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REPORT OF THE DIRECTOR

1964



PAN AMERICAN SANITARY BUREAU

Report of the Director, 1964

Official Document No. 63

Errata

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

INDEXED

REPORT OF THE DIRECTOR

of the

PAN AMERICAN SANITARY BUREAU

REGIONAL OFFICE

of the

WORLD HEALTH ORGANIZATION

1964

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August 1965

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, U.S.A.

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 for the Americas of the World Health Organization, in the year 1964. 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', with a horizontal line underneath it.

Abraham Horwitz
Director

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ACRONYMS AND CORRESPONDING AGENCIES

AID	Agency for International Development (United States of America)
AIDIS	Inter-American Association of Sanitary Engineering
CIAP	Inter-American Committee of the Alliance for Progress
CREFAL	Community Development Training Center
ECLA	Economic Commission for Latin America (UN)
EXIMBANK	Export-Import Bank of Washington, D.C., U.S.A.
FAO	Food and Agriculture Organization (UN)
IADB	Inter-American Development Bank
IA-ECOSOC	Inter-American Economic and Social Council (OAS)
IBRD	International Bank for Reconstruction and Development (World Bank)
INCAP	Institute of Nutrition of Central America and Panamá
KF	W. K. Kellogg Foundation
MARU	Middle America Research Unit (NIH, USPHS)
NAUCA	Central American Standard Tariff Nomenclature
NIH	National Institutes of Health (U.S.A.)
OAS	Organization of American States
OIE	International Office of Epizootics
OIRSA	International Regional Organization for Health in Agriculture and Livestock
PAHO	Pan American Health Organization
PASB	Pan American Sanitary Bureau
UN	United Nations
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNICEF	United Nations Children's Fund
USPHS	United States Public Health Service
WHO	World Health Organization

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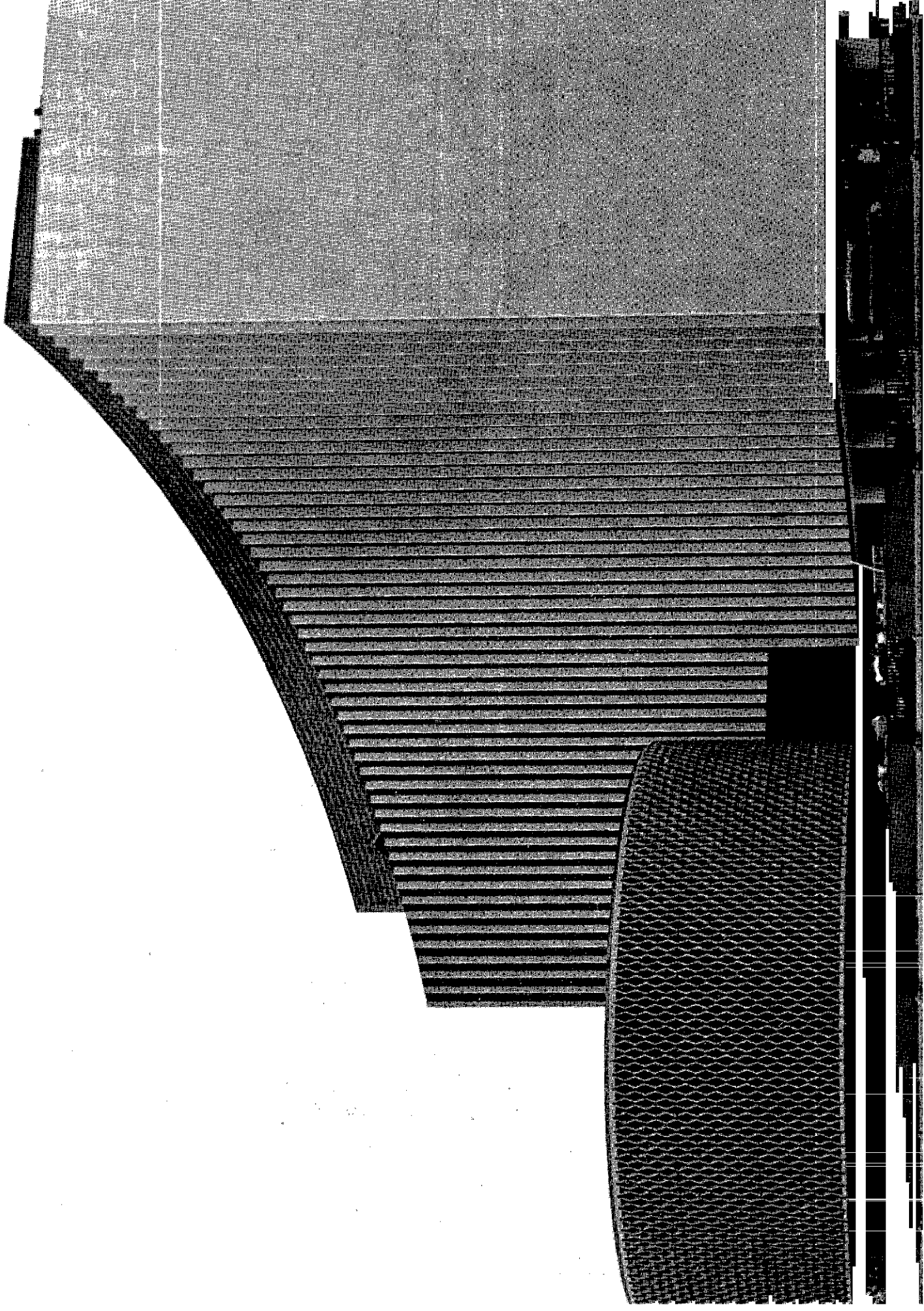
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INTRODUCTION

THERE IS A clear trend in the Americas toward political interdependence, economic integration, structural reforms, and the orderly investment of domestic resources and foreign loans in planned development. The mere mention of these high purposes reveals the scope and magnitude of the undertaking. The state of affairs is but the final stage in a long process of crystallization of ideas which brought into harmony the efforts of Governments and international organizations. To shape the destiny of a Continent, it is first necessary to create a collective consciousness, a way of thinking, of feeling, and of acting that allows national interests to be pursued in harmony with regional interests. Progress in any one country, reflected in the well being of its inhabitants, must not blight that of another nation; on the contrary, it must foster reciprocal benefits. Misguided nationalism may result in stagnation at a time when well-organized interdependence could usher in an era of rapid development.

Relations between countries should have the same harmony that modern medicine strives to develop between every human being and his environment. The difficulty lies in giving practical expression to policies which, it is generally agreed, will improve not only the living conditions of the people of the Americas but also the relations between the constituent countries and between the Americas and other regions of the world.

In this way we interpret the outstanding functional work of the Economic Commission for Latin America, the Organization of American States, and the Inter-American Development Bank, and in recent years the concepts emanating from the Act of Bogotá and the Charter of Punta del Este.

Among the above-stated body of ideas, health has had to be incorporated both as a social function and as a service. And it has been the special task of the Pan American Sanitary Bureau, in its dual role as the executive arm of the Pan American Health Organization and the World Health Organization, to work toward that end.

The Governments have agreed upon a series of objectives to be achieved in the decade that began in 1962. The objectives are set forth in the documents mentioned

above, and, specifically, in the Ten-Year Public Health Program, object of Resolution A.2 of the Charter of Punta del Este. The meeting of the Task Force on Health at the Ministerial Level (Washington, D. C.; 15-20 April 1963), attended by about 100 experts, was convened for the express purpose of determining the fundamental problems involved in that program; the criteria for assigning priorities in each country; the general and specific measures to be taken to solve the problems; the significance of health as an investment to foster economic growth and social progress. It is fair to say that while the problems were examined in the light of present-day experience, deliberations were pursued with an eye to the future, and what remained to be done was emphasized more than what had already been achieved. The recommendations of that meeting—both those dealing with specific measures to solve each problem and the general recommendations relating to the instruments to be used for the purpose—were approved by the Directing Council of the Pan American Health Organization, which acts as the Regional Committee for the Americas of the World Health Organization. They were therefore incorporated into the policy of the Pan American Sanitary Bureau whose activities they now guide.

In their Final Report the Ministers of Health said: "We have interpreted the purposes of the Charter of Punta del Este as a cooperative effort to stimulate the social progress of Latin America concurrently with, and as the outcome of, a sustained growth of the economy. As to health problems as such, we conceive of them as the aggregate of factors that condition the diseases and their distribution in each society. These are factors of a biological, economic, historical, and cultural nature. Available data show that Latin America is beset by infectious diseases, undernourishment, poor sanitation, unhealthy housing and working conditions, illiteracy, lack of proper clothing, and a low per-capita real income. These factors together produce a high general mortality, as well as a high mortality in children, especially those under five years of age (more than 40 percent of all deaths), and accidents of pregnancy and motherhood which limit life expectancy at

birth; they are also responsible for the poor scholastic performance of many schoolchildren, for low productivity, not to mention a pessimistic outlook on life. The distribution of these health problems among the countries varies, as it does among parts of the same country, and between the cities and rural areas." And the report adds: "It is a well known fact that qualified professional and auxiliary personnel are insufficient in quantity and quality. The funds available for the material resources required to promote and protect health are also insufficient. Priorities must be established to insure that investments in health give the best possible returns and benefit as many people as possible."¹ To this end the Governments therefore decided to formulate health plans because experience shows that if these are not drawn up well in advance, resources—which are themselves limited—are not always assigned to the most urgent priorities and, as a result, there is a bitter wrangle for funds within each Government. This decision was taken at a time when there were still conflicting ideas about the political implications of planning, since it was not always understood that it is a method, a tool that enables a society to assign to each function its proper importance within the needs, according to the prevailing scale of values. The decision to plan, then, implies the establishment of a method for matching funds with pressing problems. It is up to the experts to apply their knowledge and experience to clearly explain the main factors involved. A plan makes it possible for each social function to play its proper part and thus contribute to the general welfare of the population for whom it was conceived. Planning therefore is an instrument for benefiting men and society.

The need for national health plans became more evident in 1964 when the Inter-American Committee of the Alliance for Progress (CIAP), established by the Inter-American Economic and Social Council at its Second Meeting at the Ministerial Level (São Paulo, Brazil; 11-16 November 1963), began its activities. One of the main tasks of that body was to establish a system for reviewing the investments for development submitted by each Government to the members of the Committee and to the representatives of the various international lending organizations. These country reviews are a true accounting at which not only the purpose for which domestic resources will be used but also the external capital needed for carrying out the policy of each Government must be specified. In 1964 stress was laid on the economic aspects of development with the result that social investments were somewhat overshadowed. That was a breach of

both the spirit and the letter of the Charter; moreover, the desire for social change in the Continent, so that expectations of well-being may be fulfilled, was not taken into account. From 1965 onwards the analysis will be economic and social, including at least the health programs that require external capital. Each Government will have to formulate a comprehensive plan covering the relations between needs and resources, between objectives and investments. In our opinion the Ministries of Health should present at least one program budget; preferably a plan indicating the order of priority attributed to the most pressing problems, the targets aimed at, the procedures to be used, and the funds that are required. In this manner the review of the CIAP will show each social function in terms of the progress to be achieved annually. It is our belief that our Organization can, if the Governments so decide, assist in the presentation of what is needed for the protection, promotion, and restoration of health. This would only be a new aspect of an activity that has been progressively increasing in recent years.

Indeed, in the last three years it has been possible to organize courses on **health planning**, to propose and outline a method for formulating a plan which will express needs in appropriate economic terms, to assist Governments in the preparation of what might be called a first approximation of the investment of resources in established priorities. The Report describes what was done in 1964 as a continuation of the process begun in 1962 in the various areas mentioned. All of them show progress, although certain new activities, the need for which had been foreseen, had yet to receive sufficient consideration in the concerted efforts of Governments and international organizations. Nevertheless, the course of action is more definite; it points to the need for a more sustained dialogue between the experts in each field and between them and those in the other disciplines that contribute to economic and social development. To the extent that the quantity of health workers trained in planning is increased, that the planning units of Ministries are strengthened, that the methods of formulating plans through research are improved, that the procedures for incorporating the health sector in national development plans are perfected, investments will be brought more into line with the real needs, as a consequence of the reasoned decisions of the political authorities in each country.

WHEREVER a national or local program has been prepared, **vital and health statistics** have proved to be insufficient and incomplete. Obviously, the more accu-

¹ PAHO Official Document 51: 6.

rately these statistics reveal the true state of affairs, the more precise will be the forecast embodied in the program. This does not of course mean that the preparation of the first plan should be postponed until full information about vital statistics and health indicators is available. It is indeed possible to establish a preliminary, reference model for the ordering of activities and perfect it as experience is gained, data registration becomes more complete, and the quality of the data improves.

For that reason the Organization continued in 1964 to train statisticians and statistical assistants; to analyze and publish vital and health statistics in the Americas; to establish demonstration areas so as to develop systems for the collection, as complete as possible, of basic data; and to conduct research. The most noteworthy research program was the Inter-American Investigation on Mortality, which has been in progress for the last two years in eleven cities of the Americas, most of them capitals, and in Bristol, England. Preliminary results reveal important differences between the participating cities: high death rates from tuberculosis in some and from Chagas' disease in others; a marked variation in cancer mortality in men and women as well as in lung cancer in men and uterine cancer in women; a higher frequency of death caused by atherosclerosis, degenerative heart diseases, and cirrhosis of the liver in men. These are some of the facts that make it possible to predict that, when finished, this study will constitute an important contribution to our knowledge of the causes of mortality in adolescents and adults in urban centers in the Continent. It would seem only logical to follow that study with similar investigations in children under 15 years of age and, if possible, in rural areas in which the population is not dispersed.

Mention must be made of the recommendations of the Third Meeting of the Regional Advisory Committee on Health Statistics concerning hospital statistics and indices for evaluation; moreover, of the objective stated in 1964, to be extended in subsequent years, regarding the training of auxiliary personnel who collect in hospitals and health centers the initial data—foundation of all health reporting—in order to improve the quality of the data collected. To achieve this latter objective is the aim of every statistical pursuit of the Organization, for only on such a foundation can health programs be adequately planned, carried out, and evaluated.

The Report also shows the increased number of professional and auxiliary workers trained and the technical advisory services provided to various Governments by consultants of the Organization.

HEALTH PLANNING has also brought out the need for better **organization and administration of the services** for the prevention and cure of diseases, where they exist, and for the establishment of essential minimum services, where they are lacking. The nature of the problems, their distribution in the Continent, and the trends in development justify the establishment of permanent health institutions. It is precisely the progress achieved in reducing the incidence of quarantinable and other communicable diseases which leads to an extension of coverage, especially in rural areas, and to seek increased yields by making better use of the resources. A major contribution can be made by the proper organization and administration of health institutions that are guided by clearly defined objectives for each function, by the periodical evaluation of performance, and by a constant refinement of the entire system. The future of eradication programs will be very uncertain if, when completed, the communities have not been motivated to prevent the reappearance of the disease or the vector, as the case may be, and services either do not exist or their work is inadequate. In the same way, preventive and curative activities indispensable for life in society, whatever the cultural characteristics of human groups may be, cannot be pursued unless there are institutions both to carry them out and to develop such other activities as the circumstances call for.

In the Americas today there are technical and other reasons why programs are being directed at a single health problem or a single disease—the “vertical” approach. But there are also good reasons for making increasing investments to improve permanent services which deal with day-to-day programs and not solely with emergencies—the “horizontal” approach. Both approaches must be brought into harmony, for they are not mutually exclusive but complementary. Besides, the objective of both these patterns of organization is the common welfare of persons and of societies. In the Americas the time of the great epidemic diseases that decimated the population is fortunately past. The present time is one of organized programs for sustained development, and that calls for permanent institutions established by the law and designed to serve the common weal.

IN THE general program of work of the Pan American Sanitary Bureau in 1964 the largest expenditures were for health protection (which includes communicable disease control and environmental sanitation) and health promotion (subdivided into general services and specific pro-

grams). This was done in accord with the ideas we have been discussing and the fundamental purpose of international assistance, namely, to supplement the work of the Governments and to suggest new lines of action.

THE POLICY with respect to health organization and administration is clearly defined, namely, the **integration of preventive and curative activities**; regionalization of the services; and continuing education of professional and auxiliary workers. We must again point out that these principles are not always applied to the hilt, largely because the type of university training health workers receive and the way in which the agencies are organized do not facilitate it. However, their value as a pattern of activity is clearly recognized.

