. These criteria were being examined with a view to their future application.

**AMRO-6300, Nursing Education**

*Purpose:* Strengthening of nursing education and training programs.

*Probable duration:* 1958-

*Assistance provided:* Advisory services by Headquarters staff; supplies.

*Work done:* Assistance was given in the conduct of a study of the schools of nursing in Argentina, as well as in the activities of other nursing education projects in the Region. A tentative format for a revised directory of nursing schools was drawn up. Teaching materials were regularly sent to projects, to help improve the training activities.

**WHO/RB****AMRO-6301, Nursing Education (Zone I)**

*Purpose:* Improvement of nursing care through improvement of nursing education.

*Probable duration:* 1963-

*Assistance provided:* 1 nurse educator, and advisory services by staff of projects AMRO-3200, -3201, -3207, -6300, and -6301; 18 short-term fellowships: Antigua, Bahamas, Barbados (2), Dominica, Grenada, Guyana (2), Jamaica (4), St. Lucia, St. Vincent, and Trinidad and Tobago (4).

*Work done:* As part of the program for the continuing education of teaching staff in the Caribbean area, a 2-week course on the preparation and utilization of auxiliary nursing personnel was held in Dominica; and a 6-week course on family-centered nursing care was held in Jamaica. At both courses there were 18 participants; they included teaching staff of nursing schools as well as representatives of the nursing services, the University of the West Indies, and government training programs.

Guyana's program for the preparation of nursing assistants was begun in April and the first group of 30 participants were trained. A second course opened in August, with 28 students.

*See also* project Guyana-3200.

**PAHO/RB, PAHO/OF****UNICEF****AMRO-6310, Programmed Instruction for Nursing Auxiliaries**

(1965-1969) PAHO/RB, PAHO/SFHP

The original purpose was to develop programmed instruction courses for nursing auxiliaries in order to prepare the exceedingly large numbers of untrained staff working in health services in Latin America. The purpose was later redefined to include assistance to the Governments in increasing the effectiveness of the personnel graduated from training programs for nursing auxiliaries, by modifying the content of the programs and improving teaching methods. The Organization covered the costs of a seminar in 1965; provided 1 nurse educator and secretarial services from 1966 to 1968; defrayed temporary personnel costs in 1969; furnished the advisory services of Headquarters staff for the duration of the project and, on occasion, the services of personnel of projects Honduras-6300, Mexico-6300, and Peru-6300; and provided equipment and supplies as needed.

The main activities may be summarized as follows: a 6-week workshop on programmed instruction, sponsored by PAHO/WHO and directed by the Teachers' College of Columbia University, was attended by 15 nurse educators; during the workshop, an instruction unit on "Introduction to Immunology" was written, translated, and tested in Mexico. A 1-month course for instructors of nursing auxiliaries was conducted for 25 nurses from six Latin American countries; the emphasis was on the need to identify those tasks for which the auxiliary should be prepared, and to carry out field testing of short programmed instruction units. No attempt was made to teach the techniques of writing programs. Several programmed instruction texts in nursing were translated into Spanish, and trials of two of the texts were conducted.

A pilot study of nursing activities was conducted in Lima, Peru. The objective was to ascertain what activities are carried out by nursing auxiliaries in inpatient and outpatient



health services and to use this information for the purpose of curriculum planning. A seminar to analyze the study findings was held for 28 participants.

#### **AMRO-6312, Seminars on Nursing Education (Zone I)**

*Purpose:* Development and application of norms and guidelines for nursing education programs, at all levels, based on a realistic assessment of the needs of the countries.

*Probable duration:* 1966-1971.

*Assistance provided:* 1 short-term consultant (2 consultant-ships); costs of the seminar.

*Work done:* Thirty-one persons attended an international nursing education seminar during which a guide for the training and utilization of auxiliary nursing personnel was drawn up. The participants came from the fields of nursing (22), administration (4), law (1), education (2), medicine (1), and finance (1). The guide was printed and distributed to all countries and territories of the Zone.