In 1964 it was suggested to several Governments how this policy might be put into practice. The proposal consists in selecting an area of about 500,000 residents with a School of Medicine in the area or within easy access. The health services available should have reached a level of development that would permit regionalization. Such areas would not be difficult to find in view of the location of most of the Schools of Medicine in Latin America. The area selected should also possess a well-developed political and administrative infrastructure as well as voluntary organizations that could collaborate in accomplishing the objectives of the program, namely, the satisfaction of health needs and of the communities' demands for health services. The area should include rural districts; if it does not, they should be incorporated into it so that as many general activities as possible can be included in a single system. These conditions would facilitate the training of university students as well as of auxiliary workers, and would make it possible to provide advanced training to professional workers. The area selected should not be provided with personnel and equipment in excess of the average for the country, except for those needed for studies and investigations which are essential to the program. It should be borne in mind that the purpose of such a program is to determine patterns and procedures for implementing a health policy that is geared to the cultural characteristics of the population, its active and informed participation, and the economic possibilities of the country. Once a pattern of work is established it should be applicable to the remainder of the country after adapting the former to the conditions in each area.

We are fully cognizant that it is not easy to translate this policy into practice. However, as we have pointed out, there is an increasing awareness in the Continent of

the fact that the long-term approach to health as a social service inherent to life in society calls for permanent institutions. We are confident that the policy can be developed in the years ahead, at least in certain countries, so that they may serve as training centers for technical personnel from other countries interested in adapting the ideas of integration, regionalization, and continuing education to conditions in their own communities.

THE REPORT also describes the work done by the Pan American Sanitary Bureau, on the bases of agreements with the Governments, with regard to **general health services** at the national and local levels and to certain specific programs. The first mentioned included 143 training courses attended by 4,124 professional and technical health workers, not to mention 129 officials that were sent abroad for training in various schools in the Continent.

SOME of the specific programs deserve comment. Particular attention was paid to **medical care** at the XV Meeting of the Directing Council of the Pan American Health Organization, XVI Meeting of the Regional Committee of the World Health Organization. Two aspects of this complex problem were studied. One of them dealt with the better use of available resources, and in this connection the relations between medical care provided by social security institutions and that provided by institutions attached to the Ministry of Health were examined. There was general agreement that much could be done in the way of achieving better coordination of those services so as to extend coverage to the population in need. The Council approved Resolution XL, which called for the establishment of a Study Group to examine the matter in detail and to report to the Organization. This mandate will be implemented during the coming year in association with the Organization of American States with which close contact has been maintained in the field of technical assistance to Ministries of Health and social security services.

But that coordination alone is not the full answer to the plight of medical care in terms of demand and of real need. Clearly the performance of hospital personnel and equipment in Latin America can be improved both in quality and quantity. Furthermore, the construction and equipping of hospitals and, in general, of health establishments, is fundamentally a technical problem with impor-

tant financial implications. In view of the enormous investments that the countries of Latin America are making in this aspect, international organizations could undoubtedly provide more active assistance through some kind of thoughtfully planned regional machinery. Bearing all this in mind the Directing Council, in its Resolution XXV, recommended the establishment of an advisory committee to draw up a report on ways in which the Pan American Sanitary Bureau could play a more effective part in plans for the construction, staffing, equipping, and operating of hospitals and other related health services. This resolution will be implemented in 1965.

The problem cannot be faced without due regard to projects designed to create or strengthen the economic infrastructure of a country. We therefore wish to emphasize the relationship of hospital construction to the development of means of communication, transport, and power. In fact, in a regional system, accessibility to the establishments is a factor of prime consideration. Whenever this consideration has been ignored, investments have been made not for technical reasons but for the benefit of private interests rather than those of the population. If Ministries of Health keep abreast of the trends of development in their countries, they will be in a position to plan the construction and expansion of hospital and health centers in accordance with existing needs.

In relation to the size of the medical care problem in the Continent the funds allotted to it by the Organization in 1964 were insufficient by far. We do not mean to imply that there must be a direct relationship between the nature and extent of the health problems in countries and the priorities of international assistance. There are of course many activities for which the Governments have all or most of the resources and so do not require expert advice from the outside or else need it only as a supplement. Nevertheless, to enable all peoples to enjoy efficient medical care, broad programs are necessary and should be developed in close relationship with economic and social development plans. This is a direct responsibility of the Governments. International organizations should facilitate the preparation of such plans, concentrating on the problems that beset many or all of the countries in the Region. Two good examples are, first, the planning of hospitals and other health services, and secondly, the activities designed to increase the medical benefits provided by private and public agencies, especially Ministries of Health and Social Security institutions. Mention should also be made of the organization of regional centers for teaching and research. These can give a living example of how preventive and curative activities are integrated in practice, how services are

organized on a regional basis, and how this system can be used for education and training.

Wherever a Government deems it necessary, international technical assistance in each country can be concentrated on the provision of training for hospital administrators in national institutions and in universities abroad; teaching demonstrations; and technical advisory services on the coordination, or preferably integration, of medical care with health protection and promotion.

It is along these lines that the Pan American Sanitary Bureau has been conducting its medical care activities. Accomplishments in 1964, which include rehabilitation, are to be found in the corresponding chapter of the Report.

IT HAS BECOME a commonplace in Latin America, and a tragic one, that the problem of **nutrition** is a reflection of the stage of economic and social development. The most serious facet of this problem is infant mortality and mortality of children under five years of age. Compared with the rates in the technologically advanced countries, the rates in Latin America are still very high. To reduce the latter by half in the decade beginning in 1962 is one of the health goals of the Charter of Punta del Este. The achievement of this goal will be a major contribution to the aim of increasing the life expectancy at birth by five years in the same period, as is also proposed. Nevertheless, that result will not be achieved solely through the application of the techniques of individual and collective medicine; it calls for the concerted action of all the elements that promote development, among which is the production of basic foodstuffs, that is to say, proteins of animal and vegetable origin.

While the population of Latin America is growing at an exceptionally high rate (between 2.5 and 2.7 percent annually), agricultural production as a whole, and food production in particular, are increasing more slowly, if at all. Over the past five years total food production shows an average annual increase of only 1.7 percent. As a matter of fact the per capita level of food production is lower today than it was ten years ago. With regard to basic nutritional requirements, apart from the well-known and persistent deficiency in proteins and protective foodstuffs, in 1964 the available daily food supply was still below the minimum of 2,500 calories per person in fourteen countries and under 2,000 calories in three countries. To remedy this situation, Governments are resorting to agricultural imports, amounting in 1962-1963 to \$1,266 million, of which 900 million was in food. The

1963-1964 import figure is estimated to be about \$1,424 million.² It is therefore essential to accelerate the modernization of agricultural techniques; to reform land usage and tenancy; and to foster research on crops that are suitable to the environmental conditions and the social and cultural patterns of Latin America. At the same time agricultural policy needs to be redefined with a view to striking a balance between the biological needs of the population and the financial benefits to be derived from exports. Not all the countries can produce everything they require—which explains the importance of common markets; nevertheless, it does not seem natural to stress the production of high-income crops of no nutritional value when there are difficulties to provide the population with the required amount of proteins. This redefinition of policy must include measures for the modernization of food storage, of distribution, and consumption, in which the waste is enormous—and it would be interesting to ascertain the quantity—despite the fact that well-tested methods are available to improve each of these areas.

The responsibilities of the Ministries of Health and of Agriculture regarding food at the community level are not well defined. Consequently, diet is a matter for the families themselves to decide according to their income, customs, and the foodstuffs available. Nutritional disorders are treated in health centers, but activities aimed at improving the standard diet—which is essentially a matter of education—are not normally carried out by health agencies nor by the Ministry of Agriculture. Because they have more continuous relations with the communities, the Ministries of Health should incorporate nutrition activities into the routine work of the local services. The activities should include, not only those aimed at the prevention of such common disorders as protein-calorie malnutrition, anemias, and goiter, but also others aimed at the improvement of standard diet by the consumption of essential foods produced domestically or imported.

The above-stated antecedents were the basis for nutritional activities undertaken by the Bureau in the training of technicians, in direct assistance to Governments, and in research. In the countries of Central America and Panamá they have been carried out through the Institute of Nutrition of Central America and Panamá; and in the other countries of the Region through advisers stationed in five of the six Zones and through short-term consultants and technical staff of the Organization who assist in general health services projects. The corres-

² Inter-American Development Bank. *Social Progress Trust Fund: Fourth Annual Report, 1964.*

ponding chapter of the Report contains details of these activities of which I should like to point out the following.

In view of its great frequency, protein-calorie malnutrition received special attention. Accomplishments in this field are the nutrition-restoration centers established in some countries and the expanded production of vegetable mixtures. INCAPARINA sales in Colombia, Guatemala, and México reached two million pounds, an increase of 320 percent over 1963; in other countries studies were made on the acceptability and distribution of the product, with a view to initiating its production next year.

A study of endemic goiter in Guatemala showed that its prevalence was reduced from 37 percent before salt iodization was introduced to 7 percent in 1964, so that this disease is no longer considered a public health problem in the country. Notwithstanding this evidence, most Latin American countries have not enacted or do not enforce the necessary legislation for salt iodization, which explains why endemic goiter still claims 30 million victims and why its incidence continues to increase. In 1964 the Organization and the United Nations Children's Fund decided to hold a joint seminar for health workers and representatives of the salt industry to discuss practical aspects of the problem.

Two reference laboratories—for goiter and for nutritional anemias—were established under sponsorship of the respective Governments and the Organization, with grants from the Williams Waterman Fund. The goiter laboratory, in Santiago, Chile, will verify Iodine₁₂₇ determinations made in connection with the Coordinated Research Program being sponsored by the Organization. Other activities to be carried out include teaching and standardization of methods to be used by the participating laboratories. The laboratory for nutritional anemias, in Caracas, Venezuela, will improve methods for determining total serum iron, its fixation capacity, and vitamin B₁₂ and folic acid concentrations. Like the laboratory in Santiago, it will also train specialists and will serve as a reference laboratory for investigators participating in the studies on nutritional anemias to be coordinated by the Organization.

The training of technicians and the motivation of the communities through education are essential in improving the nutrition of the inhabitants of a country by inducing them to consume the locally available components of a balanced diet. The Report shows that, in 1964, 85 fellows from 23 countries received training at the Institute of Nutrition of Central America and Panamá in various aspects of nutrition. In addition, a 3-month course on the planning of nutrition educational programs

was held in Puerto Rico. The course was sponsored by the Food and Agriculture Organization and the United Nations Children's Fund and was attended by 20 officials from agencies of the Ministries of Health, Education, or Agriculture in 5 countries of South America. The interdisciplinary approach to nutritional education was emphasized.

In nutrition, as in other health disciplines, the knowledge and experience available are not put to the best possible use, largely because of the agricultural policies of the countries, the average purchasing power of the people, their habits and traditions. Nevertheless, there are many unknown factors about the normal diet and the origin and treatment of nutritional diseases. These facts, plus the urgency of studies aimed at producing more protective foods and determining the nutritive value of local foodstuffs, fully justify research as an essential activity. Considerable nutritional research was undertaken in 1964, particularly at the Institute of Nutrition of Central America and Panamá, including studies on the use of cottonseed for human and animal consumption. New INCAPARINA formulas, better adapted to the availability of raw materials and to the results of acceptability surveys, were tested. The Division of Agriculture and Food Chemistry of the Institute, which was responsible for this work, also made progress in its study of the nutritive value of native grasses and fodder and of other agricultural products suitable for animal feed.

Three articles published in the *Boletín de la Oficina Sanitaria Panamericana* summarized the research on diarrheal diseases in children and their relations to nutrition. The findings of this research have made an important contribution to our knowledge of the epidemiology of nutritional diseases in rural populations and have served as a basis for new investigations. These include a longitudinal study, which was begun during the year, designed to determine the exact time at which viruses, enterobacteria, and pathogenic parasites colonize the intestines of children, the evolution of the infection, and its influence on growth and development. The first findings show that several of these agents can be identified a few days after birth.

Other fields of research were deficient intestinal absorption in protein-calorie malnutrition and the etiology of various types of anemia observed in the process.

The Institute finished gathering the specimens of aortas and coronary arteries coming from the 20 laboratories in various regions of the world participating in the International Project on Atherosclerosis. During the four years of the project, 22,620 specimens were collected and subjected to histopathological examination and to corre-

lation of the various factors related to atherosclerosis and its complications. The investigations were coordinated by the Institute of Nutrition of Central America and Panamá and the Department of Pathology of the School of Medicine of Louisiana State University.

The results of those investigations and of the programs of applied nutrition carried out by the Institute were published in 68 scientific articles: 25 in Spanish, 30 in English, and 13 were being printed in both languages.

An examination of the Institute's financial future showed the advisability of insuring income to maintain and extend its regular activities. In this way it might also be possible to increase the allotments for research, for which the National Institutes of Health of the United States Public Health Service, the Kellogg Foundation, the Williams Waterman Fund, and other institutions have made generous grants. It was considered advisable to increase by \$200,000 the annual PAHO contribution to the Institute, from 1966 on, in view of the fact that its services have been extended beyond the Central American Isthmus to the rest of the Americas and, in the field of education, many other countries in the world have benefited and will continue to benefit. Consequently, provision for the above-mentioned increase was made in the regular PAHO budget for 1966. A decision on this matter will be taken by the Executive Committee at its 52nd Meeting and by the Directing Council at its XVI Meeting.

The World Health Organization and the Food and Agriculture Organization jointly appointed a consultant to study the nutrition problems in the Caribbean Area, with a view to establishing an institute to coordinate and expand existing programs, to train technicians, and to promote and carry out research on problems peculiar to that area. The consultant's report was submitted to the Governments concerned and their decision will determine the way of establishing the institution.

Twenty applied nutrition programs, sponsored by the Governments and by PAHO/WHO, the Food and Agriculture Organization, and the United Nations Children's Fund were in operation in 18 countries of the Americas during 1964. To evaluate these programs the Pan American Sanitary Bureau appointed an adviser who made a preliminary analysis of seven programs in order to establish lines for revisions and possible improvements.

We should like to point out once more that only by means of a realistic program, spanning both production and consumption and carried out simultaneously by State agencies and by private interests, will it be possible to improve the nutritional status of the peoples and to prevent and provide early treatment for prevalent diseases.

The problem is not purely medical; it is also economic and social.

AS ALREADY pointed out, health planning has shown the weaknesses of **administrative methods and practices** in the Health Services. Standards of public administration are embodied in the laws of each of the countries and are given more detailed treatment in the regulations. Unfortunately, current health laws need to be modernized, and very few of the officials responsible for enforcing the laws have had the necessary academic training. Of the basic elements in the health infrastructure, rational organization and administration are the ones which make possible adequate use of resources for solving problems. Experience shows that when definite objectives are established and deadlines set for reaching them, it is easier to guide and improve administrative methods and practices. For the last 3 years the Organization, jointly with the Division of Public Administration of the United Nations, has organized a series of seminars for officials from all countries in the Hemisphere, excepting those in North America. At those seminars the various scientific and technical disciplines of administration have been identified and their application to health programs examined. The results are reflected in the interest of several Governments for direct assistance, which has been given in accordance with budgetary limitations. In 1964, advisers in Zones I, III, IV, and VI assisted Governments in several activities, as detailed in the Report. The assistance resulted in an improvement of existing systems, in the use of new methods, and in the provision of inservice training or special courses for more than 150 officials.

Ten fellowships for study abroad were awarded. A Seminar on Organization and Administration of Health Services was conducted in 1964 and the ensuing report was published in two volumes. The second volume of the report was a Manual on Personnel Management, which was distributed to the Ministries of Health in Latin America.

We believe that expanded activities for education and training in this field are essential. One way in which they could be carried out would be to establish one or two centers to give specialized training to key university graduates in charge of administrative functions. Another would be to select certain universities whose programs of study includes features that could benefit trainees from other countries. All this, of course, would be in addition to inservice training.

IN **maternal and child health** the trend continued toward simplifying practices and selecting the greatest risks for more intensive care and supervision. In maternal care this involves the fullest use of nonmedical personnel, ranging from the professional midwife or obstetrical nurse to the lay midwife, all functioning within a network of supervision. In pediatric services the greatest efforts are focused on the synergistic syndrome of diarrhea and malnutrition, the identification and continued observation of the sick, and the application of the simplest methods of rehydration, treatment, and nutritional rehabilitation. An essential element is the instruction of individuals and groups. This should be done in hospitals, outpatient clinics, health centers and homes, and not be confined to a definite, isolated function in, for example, well-baby clinics. Unless every activity of the health technicians adds to the mothers' overall knowledge—whether of preventing new infection or of resorting promptly to the Health Service when an infection occurs—their work will not result in attaining the ultimate objective, which is that of reducing infant mortality. Moreover, every mother taught should also be motivated to pass on what she has learned to her neighbors or to help them when in similar circumstances.