Studies on the activities of graduate nurses were undertaken in 3 countries, as a basis for planning for a more effective utilization of both professional and auxiliary nursing staff.

#### **PAHO/RB**

#### **AMRO-6400, Sanitary Engineering Education**

*Purpose:* Assistance to the Governments in expanding the institutions for the teaching of sanitary engineering, strengthening the curricula, and promoting training and research activities in this field.

*Probable duration:* 1964-

*Assistance provided:* 1 sanitary engineer and 2 secretaries; contractual services; supplies.

*Work done:* A total of 37 universities in 22 countries were participating in the program by the end of the year. Fifty-six short courses, 4 seminars, and a symposium were conducted.

The teaching staff included 530 national lecturers and 118 consultants provided by the Organization (74 short-term consultants and 44 staff members). A total of 1,939 persons benefited from the educational activities, a figure which is indicative of the response of the countries.

A survey on the status of sanitary engineering education in Latin America was carried to completion. The School of Engineering of the Central University of Venezuela was given technical assistance for a study of its administrative structure.

The second stage of an agreement between the Government of Venezuela and the United Nations Development Program, for the improvement of sanitary engineering education at 4 Venezuelan universities, was prepared.

The curriculum of the National Engineering University of Peru was reviewed.

Grants were provided to the engineering schools of all the universities with which the Organization has agreements, mainly to enable them to acquire laboratory equipment and enlarge their library collections.

The training program on fluoridation of water supplies,

sponsored jointly by the W. K. Kellogg Foundation and the Organization, was continued in 1969.

Research on sanitary engineering continued to receive substantial support, with 20 projects in operation: 3 in Argentina, 4 in Brazil, 6 in Chile, 2 in Colombia, 1 in Guatemala, and 4 in Mexico.

Two universities in Argentina and Mexico signed agreements with local petroleum companies for the development of studies on pollution caused by industrial wastes.

#### **PAHO/RB**

#### **AMRO-6500, Veterinary Medicine Education**

*Purpose:* Strengthening of the teaching of veterinary medicine, with special reference to preventive medicine and public health.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* Basic information on the schools of veterinary medicine of Brazil was compiled, in order to appraise the status of education in this field. The directors of the schools were assisted in making plans for the coordination of the teaching programs in accordance with the new university law of the country.

A study was made of the status of veterinary medical education in two schools of veterinary medicine in Venezuela.

Assistance with the teaching programs in veterinary preventive medicine and public health was rendered to the University of Chile, the University of San Carlos in Guatemala, the University of San Marcos in Peru, and to four universities in the United States of America (California-Davis, Minnesota, North Carolina, and Pennsylvania).

See also the -6500 projects of Argentina, Brazil, Colombia, and Venezuela.

#### **AMRO-6507, Seminars on Veterinary Medicine Education**

*Purpose:* Appraisal of the teaching programs in public health and preventive medicine of the schools of veterinary medicine of the Americas, and formulation of recommendations for their modernization.

*Probable duration:* 1966-

*Assistance provided:* Advisory services by Headquarters staff.

*Work done:* A meeting of the Association of Teachers of Veterinary Public Health and Preventive Medicine in the U.S. and Canada was held in Minneapolis, Minnesota, 13-18 July, in conjunction with the Annual Meeting of the American Veterinary Medical Association. The recommendations of the 3 previous PAHO Seminars on veterinary public health education were reviewed and a plan of future activities was outlined.

The proceedings of the Symposium on Education in Veterinary Public Health and Preventive Medicine (St. Paul, Minnesota, 18-22 March 1968) were published as *Scientific Publication PAHO 189*.

**AMRO-6600, Dental Education**

*Purpose:* Assistance to university authorities in various countries interested in improving teaching in the schools of dentistry.

*Probable duration:* 1963-

*Assistance provided:* 5 short-term consultants, 1 secretary, and advisory services by Headquarters staff; supplies.

*Work done:* In Venezuela the basic study of the curricula of the 3 schools of dentistry continued to be carried out, as did the reorganization of the instruction at the clinics of the schools in Caracas and Maracaibo. Initial work was done on the preparation of a plan of experimental studies for the School of Dentistry of the University of Zulia (Maracaibo).