Putting these concepts into practice is the basis of the Organization's policy in maternal and child health, which is being progressively carried out in the Region. Besides the advisory services provided to the Governments by personnel from Headquarters and those assigned to the Zones and the countries, there are programs of education and training in clinical and social pediatrics. Three of these were conducted in 1964, one of them in cooperation with the International Children's Center, of Paris, and the Inter-American Children's Institute, of Montevideo.

The survey of schools of midwifery in South America was concluded, and the report will guide the Bureau in its collaboration with countries requesting assistance. In addition, our Regional Adviser on Obstetrical Nursing, who carried out the survey, assisted the pertinent schools in Argentina, Paraguay, Perú, and Uruguay. The Report also covers educational programs for other professionals and for auxiliary personnel in the field of maternal and child health work.

Environmental conditions that overcome the resistance of children and adults with a weak capacity to react against the pressures and build immunity are contributing factors to most infectious diseases, the diarrheas in particular. The more deficient the sanitation and the greater the ignorance, the more severe are the effects of the pressures. And the more serious the malnutrition, the

slower the building up of immunity. Everything depends on the net income of each family, on its purchasing power, on the availability of necessary services, on how binding are customs, superstitions, and traditions. Hence we assert that health is an intrinsic good, a factor essential to each individual's progress—in other words, an ability to be more by knowing more. At the same time, in the social sphere, health is a component of development, one which benefits the individual and to which he contributes.

Maternal and child health, measured in terms of morbidity and mortality, cannot be achieved by a society unless it takes concerted action against the diverse problems that contribute to produce diseases and preventable deaths in mothers and children. This can be achieved through a balanced program in which medical techniques are interwoven with social techniques; in our own field, the direct application of curative and preventive methods should dovetail with nutrition, education, and sanitation work. We should like to refer to what was done in sanitation in 1964, as a part of the expansion of Bureau activities undertaken in recent years.

THE year 1964 constituted a significant stage in the progress of **environmental sanitation** activities in the Region of the Americas, as indicated in the Report. It was significant not only because of accomplishments, but because of the concern aroused among professionals and among public-work and university authorities. This was reflected in services to rural areas and small communities, in the teaching of sanitary engineering, and in university programs of continuing education for professionals working in the various aspects of sanitary engineering—in addition to the Organization's programs related to water supplies, sewerages, disposal of solid wastes, and industrial hygiene and safety.

The establishment of a Special Fund for Sanitation and Rural Welfare has not yet crystallized. Nevertheless, the events of 1964 revealed more clearly the bases for establishing such a Fund and provided better justification of its need and feasibility. It is more apparent today that the problem of rural sanitation, and the whole rural question, cannot be tackled—much less resolved—unless the communities are motivated to coordinate their efforts for the common good: an essentially social motivation, independent of any interest other than family and community welfare. We have maintained that the inhabitants of rural Latin America have been waiting for this stimulus and will support the effort when they realize that its

only objective is their own good. And in their response they have revealed their innate capacities, which are of as high quality and as worthy of respect as those of city people. They have also shown their sense of responsibility in organizing to carry out projects of community improvement—sanitation among others. They have contributed not only with labor but also with funds and other resources. Furthermore, they have acquired a sense of their own effectiveness in joint action. The success of the programs in three countries, and the preparation of projects in eight during 1964, are concrete results of this undertaking, in which—as is already customary in Latin America—the Inter-American Development Bank participated. As yet there is no concrete experience with the system of National Revolving Funds, intended to amortize the foreign loan and to create a national fund that will make it possible to extend the system by stages to the entire rural area. We hope to demonstrate in the near future the practical advantages of this method. But ever since the Special Rural Welfare Fund was first proposed at the XIV Meeting of the Directing Council of the Pan-American Health Organization (Washington, D.C.; 16-25 September 1963)³—a very short time for an enterprise of such magnitude—the rationale and social significance of the proposal has been evident. We are confident that the Member Governments will give the Organization the means to carry it out, thus benefiting the rural population in the terms of the Charter of Punta del Este. In the meantime we shall continue promoting projects in the countries, which, besides helping to solve the problem, will demonstrate the urgency of such a Fund; without it a greater amount of foreign capital will be needed to carry out the provisions of the Charter. With the establishment of National Revolving Funds, the need for foreign capital can be substantially reduced and used only as a catalyst to stimulate the rural communities and the Governments.

In urban areas, activities have been concentrated on the extension and improvement of existing systems in the capitals and large cities. At the same time, it has been necessary to improve the organization and administration of national and municipal services. The Report contains a summary of the number of international loans—regardless of source—by year, from 1960 to 1964, and the aggregate total. The figures are impressive, but a marked decrease is obvious for the last year. This is partly explained by the development of projects already financed, the improvement of respective services, the countries' construction capacity, and the availability of

³ PAHO Official Documents 54 and 55.

needed professionals. This situation has been carefully studied and we believe that it will gradually be resolved. In any case, from 1960 to 31 December 1964 international loans for water supplies and sewerages in Latin America amounted to \$309,897,829 and Government investments to \$217,675,158, adding up to an investment of \$642,572,987 that will benefit over 38 million persons. The Inter-American Development Bank was by far the largest contributor of foreign capital. In the brief space of four years it has truly become the bank financing Latin American progress. To this must be added the Bank's leadership in efforts to bring about economic integration and political interdependence. The Agency for International Development of the United States Government has also contributed substantially to sanitation programs, and, in lesser proportions, the Export-Import Bank of Washington and the International Bank for Reconstruction and Development.

But what is basic to the whole undertaking is and will continue to be the Governments' determination to make and carry out policy and the population's concerted efforts to achieve the benefits of environmental hygiene, which often entail financial sacrifice. We hope that this trend will lead to the fulfillment of the objectives of the Charter of Punta del Este in the decade.

A prominent place was occupied in 1964 by teaching and training activities in sanitary engineering, particularly those supported by the United Nations Special Fund and those related to the program of short courses on selected subjects for faculty members of Schools of Engineering in the Continent. The Special Fund approved the project for improving the training of sanitary engineers at four Venezuelan universities and the one for creating an Institute of Sanitary Engineering in Rio de Janeiro, Brazil. These projects, involving both teaching and research, will start in 1965.

During 1964, 252 professionals attended ten courses in eight countries; specific problems of immediate interest to the participating engineers were analyzed. The courses come under the concept of continued education—in other words, of improvement in terms of modern science and techniques. The good results obtained justify the Organization's desire to continue promoting this activity in Latin America. The Report also mentions 13 courses for auxiliary personnel in environmental sanitation that were attended by 502 students.

An investigation of the situation existing in Latin America in 1962, carried out by the Organization, showed that only about 32 percent of the urban population had sewerage service and that only 157 towns had some sort of sewage treatment. It may be assumed that the situa-

tion had not changed much in 1964, which shows the seriousness of the problem and the need for finding adequate solutions which should be implemented concomitantly with the provision of adequate water supplies. In most of the countries, programs for the installation of sanitary privies continued as an individual solution to the excreta-disposal problem; the United Nations Children's Fund contributed materials and equipment and in some cases helped to train sanitary inspectors.

Industrialization focused attention on the serious problem of water pollution by wastes, in connection with which the Organization has received several requests for assistance.

The Institute of Occupational Health and Air Pollution Research, sponsored by the Chilean Government, the United Nations Special Fund, and the World Health Organization, began operations in 1964 by means of 6 short courses in various aspects of this field and of research. The latter included investigations into mercury poisoning among 122 technicians of 30 clinical laboratories of the National Health Service; pneumoconiosis in small mines; damage to agriculture by sulphur dioxide waste; and studies on Wilson's disease and manganese poisoning.

Among the Regional activities should be cited the First Latin American Seminar on Occupational Health, held in São Paulo, Brazil, with 18 professionals participating; advisory services to the Center for Research in Environmental Engineering, in Buenos Aires, Argentina; on industrial hygiene in Bogotá, Colombia; on occupational health in Venezuela; and on air pollution in São Paulo, Brazil.

The Report covers activities in housing, collection of garbage and waste disposal, and the revision of manuals on food sanitation and on school premises.

Mental health should be mentioned among the specific programs of the Organization. Its importance and approaches to the problems involved were dealt with in two Latin American seminars (Cuernavaca, México, 1962 and Buenos Aires, Argentina, 1963). The aim is to give the mentally ill the humane treatment they deserve, accelerate their rehabilitation, and prevent the adverse psychological and socioeconomic consequences brought upon the individual and his family by prolonged hospitalization. To put this policy into practice Latin America clearly has insufficient resources; it also fails to make the best use of those it has. Much remains to be done in the matter of training psychiatrists and professionals in re-

lated disciplines; of understanding the social dynamics of mental illnesses; of shortening the period of commitment by making more use of care in the home and in the community.

The Mental Health Information Center on Latin America continued its designated activities with a grant from the National Institutes of Health of the United States Public Health Service.

THE Second Latin American Seminar on the Teaching of **Dentistry**, attended by representatives of 21 universities, examined the areas of pre dental education, the organization and departmentalization of dental schools, the correlation of basic and clinical sciences, and the teaching of preventive and social dentistry. The Seminar was followed by an intensive course on teaching, sponsored by the Organization and the Latin American Association of Dental Schools, that was attended by representatives of all the Latin American countries.

A Training Center in Dental Epidemiology and Research was established in cooperation with the Kellogg Foundation and the United States Public Health Service.

Technical advisory services were provided to 7 Latin American universities in the teaching of preventive and social dentistry and also to the Government of Panamá for the establishment of a school of dentistry.

THE increasing use of **radiation and isotopes** in medicine—both clinical and research—as well as in industry, demands clear understanding of their application in order to prevent risks and to protect exposed persons. Although X-rays and radium have been used for many decades, it is today necessary for Ministries of Health to devote increasing attention to the problem, which has been complicated by the new artificial radioactive isotopes and by the development of better-quality and higher-voltage X-ray equipment. It should be remembered that cancer and genetic mutations are among the effects of ionizing radiation, which is a slow, cumulative process that affects the health of exposed persons and of generations yet unborn. Application of protective measures is a responsibility of Ministries of Health, in accordance with priorities in each country and the availability of technicians and equipment. On this basis the Organization has cooperated in this program and has promoted the teaching, in professional schools, of the proper use of radio-

isotopes for diagnostic, therapeutic, and research purposes.

The Report gives details of what has been done with respect to the concentration of radionuclides in the air and in milk—an activity carried on in several countries with the cooperation of the United States Public Health Service. Research into manganese toxicity were continued by determining the concentration of this metal in body fluids and tissues and relating the levels found to the various stages of illness. The Organization is coordinating the studies, which are being conducted at the Medical School of Catholic University in Chile and at the Brookhaven National Laboratory in the United States of America.

Studies were continued during 1964 of the biological effects of a high natural concentration of radiation in several areas of Brazil, and research was programed in Perú on the effects of altitude in large animals subjected to radiation.

The third course in the use of radioisotopes in medicine was held in Chile, with 5 specialists in various clinical fields participating. A course in radiation for health administrators was also given. The full background on these and other activities is included in the Report.

IT is difficult to conceive of organized health services without professional nurses and **nursing** auxiliaries. The task in Latin America is one of great magnitude, as shown by the fact that the number of nurses is much smaller than that of doctors and that about 75 percent of the nursing auxiliaries have had no formal training, although they have a great deal of responsibility in caring for the sick. Furthermore, there is a lack of nursing standards for adequate performance of preventive and curative functions in an integrated system. As in other aspects of health services, both the administration and the yields of existing resources are deficient. It is obvious that the present situation must be evaluated, the training of nurses and auxiliaries intensified, and the quality of services improved through systematic action and clearly defined objectives in each program.

With this in view, fifteen Organization advisers assisted by five Zone nurses worked in 1964 in thirteen countries, developing nursing programs for several countries simultaneously. A detailed account of this is to be found in the Report.

IN compliance with Recommendation C.1 of the Meeting of the Task Force on Health at the Ministerial Level, a working group of distinguished American experts met to study the establishment of a **Latin American Common Market for Biological Products**.⁴ The discussion was based on a report, prepared by two consultants, which described the current status of serum and vaccine production in the major Latin American Government laboratories. The group emphasized the present lack of liaison between production and programs for the control of communicable diseases, which is observable in its most critical form during epidemics. The experts also agreed on the need to modernize present systems, equipment, and methods; to establish quality control; to provide for advanced training of technicians; and to make wider use of reference services made available to the countries by the Organization. These measures, progressively adopted, could facilitate the interchange or wide distribution of biological products. The Inter-American Development Bank has stated that it would consider requests for loans to improve serum and vaccine production. It was therefore decided to consult the Governments on what products they would be willing to include in a Hemisphere-wide interchange system. We should like to point out that such a system already exists for smallpox vaccine, thanks to the generosity of several Governments in the Hemisphere.

At the request of the Government of Perú a consultant collaborated in improving the organization of the National Institutes of Health, which produce immunizing agents for human and animal use and provide pathology services. The Government is expected to ask the Inter-American Development Bank for financing to build and equip the laboratories. The Organization will continue its cooperation in technical matters and in the training of specialists; similar assistance was provided to the Government of Colombia.

IN ACCORDANCE with a resolution of the VII Meeting of Ministers of Public Health of Central America and Panamá (San José, Costa Rica; 3-6 July 1963), an Organization consultant made a detailed study of the food industries in those countries, covering the establishment of standards, existing legislation, analytical laboratories and food processing. This project is directly related to the lack of minimum sanitary standards for the **control of foods** that constitute more than 50 percent of the trade of the Central American Common Market.

⁴ PAHO Official Document 51.

To supplement the report, the first 80 sanitary standards for foods were prepared, with the cooperation of the Adolfo Lutz Institute of São Paulo, and submitted to the Ministers at their IX Meeting, in Managua, Nicaragua, in July 1964. Besides approving them, the Meeting agreed to establish reference laboratories attached to the Institute of Nutrition of Central America and Panamá for quality control of foods and dietary supplements on the market in the area or in any of the countries. The Organization was requested to organize the laboratories and to advise the Ministries of Health as to licensing, control, and inspection services; putting into practice established standards; and proposing additional ones for other products included in the Common Market. For this last purpose, the Adolfo Lutz Institute was requested to prepare 300 standards to be presented to the consideration of the Governments in 1965. The implications of this undertaking for the economy of the region and the health of the population make it a highly significant and difficult task, mainly because of the various interests at play.

The Ministers also agreed at their IX Meeting that the analytical laboratories of the National University of Panamá would serve as reference in the control of drugs, cosmetics, chemical products, alcohols, and insecticides. Each country should establish or strengthen its respective institutions so that full advantage can be taken of the Panamá laboratories.

The Organization continued to provide national institutions with reagents, standard antigens, and other similar materials, as detailed in the Report. It also offered services for quality control of biological products manufactured in national institutes; unfortunately, Government requests have been very limited.

INFECTIONS, in the generic sense of the term, still contribute excessively to morbidity and mortality in Latin America, as compared with their incidence in technologically advanced societies. Great epidemics, however, are the exception. The common communicable diseases appear in continuing or progressive endemic form, interrupted by outbreaks that tend to occur mainly in rural areas where health services do not exist or are insufficient or inadequate. This is one of the reasons why reporting within the country and to the Pan American Sanitary Bureau is sometimes delayed. If the frequency of an infectious disease, whatever its etiology, gives it priority in the general program of the Ministry of Health, preventive and curative activities should be formulated on the

basis of existing institutions or these should be created whenever necessary. Experience shows that a time comes when a "campaign" begins to lose its effectiveness if it is not coordinated with the country's regular health protection machinery. **Malaria eradication** is an outstanding example of this. A seminar was held to examine this problem at Poços de Caldas, Brazil, in June 1964, with health directors and specialists from eight South American countries attending. The discussions ended in definite recommendations regarding the responsibilities of the general Health Services in the various phases of the eradication program, which no doubt the Governments will progressively put into practice.

The Report shows the status of malaria eradication in the Americas as of 31 December 1964, including natural rate of growth of the population in originally malarious areas. The fact is that, of the population involved, almost 90 million were living in areas where the program was in either the maintenance or the consolidation phase, with a substantial majority in the former—this means that the risk is minimal and the threat would come from outside the area. The other approximately 70 million persons were benefiting from several types of activity and were awaiting the elimination of malaria for the sake of their own health and for the development of their home sites. This is the hope of any country and its Government, for wherever malaria disappears or declines substantially, people establish homes and the economy improves.

Paradoxical as it may seem, progress toward eradication highlights the obstacles inherent in the task and challenges the technicians' ingenuity to conquer them. It is apparent that "problem areas" require detailed epidemiological studies to determine measures to supplement insect extermination. The need for new nontoxic insecticides, effective against resistant species, has become more urgent. Research sponsored by the World Health Organization has been encouraging, and several such products are expected to be available in the near future.

The application of larvicides and the administration of preventive drugs were tested on a larger scale with favorable results in 1964. Administrative and financial difficulties interfered, however, with the progress of the programs in some countries. Additional information in the Report shows the need for renewed efforts by the Governments and by international organizations to reach what is an absolute goal. Operational research must be intensified to improve program returns and to test new methods of eradication, directed either to the vector or to the parasite.

IMPROVED retrospective reporting of **smallpox** revealed that there were about 20,000 more cases of smallpox during 1961-1963 than those reported. The increase is explained by defective reporting procedures within the countries and by failure of rural areas to report the disease. The underlying reason is the fact that the Health Services of areas which have had systematic immunization and where the disease has disappeared do not exercise active vigilance. In other areas the population simply has not been vaccinated. We therefore accept the cases reported during 1964 with reservations; further analysis should either confirm or alter the figures. The necessity arises once more of giving every person in the Americas a chance to be immunized against smallpox and to be revaccinated whenever the risk appears. This will be necessary as long as the virus spreads and human contacts increase.

DURING 1964 the doctrine for the control of **tuberculosis** in the Americas was consolidated and techniques were specified. Consequently, the Organization's policy was better defined. All this resulted from three meetings on which details are given in the Report. Also included are advisory services in eleven countries on projects of varying ranges, each of which states the number of persons benefited and the methods employed.

Advances in the reduction of tuberculosis during the past fifteen years are impressive. Mortality rates have dropped by about two-thirds since 1946. To reduce rates below 20 per 100,000 population is much more complex. Medical techniques alone do not suffice, for the problem is just as much economic as social—it is a reflection of underdevelopment. In our own field, it is obvious that health services should incorporate tuberculosis control into their regular activities, which will make resources more productive in reducing morbidity and mortality. The methods are described in the Final Report of the Regional Seminar held in Venezuela in December 1964.

AS **OBSCURANTISM** about **leprosy** diminishes in the Americas, there emerge the magnitude of the problem, the progress that has been made, and the enormous job that still remains to be done. This is reflected from the information contained in the Report. Of all cases registered—which are only a part of the total—barely 50 percent were under control. Furthermore, if the leproma-

tous forms are added together—and granted that half of the indeterminate forms will become lepromatous unless treated—about 60 percent of the cases are highly infectious. In addition, 40 percent of the known cases were not receiving treatment and fewer than two contacts per case—less than half the usual number of household members—were registered. As of 31 December 1963, there were 167,038 cases in Latin America being served by active programs. Between January and June 1964, 3,570 cases were reported, and during the same period the total number of registered patients was 116,052. The true prevalence and incidence, it should be noted, are unknown. With more systematic organization of knowledge and of its application in leprosy control, a matter which was the subject of a Seminar (Cuernavaca, México; 12-29 August 1963), it has become plain in many countries that the technical and administrative structures are inadequate for the fight against this disease and should be modified. The Governments are undertaking this task with the collaboration of the Organization.

BOTH gonorrhoea and syphilis invariably appear among the ten leading notifiable diseases in the American countries. The incidence of **venereal diseases** is rising in practically every country in the world, despite effective methods of control. There is need to review their epidemiology and to organize programs at least in the large urban centers—where for obvious reasons the number of cases, especially of early syphilis, is greater. Extremely low reporting of venereal diseases persists, which greatly hampers the search for sources of infection and contacts. The Organization has planned for 1965 a regional seminar on the control of these diseases, similar in content and method to those already held on leprosy and tuberculosis.

A RISE in confirmed cases of **yaws**, as compared with the two preceding years, was observed in Haiti during 1964. This shows that the final cases of a disease are much more difficult to discover when there is no active surveillance nor an opportunity for prompt treatment.

NOTEWORTHY in *Aedes aegypti* **eradication** during 1964 was the start of a progressive campaign in the United States of America, concentrating on parts of Florida and Texas, on Puerto Rico, and on the Virgin

Islands. In the other countries where the vector persists—those of northern South America and the Caribbean, including several dependencies of extracontinental nations—progress has been greatest where the mosquito is not resistant. Where it is resistant, the cost of the classic method (that is, without the use of insecticides having prolonged residual action) has kept the Governments from putting programs into effect. Research with some phosphorous preparations is encouraging, and it is to be hoped that if they prove to be nontoxic they may be used in the near future.

The presence of the vector was particularly noticed in 1963 and 1964 because of dengue epidemics in the Caribbean Area and Venezuela that were of sizeable proportions in some countries and territories. Details are given in the Report. Also emphasizing the situation were outbreaks of yellow fever in Ethiopia and of hemorrhagic fever in several countries of Southeast Asia, all of which added to the urgency of eliminating *Aedes aegypti* from the Americas. The Organization learned of 97 cases of the jungle form during the past year. As development reaches into the jungle, this number will rise, unless an orderly immunization program is set up.

THE REPORT contains data on work done regarding **other communicable diseases**, such as plague, the incidence of which has increased during recent years in Bolivia, Brazil, Ecuador, and Perú; poliomyelitis, mentioning several epidemics and the immunization programs conducted; influenza, with respect to periodic reports on world movements of the disease and to direct cooperation with several Governments; encephalitis, with special reference to that caused by arboviruses in the United States and to the Venezuelan equine form; hemorrhagic fever in Argentina and Bolivia; and, finally, Chagas' disease and schistosomiasis; it also describes specific activities of cooperation in each instance.

THERE WAS increased concern in 1964 about the importance of some of the **zoonoses** to the health of man and the economy of countries. Attention was concentrated on rabies, brucellosis, bovine tuberculosis, and hydatidosis, because of an increase in the number of known cases of these diseases in the different species. The situation points out the incompleteness of the data and the urgency of providing improved reporting as part of regular health statistics. Progress made toward better land use and

tenure, which includes livestock promotion, revealed enormous losses caused by animal diseases. In the struggle against these diseases, the Pan American Zoonoses Center has contributed through advisory services to the Governments, through training, through applied research, and through its activities as a consulting laboratory providing antigens and strains for the production and control of vaccines.

The Report contains a detailed account of this year's work, and reveals the magnitude of the animal diseases mentioned and their effects on the economy—this must be kept track of because of the volume of investments that the control of those diseases involves.

The problem in itself and its implications for Latin American development justify an expansion of the Center's activities to make it an organization providing continuing services to all the countries of the Hemisphere. Negotiations with the Argentine Government were started and are expected to crystallize in 1965.

AT ITS Second Annual Meeting (São Paulo, Brazil; October-November 1963), the Inter-American Economic and Social Council called attention to the economic importance and the consequences of **foot-and-mouth disease** in the Americas and asked the Organization to convene, through the Pan American Foot-and-Mouth Disease Center, a meeting of Ministers of Agriculture to study control programs of nationwide scope. In the South American Conference on Foot-and-Mouth Disease, held in Rio de Janeiro, from 22 to 27 June 1964, the Ministers of Agriculture and their advisers examined plans for an effective campaign in each of the countries concerned, with a view to the future integration of the campaigns into a regional program comprising neighboring countries in epizootiological areas. Estimates were presented of the losses to the agricultural economy, and the need was demonstrated for supplementing domestic resources with foreign loans to reduce the incidence of the disease progressively by means of systematic immunization. The Pan American Sanitary Bureau and the Center were requested, within their sphere of competence, to endeavor to get the undertaking underway. This action seems to be a natural outcome of the Center's activities in the last ten years, carried out with the generous contribution of the Program of Technical Cooperation of the Organization of American States. As a whole, those activities have stressed the significance of the disease, have promoted practical means of control, and have

stimulated the Governments to undertake a program that for all its complexity justifies sustained effort. The Center has become a real focal point for everything related to foot-and-mouth disease in the Americas. Whether as a diagnostic and consulting service, as a teaching establishment, as a direct adviser to Governments on producing and improving vaccine, or as a researcher into several biological studies of immediate application, the Center has created the conditions for Hemisphere-wide action.

At its Third Annual Meeting, in 1964, the Inter-American Economic and Social Council reiterated that the Pan American Sanitary Bureau, through the Center, should continue cooperating with the Governments in the fight against foot-and-mouth disease and in the drafting of loan applications to international credit organizations. This resolution resulted from a recommendation of the Inter-American Committee of the Alliance for Progress, which has accorded the problem the full import merited by its multinational character and its economic and social consequences. The Report details the Center's activities in 1964; they reveal progress in various fields, all marking significant steps toward solving the problem.

ACTIVITIES in **education and training** are regarded as an "instrument" in carrying out the health function, representing as they do a combination of resources to carry out specific action within limits fixed by technical and economic factors. "Concepts of education, like those of freedom, bristle with difficulties. It is hard to define education because of what it connotes, which depends in no small measure upon the particular culture in which education occurs. Education is intimately bound to the culture of the community it serves, and for this reason what education means differs from one community to another. What all education has in common after allowance is made for cultural differences is 'teaching' and 'learning'. Thus, to educate means etymologically to educe or draw out of a person something potential and latent; it means to develop a person morally and mentally so that he is sensitive to individual and moral choices and able to act on them; it means to fit him for a calling by systematic instruction; and it means to train, discipline, or form abilities, as, for example, to educate the taste of a person. The act or process of achieving one or more of these objectives is, as a first approximation, what education is about."⁵

⁵ Schultz, Theodore W. *The Economic Value of Education*. New York and London, Columbia University Press, 1963, p. 3.

The foregoing considerations are highly relevant to the training of professionals and technicians for the activities with which we are concerned. When we consider the range of specialization within each profession, we find few university functions requiring greater diversification than those related to the sciences and arts of health. Within society, these are perhaps the ones in which the greatest personal involvement is required in order to instill in every human being principles for preventing or treating disease and protecting family health. If the universities and other institutions do not adequately motivate their students to fulfill their social commitments, they will be unable to transmit their knowledge and experience to those they will be serving, observing due respect for their cultural characteristics.

Significant work was done by the Organization during 1964 in the provision of advisory services both to educational institutions and for auxiliary and postgraduate training. A detailed account is given in the Report. We should like merely to comment briefly on what remains to be done and on certain programs.

Data on the estimated total number of nurses and nursing auxiliaries in the South American countries indicate a ratio of 2.6 nurses per 10,000 population, whereas the ratio for physicians is 5.5 if the ratio for all Latin America is applicable to South America. This relationship is obviously the reverse of the needs. It might be compensated for by adding in the total of auxiliaries; this would increase the ratio to 10 nursing workers per 10,000 population, or double the proportion to physicians. Unfortunately, no more than a third of the auxiliaries have been properly trained.

This analysis brings out the problem of training health technicians in quantity and in quality. It is not reasonable that the ratio of professionals to population used today in the technically advanced societies be applied to the developing societies, where population growth and structure are different, as is the incidence of disease, whatever its etiology. The difference also applies to manpower and material resources. From all this it follows that health needs and demands in Latin America must be examined from the standpoint of reality, measured by the most appropriate indices, to determine the number of professionals and auxiliaries that will be required to serve a constantly growing population affected by certain problems and having a low income. This is the purpose of the studies initiated in Colombia under sponsorship of the Ministry of Public Health, the Association of Schools of Medicine, the Milbank Memorial Fund, and the Organization. Besides producing valuable information for

medical education and education in allied disciplines and for the country's general health policy, the studies will develop a method possibly applicable to other countries interested in determining their manpower resources.

With respect to the quality of education, worthy of mention are the advisory services rendered to several universities in connection with medical pedagogy as an expression of human relations between professors and students. Despite the tremendous progress being made in the biology of learning, there will always be a need for motivation and eliciting adequate response from the students, based on the understanding of the professors. It has been aptly said that the practice of medicine is the realization of kindness.

Direct advisory services are valuable for the improvement of teaching content and methods in universities and other schools, and an account of what was done in this respect is given in the Report. Also of value are postgraduate programs, such as those in social pediatrics, public health, sanitary engineering, and industrial hygiene. Worthy of mention also was the emphasis placed in 1964 on training activities concerned with preventive and economic aspects of veterinary medicine and preventive dentistry; the same may be said about the training of nursing and sanitation auxiliaries.

The fellowships of the Organization constitute an educational procedure designed generally for specialization abroad by teachers and other professionals in the health field. A total of 639 fellowships were awarded in 1964—12 percent more than in the previous year. Of these, 80 percent were for academic and special studies. It is gratifying to confirm the sustained demand for fellowships and consequently report the greater investments.

Similarly, as the Report shows, notice may be taken of increasing participation by educational centers in the Americas.

Research is another instrument of health work as a social service. It is evident that knowledge that has been usefully applied in other societies has not been so used in Latin America for similar situations. Furthermore, the sense of urgency to speed up development seems at times to oppose prior studies on any undertaking. Experience shows, however, that knowing what to do is not enough without knowing how to do it, and this depends on the ability to adapt what has been successful elsewhere to a different environment and culture. Moreover, education disassociated from research, basic or operational, is diffi-

cult to imagine. When this happens, education progressively loses its sense of reality and runs the risks of becoming a routine affair, disseminating principles and standards that are not always valid.

At its Third Meeting, the Advisory Committee on Medical Research of the Pan American Health Organization examined 45 operating projects in which scientists and institutions all over the Hemisphere are taking part. The projects deal with subjects that are part of the general activities of collaboration of the Pan American Sanitary Bureau. Details appear in the pertinent chapter of the Report. We should like to draw attention to the special session analyzing "environmental determinants of community well-being." Several experts explored the effects of environment on health, with emphasis on the problems created by migration to cities. People's difficulties in adapting from a rural to an urban environment, and in attaining a minimum standard of living, were highlighted. Areas for research—practical in its effects but with deep anthropological, biological, and cultural roots—were indicated.

The Committee examined the relationship between population dynamics and health and agreed that "the tremendous importance of the problems calls for studies of the highest quality." It suggested, among others, studies on human reproduction, dealing with hereditary and environmental factors in sterility and fertility; research on preventable malformations; demographic studies of live births, abortions, and fetal and maternal deaths; and research on family size and structure in relation to socio-economic factors in urban and rural communities. The Committee also indicated the need for training in epidemiology and demography, based on development, in schools of medicine and public health. It proposed that the Pan American Health Organization, in cooperation with the World Health Organization, initiate long-range studies of these subjects. The XV Meeting of the Directing Council so agreed in Resolution XXXI,⁶ in terms specified in the document mentioned.

THE financial situation of the Pan American Health Organization at the close of 1964 was satisfactory, as a result of decisions taken in recent years with respect to expenditures, working capital, and reserves. It should be noted that the total funds budgeted were almost identical to the funds available, with certain variations related to specific programs. The amounts obligated under a policy of administrative prudence were smaller than the amounts

available, but constituted in any case an increase of 6.5 percent over 1963, as is shown in Chapter VII of the Report.

The status of contributions to the Pan American Health Organization, on the other hand, was not satisfactory for the year. In examining this subject at its XV Meeting, the Directing Council resolved to amend Article 6 of the Constitution of the Pan American Health Organization, to provide that a country's voting rights may be suspended if it is more than two years in arrears on its quotas. At the end of 1964, six countries were so situated. We are convinced of the Governments' desire to avoid this position, caused in general by slow economic growth in relation to needs, which produces periods of low income that are reflected in contributions to international organizations.

THE foregoing analysis is related to Pan American Sanitary Bureau activities in **administrative rationalization**, directed toward simplifying methods and making them more efficient and economical. Begun four years ago, those activities had resulted at the close of 1964 in a saving of \$583,030, which was allocated to programs of direct service to the Governments. During 1964 electronic systems were introduced in some areas of work for the purpose of facilitating simultaneous analysis of different variables that in combination provide information of practical value.

THE chapter on **publications and information** activities is of interest. The former comprise the *Boletín de la Oficina Sanitaria Panamericana*, which reached its 43rd year; various scientific publications; and official documents. During the year, 280,051 copies were distributed—an increase of almost 11,000 over the previous year. The details on this and on information to the public of the Hemisphere, described in the Report, show that there is a constantly growing interest in the activities of the Organization, in what it does, and in the health problems of the Americas that are the reason for the Organization's being.

UNDER the sponsorship and coordination of the Governments, our Organization cooperated with other international, public, and private organizations in a series of

⁶ PAHO Official Document 58.

programs that are mentioned in the Report. We should like to cite the United Nations Children's Fund; the U.S. Agency for International Development; and the Kellogg, Milbank, Williams Waterman, and Rockefeller organizations, among others. Their efforts have been essentially supplementary, not substitutive, and have been carried out in a communion of ideals with the Governments to serve a national cause that is yet regional in its implications.