The International Center for Dental Epidemiology and Research (CIEPO), in Brazil, in cooperation with the Dental Health Center of the U.S. Public Health Service, prepared the program for a course in dental research, which was distributed to various schools of dentistry in Latin America. The Schools of Dentistry of the University of Zulia and the Federal University of Rio Grande do Sul, in Pôrto Alegre, Brazil, assumed responsibility for duplicating the course program and distributing it to the Spanish- and Portuguese-speaking dental schools. A new course of programmed instruction was translated into Spanish at Maracaibo and Pôrto Alegre by the centers in charge of coordinating the distribution of audiovisual material in Latin America. Initial action was taken at these two centers to prepare a course on clinical instruction in dentistry.

A publication setting forth guidelines for the development of dental curricula—to be issued in Spanish and English and distributed in the Americas and in other Regions of WHO—was prepared.

An evaluation of the impact of the 3 Latin American dentistry seminars sponsored by the Organization was started at Headquarters.

The following literature was distributed: 4,000 copies of a directory of schools of dentistry in the Americas; a directory of dentistry journals (sent to all dental schools in Latin America and to the dental associations); and 2,000 copies of a directory of courses for auxiliary dental personnel in Latin America.

The documents submitted to the Third Latin American Seminar on Dental Education were reviewed by Headquarters staff with a view to their reproduction and subsequent distribution in Latin America.

**PAHO/RB, WHO/RB**

**AMRO-6608, Training of Auxiliary Dental Personnel**

*Purpose:* Training and utilization of dental auxiliaries, in order to increase the coverage and reduce the cost of dental care services.

*Probable duration:* 1965-

*Assistance provided:* 2 short-term consultants, and advisory services by Headquarters staff; supplies.

*Work done:* The data from the survey on training and utilization of auxiliary dental personnel in Latin America were tabulated.

In the Province of Buenos Aires, Argentina, the Organization assisted in the promotion of techniques for the simplifi-

cation of dental work, by cooperating in a course for instructors.

The strengthening of the programs for the training of auxiliaries was continued at the University of Antioquia, in Medellín, Colombia. In that School a special document was prepared for the WHO, dealing with an experimental course for the training of dental nurses in line with a model developed in New Zealand.

Construction of the School for Dental Nurses was continued in Jamaica.

PAHO consultants conducted a series of demonstrations on the use of dental auxiliaries in Medellín, Colombia, and in Maracaibo, Venezuela.

A basic text on simplification of dental practices was distributed to 8 schools.

**PAHO/RB**

**UNICEF**

**AMRO-6609, Latin American Association of Dental Schools**

*Purpose:* Strengthening of a central office to coordinate the activities of the Latin American Association of Dental Schools (ALAFD) and promote dental education in Latin America.

*Probable duration:* 1965-

*Assistance provided:* Advisory services by Headquarters staff; 1 grant.

*Work done:* With grant funds from the W. K. Kellogg Foundation, an office was established in Rio de Janeiro, Brazil, and the post of Assistant Secretary of ALAFD was established. The program of activities for 1970 was drawn up.

The curriculum was prepared for a program of continuing education, to be taught at various schools of dentistry by an ALAFD consultant.

Selected literature on dental education was distributed to the countries.

**PAHO/OF**

**American Dental Association (USA)**

**AMRO-6700, Biostatistics Education**

*Purpose:* Improvement of vital and health statistics in the countries of the Hemisphere, through the training of professional personnel; and establishment, at the School of Public Health of the University of Chile, of a center for training and research on the interrelationship of health and population dynamics and their bearing on social and economic development.

*Probable duration:* 1952-

*Assistance provided:* Advisory services by Headquarters staff; 1 grant.

*Work done:* In the biostatistics course at the School of Public Health in Chile, which began on 11 March 1968 and ended on 28 June 1969, 12 students were graduated. Plans were made for conducting a 2-year biostatistics course at the professional level beginning in March 1970.