TO SUM UP, in 1964, the Pan American Health Organization and the World Health Organization continued with their traditional work—if it is analyzed in its historical perspective—and explored other fields of action pointed out by new times in the Hemisphere. In so doing, they have contributed to the Americas' passionate search for an authenticity of their own, based on a hierarchy of values stemming from an old culture, a pattern of living that they wish to perfect for the good of their inhabitants.

I. HEALTH PROTECTION

A. ERADICATION OR CONTROL OF DISEASES

MALARIA

Progress in Malaria Eradication Programs

Progress was made toward the goal of eradicating malaria from the Hemisphere, although the rate of progress differed considerably from country to country. Problems which obstructed campaigns were cleared up in some programs, but others continued to be hampered by financial, administrative, or technical difficulties. Detailed accounts, country by country, can be found in the project reports in Chapter VIII.

Two countries—Jamaica, and Trinidad and Tobago—finished the consolidation phase and documents were in preparation for final certification of the eradication of malaria from their territories. On the other hand, the program of one country—Paraguay—still had not progressed beyond the preparatory phase.

In Brazil, epidemiological information gathered during 1964 permitted a more firm allocation of territory to the various phases of the campaign (Table 1).

Case-Detection and Epidemiological Evaluation

Case-detection activities continued at about the same level, but with better geographical distribution in some programs as evaluation and epidemiological surveillance were improved in efficiency. Unfortunately, in some areas in consolidation phase, surveillance and followup activities still failed to reach the necessary speed and completeness of geographical coverage to hold all the gains formerly obtained. Inadequate or tardy surveillance allowed renewed transmission in several countries to reach serious proportions.

There were outbreaks in consolidation-phase areas in Bolivia, Costa Rica, Guatemala, Honduras, México, Nicaragua, and Perú. Some of the outbreaks necessitated returning the areas involved to the attack phase, as can be seen by comparing the maps corresponding to 1963 and 1964 (Figures 1 and 2). The whole northern section of Guatemala, two large areas in Central Nicaragua, and two separate areas in México—one along the Guatemalan border and one on the eastern slopes of the State of Veracruz—were reinfected and had to be returned to normal attack. Smaller areas in Bolivia, Costa Rica, and Venezuela were similarly returned to attack phase. In most of the cases, inadequate financing lay behind the shortage of personnel and supervision which allowed such situation to develop.

The problems of migration, particularly within countries for seasonal agricultural activities or for construction work, continued to be a major factor in the spread of malaria infection from areas where transmission continued to those already cleared, and thus required especially intensive surveillance of areas with important fluctuations of population. Permanent change of residence also continued to be a malaria-disseminating factor, particularly into areas where improvements in the malaria situation invited settlement of residents from areas still highly malarious.

A Seminar on the Role of the General Public Health Services in Malaria Eradication activities was held in June for 8 South American countries, and preliminary steps were taken on the preparation of a similar seminar to be held in 1965 for Middle America and the Guianas (*see Meetings, below*).

Special Problems

Administrative problems, particularly of a financial nature, continued to limit the efficiency of a number of

TABLE 1. STATUS OF MALARIA ERADICATION IN THE AMERICAS, BY POPULATION, 1964

Population in thousands ^a

Country or other political unit	Total population of country or political unit ^b	Population in areas where malaria was never indigenous or disappeared naturally	Population of originally malarious areas				
			Total	Eradication claimed	Consolidation phase	Attack phase	Preparatory phase or program not begun
Argentina.....	21,480	18,742	2,738	1,021	627	329	761
Bolivia.....	4,266	2,913	1,353	—	1,141	212	—
Brazil.....	80,332	40,041	40,291	—	2,183	6,289	31,819 ^c
Canada.....	19,272	19,272	—	—	—	—	—
Chile.....	8,369	8,235	134	134	—	—	—
Colombia.....	17,505	7,936	9,569	—	6,053	3,154 ^d	362
Costa Rica.....	1,387	964	423	—	294	129	—
Cuba.....	7,256	5,017	2,239	—	—	2,239	—
Dominican Republic.....	3,452	622	2,830	—	—	2,830	—
Ecuador.....	4,813	2,161	2,652	—	1,053	1,599	—
El Salvador.....	2,828	928	1,900	—	—	1,900 ^e	—
Guatemala.....	4,278	2,359	1,919	—	1,057	862	—
Haiti.....	4,494	961	3,533	—	—	3,533 ^f	—
Honduras.....	2,030	130	1,900	—	1,631	269	—
Jamaica.....	1,706	341	1,365	—	1,365	—	—
México.....	39,494	19,282	20,212	—	12,740	7,472	—
Nicaragua.....	1,740	69	1,671	—	695	976 ^g	—
Panamá.....	1,210	45	1,165	—	—	1,165	—
Paraguay.....	1,900	321	1,579	—	—	—	1,579
Perú.....	10,794	7,502	3,292	43	2,204	1,045	—
Trinidad and Tobago.....	962	140	822	—	822	—	—
United States of America.....	191,300	144,900	46,400	46,400	—	—	—
Uruguay.....	2,996	2,996	—	—	—	—	—
Venezuela.....	8,336	2,111	6,225	5,822 ^h	116	287	—
Antigua.....	60	60	—	—	—	—	—
Bahamas.....	133	133	—	—	—	—	—
Barbados.....	235	4	231	231	—	—	—
Bermuda.....	48	48	—	—	—	—	—
British Guiana.....	631	—	631	589	—	42	—
British Honduras.....	104	—	104	—	104	—	—
Dominica.....	60	46	14	—	14	—	—
Falkland Islands.....	2	2	—	—	—	—	—
French Guiana.....	35	—	35	—	—	31	4
Grenada and Carriacou.....	93	54	39	39	—	—	—
Guadeloupe.....	298	32	266	266	—	—	—
Martinique.....	309	117	192	192	—	—	—
Montserrat.....	13	13	—	—	—	—	—
Netherlands Antilles.....	206	206	—	—	—	—	—
Panama Canal Zone.....	51	—	51	—	50	1	—
Puerto Rico.....	2,572	16	2,556	2,556	—	—	—
St. Kitts, Nevis, Anguilla.....	62	62	—	—	—	—	—
St. Lucia.....	99	15	84	84	—	—	—
St. Pierre and Miquelon.....	5	5	—	—	—	—	—
St. Vincent.....	86	86	—	—	—	—	—
Surinam.....	315	125	190	—	128	62	—
Virgin Islands (U.K.).....	8	8	—	—	—	—	—
Virgin Islands (U.S.A.).....	41	4	37	37	—	—	—
Total.....	447,666	289,024	158,642	57,414	32,277	34,426	34,525

— None.

^a Figures have been rounded to the closest thousand.^b Latest available official estimates.^c Part of this population is partially protected by insecticide spraying.^d 1,214,535 inhabitants live in areas that have not yet been officially declared to be in the consolidation phase although spraying was suspended.^e 1,204,350 inhabitants live in an area where spraying was suspended for technical reasons.^f 2,072,588 inhabitants live in areas that have not yet been officially declared to be in the consolidation phase although spraying was suspended.^g Inhabitants living in areas where spraying has been temporarily suspended.^h 4,386,027 inhabitants live in areas where malaria was eradicated and the areas registered by PASB.

ensure the spraying of new structures or the regular cycles had to be rescheduled so as to provide maximum protection at the period of highest transmission.

Entomology

Although only one small area in the Dominican Republic was added to the list of regions with vectors known to be resistant to DDT, the already known areas of resistance in Middle America increased, mainly in conjunction with expansion of cotton cultivation. This has intensified the difficulties faced by the campaigns, especially in El Salvador, Guatemala, and Honduras.

Further experience with malathion as a substitute insecticide for DDT and dieldrin in areas with doubly resistant *A. albimanus* bore out the fact that this vector has not developed resistance toward malathion. But the rapid loss of malathion deposits from surfaces, other than wood,

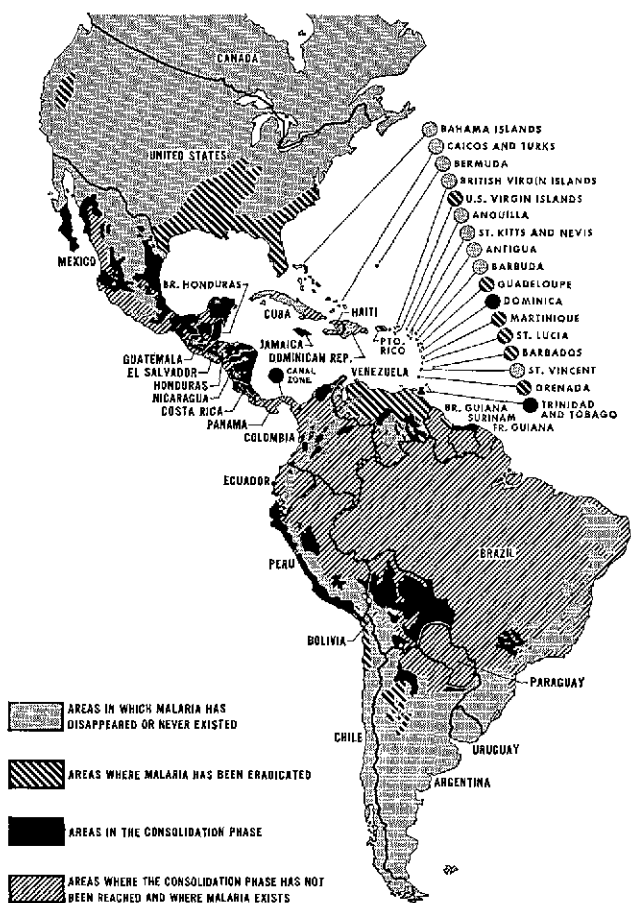


FIG. 1. STATUS OF MALARIA ERADICATION IN THE AMERICAS, 31 December 1963.

programs, in some cases to such a point that malaria incidence actually rose. National budgets for malaria eradication programs are not sufficient to cover local costs adequately, especially in those countries where technical problems cause continuing transmission, and some solution for this difficulty needs to be found.

Outdoor transmission caused difficulty in several countries. In some of them, the makeshift nature of the dwellings, such as rough sheds and roofs without walls, in areas undergoing settlement for the first time increased the exposure of people to biting activity of vector mosquitoes; and in other areas undergoing colonization, vectors were found which have natural tendencies toward outdoor biting, such as in Ecuador where species of the subgenus *Anopheles kerteszia* were found.

The construction of new houses in developing areas or areas farmed on a seasonal basis developed at such a pace in some regions, such as Panamá, Colombia and Ecuador, that either special measures had to be set up to

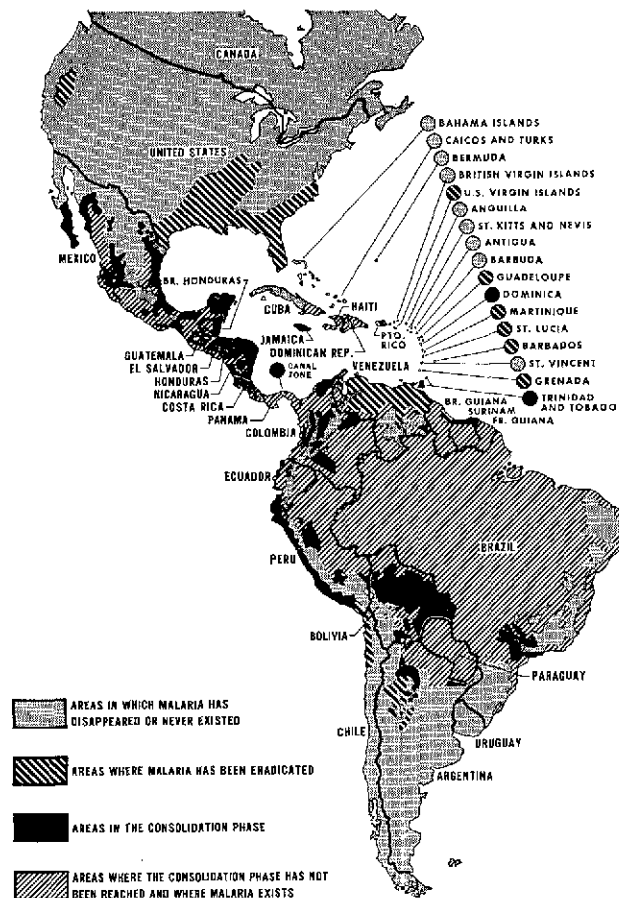


FIG. 2. STATUS OF MALARIA ERADICATION IN THE AMERICAS, 31 December 1964.



A group of malaria campaign workers arriving by canoe to spray a house on a river bank in São Paulo State, Brazil.

limits its usefulness in overcoming the problem of resistance to insecticides in Central America.

Parasite Resistance to Drugs

The Strain Screening Center for Drug-Resistant *Plasmodium*, in Ribeirão Preto, São Paulo, Brazil, demonstrated drug-resistance in 6 strains of *Plasmodium falciparum* from Brazil, 3 from Colombia, and 1 from Venezuela. The species, moreover, is known to be resistant in British Guiana as well, and is suspected to be so in Bolivia. It is suspected that the resistance spread to the latter 2 countries, as well as to the area in Venezuela where the resistance was most recently discovered, from respectively adjoining territories in Brazil, in both of which areas resistance has been proved. Drug-resistant strains of *P. falciparum* have also spread out further within Brazil—numerous cases were recently found in Goiás—probably as a result of movements of population, particularly of road-construction workers and migrants.

Problem areas

The areas defined in 1963¹ as problem areas remained in this category during 1964 because of failure, for one reason or another, to obtain funds for applying the additional measures of attack necessary to halt transmission. The most important area from the standpoint of intensity of malaria transmission is the Pacific coastal plain of El Salvador, Guatemala, Honduras, and Nicaragua, and a small adjacent portion of the State of Chiapas, in México. Through most of this area the main problem is resistance of *A. albimanus* to DDT, a problem which is related to the expanding use of the land to grow cotton, which use has been increasing rapidly in the last 2 years particularly in Guatemala and nearby portions of México.

The problem in the Central part of the Pacific coast of México and in some areas in the Pacific coast of Costa Rica, as well as in certain portions of Colombia and

¹ PAHO Official Document 56:9, 1963.

Venezuela, is caused by either outdoor biting or irritability, the latter characteristic reducing the period that the vector is in contact with the insecticide. Outdoor biting recently became evident as a problem in some portions of Haiti. Both problems can be overcome by mass distribution of drugs or other supplementary measures which have been used effectively in parts of the problem area but as yet have not been applied on the scale needed in any single country for lack of funds to cover local costs of complete coverage.

Drug Distribution

The programs of mass treatment with drugs, carried out in problem areas of Central America, were, in general, successful but too limited in extent to make much headway.

The mass treatment program undertaken by Costa Rica with PAHO support was terminated in September in the last 3 of the 8 problem areas treated, funds having been exhausted; the results were good, but less than the full problem area was included. Although El Salvador, Guatemala, and Nicaragua placed additional areas under drug-treatment programs, insufficiency of funds curtailed the extent of the programs planned. Honduras effectively cleaned up one small problem area and made plans to use collective treatment in its major problem area where malathion spraying has been insufficiently effective because of inadequate housing and large amount of agricultural migration.

After an evaluation of the program in Haiti indicated that DDT spraying was failing to interrupt transmission in large areas where outdoor biting was considered to be a primary factor, an 8-month program using chloroquine-pyrimethamine tablets in 3-week cycles was planned for 570,000 persons. The combined tablet will include pyrimethamine instead of primaquine because malaria in Haiti is caused almost entirely by *P. falciparum*, a type of infection preventable by pyrimethamine, and to avoid the risk of primaquine reactions, previously observed among the Haitian population.

If some way of increasing national budgets for malaria eradication is found, programs can be extended to cover all the problem areas in these countries.

Meetings

The first Seminar on the Role of General Health Services in Malaria Eradication was held in Poços de

Caldas, Minas Gerais, Brazil, from 26 June to 4 July. The Seminar further strengthened the cooperation between directors of the malaria eradication services and those of the general health services of the 8 participating South American countries. The group studied problems of coordination in the various phases of eradication campaigns and plans for the takeover by the general health services of eradication-maintenance activities after the disease has been eliminated and the eradication service disbanded.

The 4th Meeting of Directors of National Malaria Eradication Services of South America was held from 6 to 11 July, also in Poços de Caldas. The 12th Meeting of Directors of National Malaria Eradication Services of Central America, México, and Panamá was held in Managua, Nicaragua, from 18 to 23 May.