Instruction in statistics was also given in several other courses at the School, to a total of about 450 students.

The Biostatistics Department continued to participate in many research projects, including an investigation into Chile's needs for statistics training at the professional level. It also collaborated with the National Committee on Vital and Health Statistics and with other organizations active in the biostatistics field.

#### WHO/UNDP

##### AMRO-6707, Latin American Center for Classification of Diseases

*Purpose:* Study of problems related to medical certification of causes of death; instruction in the use of the *International Classification of Diseases*; and collaboration in the preparation of the decennial revisions of the *Classification*.

*Probable duration:* 1955-

*Assistance provided:* 1 statistician; grants; and equipment and supplies.

*Work done:* Work was continued on the preparation of Volume II of the Spanish edition of the *International Classification of Diseases*, the first stages having been done on a computer with the collaboration of the U.S. National Center for Health Statistics.

The translation of the Portuguese edition of Volume I was published (*Scientific Publication PAHO 190*). The Brazilian Government contracted with the Organization for the purchase of 10,000 copies and it was expected that the total distribution would be 13,000 copies. Arrangements were made for the School of Medicine of Ribeirão Preto to translate Volume II.

Consultations were held in regard to studies of multiple causes of death, and on the preparation of the Ninth Revision of the *International Classification*.

Five courses on the use of the *Classification* were conducted, for 116 participants from 9 countries. Other courses were organized by local personnel.

#### WHO/RB

##### AMRO-6708, Training Program in Hospital Statistics

*Purpose:* Provision of training in medical records and hospital statistics, for the purpose of improving patient care and the planning of health services.

*Probable duration:* 1961-

*Assistance provided:* 3 medical records librarians and 1 secretary; supplies.

*Work done:* A general survey was undertaken to assess the status of medical records and determine priority needs in the countries and territories of Zone I.

A working group on the training of medical records personnel met in Buenos Aires, Argentina (29 September-10 October) and drew up recommendations for the establishment of a professional-level course. Two 9-month intermediate-level courses in health statistics and medical records were conducted at the School of Public Health of the University of Buenos Aires, the first for 31 participants (3 from Uruguay) and the second for 32 (one each from Chile, Paraguay, and Uruguay). The Public Health Ministry of Buenos Aires Province initiated its first course for medical records

technicians in April in La Plata. In 6 auxiliary-level courses, personnel from 14 provinces and the city of Buenos Aires received training.

In Brazil medical records departments were being organized in 3 hospitals, to serve as practice areas for a training program.

Lectures were given to students attending the 15-month course in health statistics at the School of Public Health of the University of Chile.

An intermediate-level course in health statistics was given at the School of Public Health of the University of Antioquia, Medellín, Colombia, for 30 students.

The fourth medical records course at the intermediate level was conducted in Costa Rica (4 April-30 August) for 24 students (4 from Mexico and 1 each from Brazil, El Salvador, and Honduras).

A preliminary program for auxiliary and intermediate-level courses was prepared in Ecuador.

Surveys of the medical records departments were made at several health institutions in British Honduras, at the Bloom Children's Hospital in El Salvador, and at the Santo Tomás University Hospital in Panama. An auxiliary-level course was given in El Salvador for 20 students.

Surveys and organizational plans for medical records departments were completed at the General Hospital and the Child Welfare Institute in Mexico City, and at the University Hospital in Monterrey. A plan was prepared for an auxiliary-level course to be held in the country.

#### PAHO/RB

##### AMRO-6709, Research and Training Programs in Health and Population Dynamics

(1966-1969) Grant to PAHO: AID

The purpose was to plan and implement research and training programs in population dynamics and its relationship to public health and medical care. The Organization provided, in 1968, 6 short-term consultants, 7 temporary advisers, advisory services by Headquarters staff, and 3 short-term fellowships (Colombia 1 and Nicaragua 2); and in 1969, 9 short-term consultants and seminar and local costs. In addition, audiovisual equipment was furnished for the population dynamics programs at the University of São Paulo in Brazil and the University of Chile.