A number of intercountry meetings were held to study the problems in malaria eradication common to border areas (Table 2).

Advisory Services

Nearly all the malaria eradication programs in the Americas continued to receive advisory services. Specialized advisers stationed in the countries, advisory teams assigned to the Zones, and technical personnel from Headquarters continued to provide orientation and evaluation services. Campaigns were evaluated in Bolivia, Brazil, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, México, Nicaragua, and Perú.

TABLE 2. MALARIA ERADICATION PROGRAM: INTERCOUNTRY MEETINGS STIMULATED BY AND/OR HELD WITH ASSISTANCE FROM THE ORGANIZATION, 1964

Dates	Countries	Place of meeting
14-16 February	Guatemala-México	Tapachula, Chiapas, México
28 February	British Honduras-México	Mérida, Yucatán, México
19-21 August	Honduras-Nicaragua	Estelí, Estelí, Nicaragua
19 October	Ecuador-Perú	Huaquillas, El Oro, Ecuador
13-15 October	Colombia-Venezuela	Cúcuta, Norte de Santander, Colombia

Coordination

At the IX Meeting of Ministers of Public Health of Central America and Panamá, held from 15 to 18 July in Managua, Nicaragua, the Bureau submitted draft regulations for the suggested Malaria Eradication Service of the Isthmus of Central America. The Ministers recommended that the draft regulations be revised after study of the legal and fiscal requirements in force in the countries involved and that the revised proposal be submitted to the X Meeting, in 1965. Studies along these lines were undertaken.

The Bureau also began to strengthen its advisory group for the countries of the Central American Isthmus in order to assist the Governments in coordinating the complex national programs which operate, in close geographical proximity, in this problem-beset area.

Collaboration with multilateral and bilateral agencies was continued, especially with UNICEF and AID, with representatives of which informal exchange of views were frequent throughout the year and a formal meeting was held at Headquarters in December.

For training and research activities, see Malaria, Chapters III and V.

YELLOW FEVER CONTROL AND AEDES AEGYPTI ERADICATION

Yellow Fever

The number of cases of yellow fever reported to the Organization amounted to 97 (Table 3 and Figure 3).

TABLE 3. REPORTED CASES OF JUNGLE YELLOW FEVER
IN THE AMERICAS, 1963 AND 1964

Country or other political unit	1963	1964*
Bolivia.....	81	13
Brazil.....	—	13
Colombia.....	10	10
Perú.....	49	59
Venezuela.....	1	2
Total.....	141	97

— None.

* Data received up to 30 July 1965.

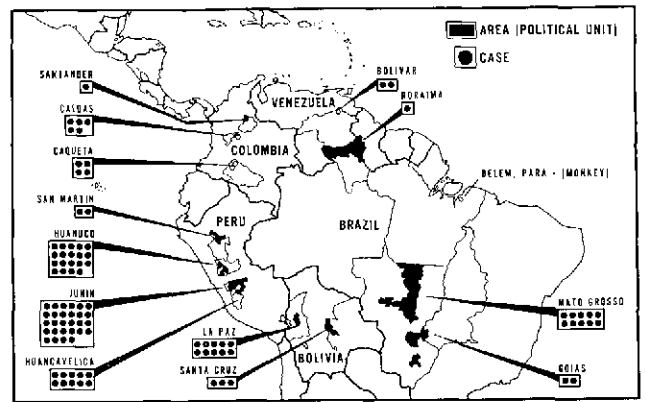


FIG. 3. REPORTED CASES OF JUNGLE YELLOW FEVER IN
THE AMERICAS, 1964.

All the cases were of the jungle type, and the diagnosis was made by histopathological examination of the liver.

In Bolivia the number of cases reported was much smaller than in the previous year; the cases occurred in basins of remote tributaries of the Amazon River. The cases in Perú occurred in the central part of the eastern slope of the Andean Cordillera, in valleys of tributaries of the Amazon. Colombia's infected areas were in the valley of the Magdalena River.

The cases in Venezuela occurred in the Caroni District, in the southeastern part of the State of Bolívar, where the country juts in between British Guiana and Brazil's Territory of Rio Branco. In Brazil, where no case was reported the previous year, 13 cases occurred in 1964. They occurred in valleys of tributaries of the Amazon, in the State of Mato Grosso, and in valleys of faraway tributaries of the Paraná River, in the States of Mato Grosso and Goiás. Yellow fever virus was isolated from the blood of a sentinel *Cebus apella* monkey that was exposed in the Utinga forest, Municipality of Belém, State of Pará.

From time to time there is a spillover of the yellow fever virus from the Amazon basin into the southern and southeastern areas of Brazil. When this occurs, the first cases usually appear in the States of Goiás and Mato Grosso (Campo Grande and Dourados areas) and then, according to ecological factors, the virus travels on a southerly direction, to the Province of Misiones in Argentina, and/or southeasterly to the States of Minas Gerais, São Paulo, Paraná, and Espírito Santo in Brazil.

In view of the occurrence of cases of jungle yellow fever in Goiás and Mato Grosso, in July the Organization alerted the Brazilian health authorities to this fact and suggested the intensification of vigilance, through vis-

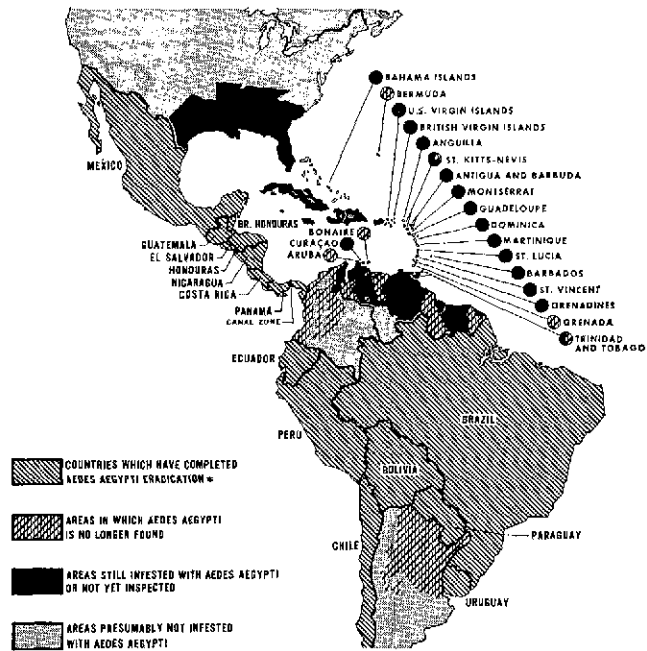
cerotomy and virus isolation in animals in those areas and through vaccination of the population.

Throughout 1964 the Organization continued to cooperate with the National Institute of Health of Colombia and the Oswaldo Cruz Institute of Brazil, both of which produce 17D vaccine and provide free diagnostic services to other countries of the Americas. Colombia's National Institute of Health found 8 positive liver specimens among 1,135 examined; Brazil's Oswaldo Cruz Institute examined 993 specimens. Annual vaccine production amounted in Brazil to 2,774,500 doses, and in Colombia to 250,307 doses. Brazil and Colombia, together, filled requests for 776,265 doses (Table 4).

A summary of the status of the campaigns in the countries and territories of the Hemisphere is given below, as well as in Figure 4 and Table 5.

Aedes aegypti Eradication

Aedes aegypti has been eradicated in Bolivia, Brazil, British Honduras, Chile, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, México, Nicaragua, Panamá, Paraguay, Perú, Uruguay, and the Canal Zone, which were formally declared free of the urban vector of yellow



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

FIG. 4. STATUS OF THE *Aedes aegypti* ERADICATION CAMPAIGN, DECEMBER 1964.

TABLE 4. DISTRIBUTION OF YELLOW FEVER VACCINE PRODUCED IN THE AMERICAS, 1964

Country or other political unit supplied with vaccine	Doses produced in	
	Brazil	Colombia
Bolivia.....	130,000	—
Chile.....	—	4,000
Ecuador.....	—	2,004
Guatemala.....	—	12,010
Jamaica.....	—	1,000
México.....	—	20,010
Nicaragua.....	—	504
Panamá.....	—	5,000
Perú.....	—	100,000
Portugal.....	108,000	—
Venezuela.....	320,000	62,065
Aruba.....	—	1,160
British Guiana.....	—	6,008
Curacao.....	—	4,504
Total.....	558,000	218,265 *

— None.

* Included some vaccine from stock produced in 1963.

fever prior to 1964. Argentina and Bermuda also completed their campaigns, and the special verifications respectively made there in 1963 and 1964 confirmed the eradication of *A. aegypti*, although as yet they have not been officially declared free of the mosquito.

The areas in the Americas that are still infested include the extreme northern part of South America, the United States of America, and the countries and territories of the Caribbean Area (Figure 4). In the northern part of South America, Colombia, Venezuela, and the Guianas are still positive. In the Caribbean Area the campaign has met with difficulties, especially the resistance of *A. aegypti* to chlorinated insecticides and the repeated reinfestations that occur.

To study the problem of vector resistance the Organization established a small laboratory in Kingston in 1962 in cooperation with the Government of Jamaica and the University of the West Indies. The chief aims of the laboratory were to study the susceptibility of Caribbean strains of *A. aegypti* to the various insecticides and to evaluate any new products that might be used against the mosquito wherever it had developed resistance to chlorinated insecticides.

Up to December 1964 the laboratory had made *A. aegypti* susceptibility tests in 64 localities of 16 of the

I. HEALTH PROTECTION: DISEASES

TABLE 5. STATUS OF THE *Aedes aegypti* ERADICATION CAMPAIGN IN THE AMERICAS, 1964 ^a

Country or other political unit	Dates		Area estimated initially infested		Localities or other units inspected since beginning of campaign					Present stage of campaign	
	Campaign began	Latest inspection	Total	Inspected	Number	Found initially positive					
						Total	Treated				
							Total	Verified			
						Total		Still positive			
			<i>Square kilometers</i>	<i>Percent</i>							
Argentina	June 1953	Dec. 1964	1,000,000	100.0	3,741	165	165	165	—	b, c	
Bolivia	June 1932	Feb. 1955	100,000	100.0	282	65	65	65	—	d	
Brazil	Jan. 1931	Dec. 1964	5,358,822	100.0	268,576	36,119	36,119	36,119	—	d, e	
Chile	June 1945	Dec. 1964	104,373	100.0	301	48	48	48	—	d, e	
Columbia	Nov. 1950	Dec. 1964	280,000	100.0	3,801	355	353	353	—	e, f	
Costa Rica	April 1949	May 1955	20,000	100.0	1,342	104	104	104	—	d	
Cuba	Mar. 1954	Dec. 1964	100,000	30.2	1,004	750	673	569	81	e, f	
Dominican Republic	Oct. 1952	Aug. 1962	42,020	80.4	1,420	351	351	319	15	f	
Ecuador	June 1946	Dec. 1964	69,454	100.0	2,824	337	337	337	—	d, e	
El Salvador	April 1949	Dec. 1964	18,675	100.0	909	190	190	190	—	d, e	
Guatemala	Jan. 1949	June 1962	36,423	100.0	2,485	138	138	138	—	d	
Haiti	Oct. 1953	Sept. 1958	27,750	49.4	2,379	605	602	435	27	f	
Honduras	Sept. 1949	Dec. 1964	69,929	100.0	600	53	53	53	—	d, e	
Jamaica	Feb. 1950	Dec. 1964	11,424	100.0	14	12	2	2	2	e, f	
Mexico	Jan. 1951	Dec. 1964	1,000,000	100.0	4,278	600	600	600	—	d	
Nicaragua	Jan. 1950	June 1959	65,263	100.0	3,126	18	18	18	—	d	
Panamá	Feb. 1949	June 1960	56,246	100.0	2,853	44	44	44	—	d	
Paraguay	Jan. 1948	Dec. 1964	200,000	100.0	1,561	98	98	98	—	d, e	
Peru	Jan. 1940	Dec. 1964	638,000	100.0	4,320	191	191	191	—	d, e	
Trinidad and Tobago	Jan. 1951	Nov. 1964	3,108	100.0	128	122	122	122	1	e, f	
United States of América	May 1964	Dec. 1964	1,343,081	80.5	618	210	11	11	11	e, f	
Uruguay	Oct. 1948	Dec. 1964	187,000	100.0	1,020	133	133	133	—	d, e	
Venezuela	June 1948	Dec. 1964	710,000	71.8	5,903	662	642	603	48	e, f	
Anguilla	Apr. 1953	June 1962	88	100.0	19	19	19	19	18	f	
Antigua	Aug. 1954	Feb. 1964	283	100.0	50	47	47	47	25	f	
Aruba	Mar. 1952	June 1964	174	100.0	9	9	9	9	—	b, c	
Bahamas	June 1954	Dec. 1964	11,396	1.3	13	10	10	10	9	e, f	
Barbados	Mar. 1954	Dec. 1964	171	100.0	99	98	98	98	54	e, f	
Bermuda	Jan. 1951	1963	53	100.0	9	9	9	9	—	b	
Bonaire	Sept. 1952	Dec. 1964	246	100.0	6	6	6	6	—	b, c	
British Guiana	Mar. 1946	June 1964	4,662	100.0	93	21	21	21	3	e, f	
British Honduras	Oct. 1950	July 1959	22,965	100.0	84	2	2	2	—	d	
Cayman Islands	—	—	259	—	—	—	—	—	—	f	
Curacao	Oct. 1951	Nov. 1964	448	100.0	5	5	5	5	5	e, f	
Dominica	Feb. 1951	Oct. 1956	789	50.0	136	66	66	66	16	f	
French Guiana	May 1949	Mar. 1964	91,000	100.0	222	55	55	55	3	e, f	
Grenada	Nov. 1952	July 1959	311	100.0	8	8	8	8	—	b	
Grenadinas	Nov. 1952	June 1962	65	100.0	7	5	5	5	4	f	
Guadeloupe	Jan. 1957	Oct. 1961	1,619	4.9	53	38	38	27	20	f	
Martinique	Nov. 1953	Mar. 1964	1,000	100.0	34	21	19	19	2	f	
Montserrat	May 1956	Dec. 1964	83	100.0	33	16	16	16	2	e, f	
Panamá Canal Zone	1948	Sept. 1960	1,432	100.0	21	2	2	2	—	d	

TABLE 5. STATUS OF THE *Aedes aegypti* ERADICATION CAMPAIGN IN THE AMERICAS, 1964^a—Continued

Country or other political unit	Dates		Area estimated initially infested		Localities or other units inspected since beginning of campaign					Present stage of campaign
	Campaign began	Latest inspection	Total	Inspected	Number	Found initially positive				
						Total	Treated		Total	
							Total	Still positive		
			Square kilometers	Percent						
Puerto Rico.....	Sept. 1964	Dec. 1964	8,896	48.5	34	34	16	16	16	c, f
Saba, St. Eustatius.....	July 1958	Aug. 1959	31	100.0	16	15	15	15	—	b
St. Kitts, Nevis.....	Apr. 1953	Sept. 1964	308	100.0	43	43	43	43	7	f
St. Lucia.....	May 1953	Sept. 1964	259	100.0	50	50	50	50	37	c, f
St. Martin.....	Dec. 1958	Mar. 1964	34	100.0	18	15	15	15	15	c, f
St. Vincent.....	Mar. 1953	1964	332	100.0	8	8	8	8	...	f
Surinam.....	Dec. 1962	Dec. 1964	48,000	30.0	14	14	7	7	7	c, f
Turks and Caicos Islands.....	—	—	430	—	—	—	—	—	—	f
Virgin Islands (U.S.A.)..	Aug. 1964	Dec. 1964	334	100.0	3	3	3	3	3	c, f
Virgin Islands (U.K.)....	Mar. 1960	Feb. 1963	174	74.6	23	23	23	23	8	f

— None.

... Data not available.

^a Based on reports received at PASB through 30 March 1965.^b Negative for *Aedes aegypti*.^c Program in operation.^d Eradication completed.^e With vigilance.^f Positive for *Aedes aegypti*.

countries and territories of the Caribbean Area. The results of these tests, together with the data already available, indicated that but for rare exceptions the mosquito strains in the entire area had developed resistance to DDT or dieldrin, or to both.

The laboratory also tested the susceptibility of *A. aegypti* from 21 different localities to 6 insecticides that may possibly be used instead of the chlorinated insecticides; it also evaluated these new insecticides in various types of receptacles in which mosquitoes in the Caribbean Area commonly breed.

Some of the new insecticides tested are promising, among them dimetrin, fenthion, and "deuterized" DDT. The last-mentioned insecticide is similar to DDT but contains an atom of deuterium which, without being radioactive, has proven to be considerably more effective than DDT against DDT-resistant mosquito strains. However, before a decision is reached on the use of any of

these insecticides for *A. aegypti* eradication, more complete information on their action and toxicity is needed.

Moreover, the solution of the resistance problem will overcome only one of the obstacles to the eradication of *A. aegypti* from the Caribbean Area. To ensure the success of the program the existing financial and administrative difficulties will also have to be overcome.

As to reinfestations in the Caribbean Area and the northern coast of South America, due mainly to the transport of mosquitos by small craft, they constitute a risk that will not disappear until the vector has been completely eradicated in the entire Area. Until then the countries and territories concerned will have to maintain strict vigilance and take the necessary steps to prevent the reintroduction of the mosquito into areas from which it had been eliminated, including measures designed to prevent small craft from transporting *A. aegypti*.

A summary of the status of the campaign in each of the

countries and territories not yet declared to be free from the mosquito follows, and Table 5 presents basic information in the program in the entire Hemisphere.

Argentina. In 1964, in cooperation with the Organization, the special verification in the country was carried out. On that occasion 33 localities in 9 Provinces were inspected, and the results confirmed the eradication of the vector.

Colombia. The campaign in this country is in its final phase. Verifications in the cities of Cúcuta and San Luis (found reinfested in 1961 and 1962, respectively) continued to be conducted in a satisfactory manner. During 1964 Cúcuta was inspected 5 times and San Luis twice; no *A. aegypti* were found.

The port area of Santa Marta was found reinfested in 1963; 2 verifications were made in 1964, and the results were negative. But a third inspection, completed in December, produced 5 positive houses in the port area. This reinfestation, like that of 1963, was probably due to the transportation of *A. aegypti* by one of the small craft that stop at Santa Marta after making stops in infested ports in the Caribbean Area. Indeed, a vessel coming from Martinique and St. Lucia was found harboring both larvae and adult *A. aegypti* when it arrived in Santa Marta in October 1964.

Vigilance services were also continued throughout the year in other localities exposed to reinfestation. The port areas of Barranquilla, Buenaventura, Cartagena, the cities of Bucaramanga and Cali, the international airport of Barranquilla, and 8 localities along the railroad line from Santa Marta to Bogotá were all inspected during this work and found negative.

In the course of verification and vigilance operations in 1964 a total of 125,105 houses and 32 vessels were inspected, and *A. aegypti* was found only in the vessel and the 5 houses already mentioned.

Cuba. Campaign activities were continued in the Provinces of Havana, Matanzas, and Pinar del Río in accordance with the plan of operations put into effect in 1959.

During the initial survey made in 1964 in that area, 35 localities were inspected and 26 of them were found infested with *A. aegypti*; verification inspection was carried out in 203 localities and 22 were found to be still infested; treatment was applied to 166 localities. During this work 595,005 houses were inspected and 242,122 were treated.

The total number of localities inspected in initial survey in Cuba since the beginning of the campaign now stands at 1,004, of which 750 were found infested. Of these initially positive localities 673 were treated; 569 of

the treated localities were inspected on one or more occasions after treatment, and 488 localities were considered to be negative as of the end of 1964.

Dominican Republic. The resumption of activities, interrupted in 1962, continued to be contingent on the discovery of an insecticide capable of overcoming the resistance of the mosquito.

Haiti. Eradication work, interrupted in 1958 because of financial difficulties, was not resumed.

Jamaica. The Government began a general insect control program which covers the entire country and includes certain measures against *A. aegypti*, and it continued the aegypti-control service limited to the international airports and the port areas of Kingston and Montego Bay. Specific eradication work, however, interrupted in 1961, was not resumed. The country is extensively infested by strains of *A. aegypti* resistant to both DDT and dieldrin, and the Government has decided that it would be better to postpone the eradication campaign until such time as an insecticide with prolonged residual action, which can replace the chlorinated insecticides, is available.

Trinidad and Tobago. The campaign was in its final phase, even though 12 *A. aegypti* foci were found in Trinidad in 1964. Nine of the foci were discovered in water deposits aboard small vessels that had arrived from still-infested ports on the north coast of South America, 2 were on an island off Port-of-Spain, and 1 in the port area of that city. Attempts have been made to apply measures that will prevent the reintroduction of this vector by vessels coming from other ports, but as yet it has not been possible to solve this problem.

United States of America. The preparatory phase was completed and field operations were begun in May. Activities up to the end of the year included a survey in the areas of the country presumed to be infested, and the initiation of eradication activities in parts of the States of Florida and Texas, in Puerto Rico, and in the Virgin Islands.

In the survey made in the continental territory 618 municipalities were inspected and 210 were found infested—11 were under treatment at the end of the year.

In Puerto Rico, 34 of the 76 municipalities into which the Island is divided were inspected in initial survey and found infested with *A. aegypti* before the present campaign was begun; treatment was begun in 16. The 3 municipalities of the Virgin Islands were found positive and were being treated.

Venezuela. The campaign continued to advance but at a slower pace than had been expected, owing to technical problems such as the resistance of mosquito

strains to DDT and dieldrin, and the reinfestation of areas considered negative, as well as to administrative deficiencies of the program that have been hampering the work in recent years. During 1964, however, 173 localities were inspected in initial survey and 54 were found infested; verification was made in 235 localities and 91 still had *A. aegypti*; all together, 138 localities were treated. Among 572,110 houses inspected, 14,456 were found positive; 136,019 houses were treated. Also, inspected in various ports of the country were 16,932 vessels, 3 of which were infested with *A. aegypti*.

France. The following notes refer to the campaign against *A. aegypti* in the French Departments in the Hemisphere:

The campaign in the island of Guadeloupe, interrupted in 1962, was not resumed. Only limited control measures were being maintained in the international airport and ports of the Island.

A survey in French Guiana revealed that the reinfestation that began in 1963 had spread to the entire city of Cayenne and its environs as well as to some localities in the interior of the country. At the end of 1964 the Government was still studying the possibility of resuming the campaign.

There is no specific antiaegypti campaign in Martinique. Although the Government has been carrying out general insect control measures the results obtained are limited with respect to *A. aegypti*.

The French part of the island of St. Martin continued to be considered negative, although no recent data were available; this negativity, however, will be doubtful so long as *A. aegypti* is not eliminated from the Netherlands part of the Island, which is extensively infested.

Kingdom of the Netherlands. The situation in the territories of the Kingdom of the Netherlands in the Caribbean Area was as follows:

According to data supplied by the Government, Aruba continued to be considered negative; in Bonaire the reinfestation found in 1963 was eliminated in 1964.

The island of Curaçao continued to be extensively infested. *A. aegypti* control measures were being applied in the port area of Willemstad, but the results obtained up to the end of 1964 were not satisfactory.

The islands of Saba and St. Eustatius continued to be considered negative although no recent information was available on their current status.

The Dutch part of the island of St. Martin continued infested and no eradication operations were performed there in 1964.

The eradication work begun the previous year in

Surinam continued to be limited to the city of Paramaribo, and despite repeated treatment the infestation index continued to be high. The technical and administrative difficulties existing since the beginning of the campaign—resistance of the mosquito to chlorinated insecticides, high rate of absenteeism, and deficient field work—have not been overcome.

United Kingdom. The status in the territories of the United Kingdom in the Caribbean Area was as follows:

The islands of Barbados, Bermuda, Grenada, Nevis, and St. Vincent continued to be considered negative.

The campaigns were not resumed in Anguila, the Bahamas, Caicos, Cayman Islands, Dominica, Turks, or the Virgin Islands, where operations had been interrupted because of financial reasons.

An inspection made in Antigua revealed that the Island is extensively infested, but the Government has decided not to resume eradication activities until it has available a residual insecticide that may be used instead of the chlorinated insecticides, to which the mosquito strains on the island are resistant.

In Barbados, despite the increase in the budget of the campaign and the improvement in the supervision of field work and in the performance of personnel, the results obtained with regard to the eradication of the mosquito were not satisfactory because the vector is resistant to both DDT and dieldrin. To overcome this difficulty, the Government decided to use fenthion experimentally and at the end of the year was taking the necessary measures to treat with this insecticide an area with about 10,000 houses in Bridgetown.

In the Grenadine group, the islands of Carriacou, Little Martinique, Bequia, and Union continued to be positive, and no eradication work was performed there.

In British Guiana, which was found extensively reinfested in 1962, eradication work was resumed at the end of 1964 in Georgetown and will be extended to the other positive areas in the country.

An inspection made of 8 localities in Montserrat revealed that 2 sea ports, Plymouth and Kinsale, were reinfested. These localities were treated but were still positive at the end of the year.

St. Kitts was found to be reinfested in 1964, but eradication work had not yet been resumed at the end of the year.

In St. Lucia the infestation continued to be high and generalized. Although no eradication work could be undertaken, because of financial difficulties, mosquito control activities were undertaken in the airport and port of Castries, capital city of the island.

SMALLPOX

It is difficult to determine with accuracy the incidence of smallpox in the Hemisphere because of the difficulty in making an accurate diagnosis and because of failures in the reporting of cases. Nevertheless, in 1964, 12 cases were reported in Argentina, 4 in Bolivia, 2,502 in Brazil, 21 in Colombia, 454 in Perú, and 3 in Uruguay, or 2,996 all together. Table 6 shows the cases of smallpox reported in the Americas in 1963 and 1964.

Three short-term consultants initiated studies in Brazil on the administration of lyophilized smallpox vaccine by jet injectors under varying conditions. This house-by-house trial covers rural communities, villages, and towns. Besides an assessment of the prospects of vaccination with jet injectors, a serological study will be made of the persons vaccinated and a record maintained of visible vaccinal reactions. These results will be compared with those obtained in population groups vaccinated by the multipressure method. In these experiments lyophilized smallpox vaccine prepared in Brazil and in the United States of America was being used in various dilutions and in the original concentration. The trial will also provide an opportunity to test the durability and transportability of the injectors, especially for use in rural areas.

The 11 laboratories producing smallpox vaccine, to the development of which PAHO/WHO contributed in some measure, produced, between 1 January and 30 June, 28,701,165 doses of glycerinated smallpox vaccine and 36,301,682 doses of lyophilized vaccine.

TABLE 6. REPORTED CASES OF SMALLPOX IN THE AMERICAS, 1963 AND 1964

Country	1963 ^a	1964 ^b
Argentina.....	—	12 ^c
Bolivia.....	—	4
Brazil.....	6,211	2,502 ^d
Colombia.....	4	21
Ecuador.....	45	—
Perú.....	865	454
Uruguay.....	1 ^e	3 ^c
Total.....	7,126	2,996

— None.

^a Latest data received.

^b Data received up to 30 July 1965.

^c Includes 10 imported cases.

^d Incomplete data—limited to 19 States and 1 territory.

^e Imported.

Brazil, Colombia, México, Uruguay, and Venezuela continued donating glycerinated and lyophilized smallpox vaccine for the expanding programs of the Central American countries and of the Dominican Republic, Haiti, and Paraguay. The Organization continued to act as a coordinating agency for the countries requesting vaccine and those producing it.

In view of the spirit of cooperation already demonstrated by the vaccine-producing countries, a proposal was made for the establishing of a reserve fund of lyophilized smallpox vaccine, to be available to the Organization for distribution to countries facing emergency situations and to provide for the normal development needs of programs in nonproducing countries.

The services of the Serum Institute of Copenhagen, Denmark, continued to be available, free of cost, for testing the purity and potency of vaccines prepared in laboratories of the countries of the Americas.

Table 7 contains details of the numbers of smallpox vaccinations given and of the doses of glycerinated and lyophilized vaccines produced.

The smallpox vaccination programs made slow progress. Priority considerations and reasons of a political, financial, or administrative nature, operating singly or in association, were responsible for the failure to move faster. One exception to this was the smallpox eradication program of Ecuador, which was completed in May 1964, a month ahead of the target date.

Smallpox vaccination programs should be either initiated or stepped up. There is an equally pressing need to vaccinate the population with a low level of protection in countries near other countries where the disease exists.

The levels of vaccination among populations in regions or countries in which national vaccination programs had been completed was maintained below the rates and ratios recommended. At the same time, the reporting of suspected cases of smallpox in areas in which the population had already been vaccinated was defective, and the study and clinical and laboratory diagnosis was being carried out on a restricted scale and covered only a small number of the cases reported. This points to the need for organizing epidemiological surveillance services in countries where smallpox eradication programs have been completed or are in progress.

The following is a summary of the progress made in smallpox campaigns in several countries of the Hemisphere.

The Central American countries and Panamá vaccinate against smallpox within the framework of the regular activities of their health services. As a result, the number

TABLE 7. REPORTED SMALLPOX VACCINATIONS IN 20 COUNTRIES AND 14 TERRITORIES AND PRODUCTION OF SMALLPOX VACCINE IN THE AMERICAS
January-June 1964

Country	Vaccinations	Vaccine produced Doses	
		Glycerinated	Lyophilized
Argentina.....	223,632 ^a	5,190,000 ^a	—
Bolivia.....	535,049 ^b	—	813,700
Brazil.....	5,177,874 ^c	—	27,040,878
Chile.....	734,142 ^d	3,075,000 ^e	582,500 ^e
Colombia.....	1,049,032 ^d	—	2,882,500
Costa Rica.....	220,518 ^b	—	—
Cuba.....	41,846	666,600	—
Dominican Republic.....	31,383 ^b	—	—
Ecuador.....	473,666	—	715,004
Guatemala.....	555,724 ^b	1,417,165	—
Haiti.....	293,441 ^e	—	—
Honduras.....	37,402	—	—
Jamaica.....	63,187	—	—
México.....	5,524,600	10,754,400	—
Nicaragua.....	82,833 ^d	—	—
Panamá.....	19,578	—	—
Paraguay.....	67,290 ^d	—	—
Perú.....	3,165,404 ^e	2,864,000 ^d	3,517,100 ^d
Uruguay.....	2,100,000 ^e	2,100,000 ^d	—
Venezuela.....	762,984	2,634,000	750,000
Antigua.....	1,558	—	—
Barbados.....	8,807	—	—
Bermuda.....	1,154	—	—
British Guiana.....	3,948	—	—
Cayman Islands.....	9,000	—	—
Dominica.....	1,585	—	—
French Guiana.....	1,590	—	—
Martinique.....	8,313	—	—
Montserrat.....	458	—	—
St. Kitts.....	2,035	—	—
St. Vincent.....	1,349	—	—
Surinam.....	6,250	—	—
Turks Islands.....	65 ^e	—	—
Virgin Islands (U.K.).....	87	—	—
Total.....	21,205,784	28,701,165	36,301,682

— None.

^a January-July.

^b Complete year.

^c January-September.

^d January-August.

^e January-October.

of persons protected against smallpox, especially children, increased progressively.

In Argentina the national vaccination campaign, begun some years ago and referred to in previous Reports, made little progress in 1964. Between January and July,

223,632 persons were vaccinated; during the year, 12 cases were reported. A resumption of the smallpox eradication program in this country would make a significant contribution to the objective of eliminating the disease in the Hemisphere.

Bolivia's national smallpox program, in which the Pan American Health Organization has been collaborating, has met with numerous obstacles to its normal course. Its progress has been hindered and its future jeopardized by political, economic, and administrative factors. In 1964 the program lacked the funds required and the regular trained personnel needed to administer the vaccinations; as a result, vaccinations were restricted to urban areas to the detriment of rural sectors.

Since the beginning of the program, on 1 September 1963, and up to 31 December 1964, 954,894 persons were vaccinated; 535,049 of the vaccinations were administered during 1964, or 66.4 percent of the original target figure of 739,200. For the first 11 months of the year the results of primary vaccinations in 6,963 children were observed; the total number of positive reactions was 6,926, which indicated that the vaccine "took" in 99.5 percent of the cases.

The Organization appointed a health inspector to assist the national authorities with the organization and conduct of field activities. The laboratory producing lyophilized smallpox vaccine, the output of which between January and June was 813,700 doses, provided the country with all the vaccine it needed; the vaccine proved to be of very good quality.

Brazil continued its smallpox eradication program under which it is proposed to vaccinate 46,000,000 persons in 6 years. In the first 9 months of 1964, 5,177,874 persons were vaccinated, raising to 13,062,465 the total number of those vaccinated since the start of the program (June 1962).

The corrected figures for cases reported in 1961 and 1962, respectively, were 7,656 and 7,589. For 1963, 300 cases were reported, a figure that was later corrected to 6,211 cases. In 1964 the cases reported were 2,502.