Fellowships for studies in the research and training program at the University of Chile were awarded to students from: Argentina 1, Brazil 1, Colombia 7, Ecuador 2, El Salvador 1, Guatemala 1, Mexico 1, Nicaragua 2, Peru 3, and Venezuela 3. For studies at the Center for Population Dynamics Studies at the University of São Paulo, awards went to 37 Brazilians and to one student each from Colombia, Mexico, Nicaragua, and Venezuela. Six faculty members from the São Paulo Center and 2 from the Chilean program received fellowships for studies abroad.

A working group on research on human reproduction met in Santiago, examined pilot and other studies conducted in Latin America, reviewed methodology and problems which had arisen, and prepared a report with recommendations on future collaborative research in this field.

Project staff assisted in the establishment of the 2 centers

in Latin America for the study of health and population dynamics, and helped in planning to meet training and research needs in this field.

See also project AMRO-4900.

**INTER-REGIONAL-0079, Malaria Training Programs**

Three short-term fellowships were awarded (El Salvador, Haiti, and Venezuela).

**WHO/RB**

**INTER-REGIONAL-0113, Training in the Epidemiology and Control of Tuberculosis**

Four short-term fellowships were awarded (Bolivia, Brazil, Chile, and Colombia).

**WHO/UNDP**

**INTER-REGIONAL-0243, Course on Recent Advances in the Application of Basic Medical Sciences to Surgery**

One short-term fellowship was awarded (Dominican Republic).

**WHO/UNDP**

**INTER-REGIONAL-0289, Course on Child Dental Health**

Two short-term fellowships were awarded (Peru and Venezuela).

**WHO/UNDP**

**INTER-REGIONAL-0303, Seminar on Food-Borne Diseases and Intoxications and Food Hygiene Practices**

Eight short-term fellowships were awarded: Argentina (2), Brazil, Costa Rica, Cuba, Dominican Republic, Mexico, and Peru.

**WHO/RB**

**INTER-REGIONAL-0362, Travelling Seminar on Medical Care**

Three short-term fellowships were awarded (Chile, Costa Rica, and Mexico).

**WHO/UNDP**

**INTER-REGIONAL-0365, Joint FAO/WHO Food Standards Program (Codex Alimentarius Commission)**

Two short-term fellowships were awarded (Trinidad and Venezuela).

**WHO/RB**

**INTER-REGIONAL-0388, Course on Methods and Techniques for Parasitic Disease Surveys**

One short-term fellowship was awarded (Chile).

**WHO/UNDP**

**INTER-REGIONAL-0439, Course on National Health Planning**

Four short-term fellowships were awarded (Colombia, Cuba, Mexico, and Venezuela).

**WHO/RB**

**INTER-REGIONAL-0453, Course on the Management of Psychiatric Nursing Care**

Two short-term fellowships were awarded (Jamaica).

**WHO/UNDP**

**INTER-REGIONAL-0456, Course on Rodent and Vector Ecology**

One short-term fellowship was awarded (Venezuela).

**WHO/UNDP**

**INTER-REGIONAL-0522, Orientation Program for WHO Representatives on Health Aspects**

Two short-term fellowships were awarded (Martinique and Venezuela).

**WHO/UNDP**

**INTER-REGIONAL-0524, Course on Radiation Protection**

One short-term fellowship was awarded (Chile).

**WHO/UNDP**

**INTER-REGIONAL-0537, Seminar on Methods of Epidemiological Surveillance**

Two short-term fellowships were awarded (Mexico and Venezuela).

**WHO/RB**

**INTER-REGIONAL-0563, Travelling Seminar on Industrial and Agricultural Health**

Four short-term fellowships were awarded: Chile, Peru (2), and Uruguay.

**WHO/UNDP**

**INTER-REGIONAL-0567, Courses at International Reference Centers (Immunology)**

One short-term fellowship was awarded (Mexico).

**WHO/RB**

**INTER-REGIONAL-0581, Course in Epidemiology**

One long-term fellowship was awarded (Mexico).

**WHO/UNDP**



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