The laboratories producing smallpox vaccine at Recife, Rio Grande do Sul, and at the Oswaldo Cruz Institute (São Paulo) continued to prepare lyophilized vaccine of good quality. The productive capacity of these laboratories by far exceeds the needs of the country; between January and June they produced 27,040,878 doses of lyophilized vaccine.

In Colombia, where a national vaccination program was completed some years ago, 21 cases of smallpox were reported in 1964. A system of epidemiological surveillance should be established to ensure the early

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detection and timely reporting of suspected cases, as well as their diagnostic verification by means of epidemiological study, clinical observation, and laboratory tests.

No cases of smallpox were reported in Ecuador in 1964. The number and percentage of vaccinations administered during the smallpox eradication program undertaken between 1958 and 1964 are shown in Table 8; the number of cases and rates per 100,000 inhabitants for 1953 to 1964 are shown in Table 9. The laboratory producing lyophilized smallpox vaccine supplied vaccine of excellent quality and in sufficient quantities to meet the requirements of the program.

The objective of the smallpox vaccination program begun in Haiti in July 1962 is to vaccinate 80 percent of the population in a period of 5 years. Between that date and 15 October 1964, 847,109 persons were vaccinated; 293,441 of these vaccinations were made in the first 9 months of 1964. According to the plan of operations, 1,450,000 persons should have been vaccinated by the end of 1964; only some 58 percent of the target figure was attained. The program has been beset by financial and administrative difficulties.

In Perú 454 cases of smallpox were notified, most of

TABLE 8. VACCINATIONS MADE AS A RESULT OF THE NATIONAL SMALLPOX ERADICATION CAMPAIGN UNDERTAKEN IN ECUADOR, 1958-1964

Province	Number of vaccinations	Population	Percentage vaccinated
Azuay	272,636	275,757	98.9
Bolívar	113,222	137,998	82.0
Cañar	105,355	112,618	93.6
Carchi	82,481	93,824	87.9
Chimborazo	232,031	279,607	83.0
Cotopaxi	172,989	193,929	89.2
El Oro	116,772	156,005	74.9
Esmeraldas	90,738	108,000	84.0
Galápagos Islands	...	2,412	...
Guayas	641,128	775,707	82.6
Imbabura	155,075	174,141	89.1
Loja	212,582	270,229	78.7
Los Ríos	201,829	240,410	84.0
Manabí	459,914	587,567	78.3
Morona-Santiago	21,097	26,040	81.0
Napo	20,872	24,487	85.2
Pastaza	13,943	13,840	100.7
Pichincha	403,964	463,077	87.2
Tungurahua	206,685	221,850	93.2
Zamora Chinchipe	8,676	11,672	74.3
Total	3,531,989	4,169,170	84.8

... Data not available.

TABLE 9. SMALLPOX MORBIDITY IN ECUADOR, WITH RATES PER 100,000 INHABITANTS, 1953-1964

Year	Cases	Rates
1953	708	20.4
1954	2,516	70.5
1955	1,831	49.4
1956	669	17.5
1957	913	23.2
1958	863	21.2
1959	1,140	27.2
1960	2,185	50.6
1961	496	11.1
1962	204	4.4
1963	45	1.0
1964	—	—

— None.

them in the Department of Loreto, in the northeastern region of the country. In this area the percentage of the population vaccinated against smallpox was very low. The outbreak was limited to this area and the disease did not spread to the rest of the country, where the percentage of the population protected against smallpox is high. The Government initiated a smallpox vaccination program which, by September, had succeeded in vaccinating 3,165,404 persons.

Concomitant with the development of the program, staff were trained in the technique of smallpox vaccination and a department was set up to maintain the level of immunity of the population at that attained during the program. A surveillance service was also established to investigate any suspected cases that might arise after the completion of the intensive vaccination program.

TUBERCULOSIS

With a view to establishing a policy that might serve as a basis for work at all levels of the Organization and as a guideline to the countries in planning their tuberculosis control activities, three meetings on tuberculosis were held during the year.

The topic of the Technical Discussions at the XV Meeting of the Directing Council of PAHO (XVI Meeting of the WHO Regional Committee for the Americas), held in México City from 31 August to 11 September, was "Tuberculosis Eradication: A Task for Present Planning and Future Action." Two working documents served

as the basis for these discussions, which were led by a group of tuberculosis specialists from the Americas and the Chief of the Tuberculosis Section of WHO. This topic was discussed in detail and the final report included practical guidelines for tuberculosis control programs as a first step towards eradication of the disease.

A Regional Seminar on Tuberculosis was held in the cities of Maracay and Caracas from 29 November to 5 December, in cooperation with the Government of Venezuela. Present were 63 participants from 23 countries, 2 international consultants, and staff of the Organization. The following three main topics were discussed: "Basic data required for an appraisal of the tuberculosis problem of a community"; "Planning of tuberculosis control activities"; and "Organization of tuberculosis control services." The final report of the Seminar outlines a scheme for the planning and execution of tuberculosis control programs and thus supplements the final report on the Technical Discussions.

The two international meetings mentioned above were preceded by a meeting of all PASB technical staff responsible for tuberculosis control activities at Headquarters and in the Zones. At this meeting the document "Tuberculosis: General Policy and Basic Concepts" was reviewed and modified. The final reports of these 3 meetings may serve as a basis to Governments and the Organization in the development of tuberculosis programs.

The Organization continued to cooperate in the tuberculosis control programs that several countries of the Hemisphere had underway.

In Argentina the National Tuberculosis Control Center (located in Recreo, Santa Fe Province) continued to pursue the work planned in which it adhered to the same standards and methods of periodic evaluation. The document entitled "Planning of Tuberculosis Control Activities: Objectives, Activities, Operational Targets, Evaluation, and Reports," which was one of the working documents of the Regional Seminar, was based on the experience of the Center. With regard to the Center's tuberculosis control activities photofluorographic examinations of 61,853 persons led to the discovery of 480 cases of tuberculosis, 42,742 persons were tuberculin tested, and 12,953 were given BCG vaccination. Training activities were also carried out and the possibility of increasing the personnel training and applied research activities of the Center was under study.

In the Bolivian Highland, 20,865 persons were examined between 1 January and 30 September, and 1,240 cases were detected. Of these, 1,135, or 82.5 percent, began ambulatory treatment and followed it regularly until July, when for various reasons a considerable number of patients were lost track of.

In Chile a program was begun in the suburb of Santiago called La Cisterna, which has a population of approximately 200,000 persons. Initial activities consisted of a socioanthropological survey and a prevalence study in 10 percent of the population of each of the 3 districts of the area.

The training of auxiliary personnel was increased in Costa Rica and, while the general plan for the national program was being prepared, further progress was



Personnel assigned to a mobile tuberculosis unit of the demonstration area in the State of Querétaro, México, attend a class conducted by the medical officer in charge. At right, a rural nurse administers a BCG vaccination.

achieved in making tuberculin testing and BCG vaccination part of the functions of health centers.

The program in the Dominican Republic was begun in September. A survey of 6,250 school children indicated a 36.8 percent positivity to tuberculin tests. In San Cristóbal a socioeconomic survey was made of 418 urban families; the results will be analyzed in the near future.

In El Salvador a plan for a demonstration area in the Department of Usulután was prepared. Training was given to medical and auxiliary personnel so as to enable the activities of this program to begin in the first quarter of 1965.

In view of the results obtained in the health demonstration area in Honduras, the program was extended to the areas of Choluteca and El Valle, while in the initial area the routine work of strengthening the tuberculosis control activities of the general health services was continued. Photofluorographic examination of 82,277 persons led to the discovery of 2,095 cases of tuberculosis. The number of cases under treatment that were lost to control was very small and 1,674 patients completed their 12-month treatment during the year. The performance of the laboratories also improved—2,063 microscopic examinations and 3,203 sputum cultures were made. The tuberculosis program and the general health services administered BCG vaccine to 105,617 persons.

In México the revised Querétaro program began activities in Pedro Escobedo, Huimilpan, and Villa Corregidora. Up to 30 November, 28,481 persons had been tuberculin-tested and 4,079 persons X-rayed; 126 tuberculosis cases were detected, but followup through the local health centers was not entirely satisfactory.

Nicaragua stressed the training, in tuberculin testing and BCG vaccination, of the auxiliary personnel of local health centers. This training made it possible to test 158,765 persons and vaccinate 115,073 of them. In addition, 8,817 persons were X-rayed, and 163 cases of tuberculosis were diagnosed; the latter followed treatment regularly.

The nationwide tuberculosis program in Panamá was extended to the Chorrera and Colón sectors where 27,613 tuberculin tests were read, 19,156 persons were vaccinated with BCG, and 21,833 persons were X-rayed; 186 cases of tuberculosis were detected. Work in the Chiriquí area was begun during the second half of the year and a high percentage of the population was covered. Tuberculosis control work in the entire country is reflected in the following figures: cases detected during the year, 1,977, of which 1,724 began treatment; X-ray

examinations, 30,131; tuberculin tests, 76,051; and BCG vaccinations, 48,696.

In Perú there was a falling off in the activities of the Tacna program. Data for the first half of the year show that 2,083 tuberculin tests and 7,258 X-ray examinations were made, and that 338 tuberculosis cases were detected. A plan of operations was prepared for the program of the Department of Junín, which was awaiting the arrival of laboratory equipment for the sputum testing of symptomatic persons.

Numerical data for the entire year were not yet available, but it was known that in the tuberculosis control programs of Argentina, Bolivia, Honduras, México, Nicaragua, Panamá and Perú, 458,585 tuberculin tests were read, 262,082 BCG vaccinations and 208,133 X-ray examinations were made and 4,631 tuberculosis cases were detected.

LEPROSY

The countries of the Hemisphere have achieved a marked change in attitude towards leprosy, now accepted as another infectious disease, and the formerly widespread prejudices are gradually losing their hold. Responsibility for the diagnosis, treatment, and control of leprosy is shared by leprologists, dermatologists, and general practitioners, as well as by other health personnel; health auxiliaries, suitably trained and acting under the supervision of physicians, are taking an increasingly active part in the search for new cases.

National health agencies have been showing increased interest in leprosy. In many of the countries leprosy control activities in 1964 already constituted part of the regular work of the services responsible for the control of communicable diseases; in others, incorporation plans were being made for implementation in the near future. The Organization collaborates in these control programs, which are being undertaken in most of the countries of the Hemisphere, either through special agreements or as the outcome of the assistance it renders to the countries in connection with communicable diseases as a whole.

The progress achieved by these programs varies from country to country. Generally speaking, Governments are faced with problems of three kinds in their fight against leprosy: they must first determine the extent and characteristics of the problem; then bring into being the technical and administrative structures needed to achieve programed objectives, taking into account special fac-

tors bearing on the problem in each country and region; and, finally, train medical and paramedical personnel in all aspects of leprosy diagnosis, in control methods, and in the administration of programs.

The training of personnel in diagnostic methods and the organization of suitable systems of data registration represent two very important aspects of the process of accurately determining the characteristics and extent of the problem in a particular country. So far as the first of these aspects is concerned, training courses for physicians were held with the assistance of the Organization in the countries of Central America and in Panamá, as well as in Argentina, Colombia, Ecuador, and México. The course held in Argentina received a grant from UNICEF, and the Organization, besides assisting with its technical staff, provided fellowships that enabled Paraguayan and Uruguayan officials to attend. To implement a suitable system of data registration also required continued efforts. The Organization completed the preparation of a manual on a system of data registration which was being tested in Argentina and Venezuela.

A manual on leprosy control programs was also being prepared, covering the clinical and epidemiological aspects of the disease as well as the planning, programming, and organization of control measures. The manual will also include three glossaries—on the epidemiology of the disease, the administration of programs, and the physical rehabilitation of patients. In 1964 the first draft of the glossary on epidemiology was completed, and consultations on the revision and improvement of the definitions it contains were begun; progress was also made on the preparation of the glossary on rehabilitation.

From Tables 10 and 11, which show new cases and the progress made by leprosy control programs in the Hemisphere on the basis of reports received from those countries for the first semester of 1964, it is possible to draw a number of conclusions of special importance. In the first place, considering the programs as a whole, it is evident that, of the total number of registered cases—a figure which undoubtedly represents only part of the true quantity—barely 50 percent were under control. Secondly, if the total number of cases with lepromatous

TABLE 10. LEPROSY CASES DISCOVERED FROM JANUARY TO JUNE 1964 IN 13 COUNTRIES AND 1 TERRITORY IN THE AMERICAS, BY SEX, AGE, AND CLINICAL FORM

Country or other political unit	Sex		Age		Clinical form				Total
	Male	Female	Under 15 years	15 years and over	Lepromatous	Tuberculoid	Indeterminate	Other	
Argentina.....	689	540	49	1,180	478	409	298	44	1,229
Brazil.....	...	...	...	...	463	294	230	3	990
Colombia.....	...	...	...	...	277	140	138	—	555
Costa Rica.....	9	5	1	13	5	3	6	—	14
Ecuador.....	...	...	...	...	...	...	...	...	156
El Salvador.....	5	1	—	6	3	—	3	—	6
Guatemala.....	5	1	—	6	5	—	1	—	6
Haiti *.....	...	...	—	7	2	2	—	3	7
Honduras.....	30	12	2	40	7	14	21	—	42
Nicaragua.....	2	—	—	2	1	1	—	—	2
Panamá.....	2	—	—	2	2	—	—	—	2
Paraguay.....	67	43	11	99	48	33	26	3	110
Venezuela.....	148	75	21	202	84	79	47	13	223
British Guiana.....	113	115	136	92	11	11	19	187	228
Subtotal.....	1,070	792	220	1,649	1,386	986	789	253	
Percentage.....	57.46	42.55	11.77	88.22	40.60	28.88	23.11	7.41	100.0
Total.....	1,862			1,869		3,414			3,570 ^b

— None.

... No data available.

* January–July.

^b The discrepancy between the total and the sum of the figures appearing in the columns is due to lack of data.

TABLE 11. STATUS OF LEPROSY IN 13 COUNTRIES AND 2 TERRITORIES OF THE AMERICAS, 1964

Country or other political unit	Cases in the active register			Sex		Age		Clinical form				Treatment			Contacts		
	Under surveillance	Without surveillance	Total	Male	Female	Under 15 years of age	15 years and over	Leprosytous	Tuberculoïd	Indeterminate	Others	Hospitalized	Ambulatory	None	Under surveillance	Without surveillance	
																	Under surveillance
Argentina ^a	3,439	4,249	7,688	1,998 ^b	1,441 ^b	70	3,369	1,851	949	534	105	1,011	2,428	—	9,956	2,840	12,796
Bolivia ^a	...	...	237	...	...	...	...	...	...	...	...	69	168	—	...	...	...
Brazil ^a	33,650	16,639 ^c	71,839	...	...	...	...	16,354	7,403	9,792	101	12,856	...	...	78,759 ^b	93,877 ^e	172,636 ^b
Colombia ^a	14,357	1,375	15,732	...	...	...	...	...	...	...	...	4,979	9,378	1,375	22,804	17,476	40,280
Costa Rica ^d	480	169	649	404	245	13	636	330	134	183	2	87	343	219	2,111	1,941	4,052
Ecuador ^a	749	—	749	...	...	...	...	249	76	185	239	236	513	—	2,806	—	2,806
El Salvador ^d	146	67	213	157	56	7	206	92	49	58	14	6	140	67	456	456	912
Guatemala ^d	120	31	151	99	52	14	137	72	43	28	8	31	90	30	327	386	713
Honduras ^d	139	59	198	131	67	15	183	34	87	77	—	6	133	59	478	1,179	1,657
Nicaragua ^d	175	53	228	155	73	6	222	84	111	23	10	79	76	73	300	837	1,137
Panamá ^d	136	42	178	118	60	4	174	59	82	4	33	103	38	37	613	112	725
Paraguay ^a	2,486	1,229	3,715	...	...	...	...	1,877	1,048	741	49	288	2,198	1,229	2,274	...	2,274
Venezuela ^a	9,236	2,980	12,216	7,945	4,271	1,217	10,999	5,278	3,691	2,579	668	630	8,079	3,507	24,065	17,375	41,440
British Guiana ^a	178	898	1,076	112 ^b	66 ^b	13 ^b	165 ^b	361	630	85	—	181	284	611	360 ^e	...	360
Surinam ^b	...	...	1,183	...	...	...	...	...	...	...	...	...	1,065	...	...	...	...
Subtotal	65,291	27,791	116,082	11,119	6,331	1,359	16,091	26,641	14,303	14,289	1,229	20,562	24,933	7,207	145,309	136,479	281,788
Percent	56.29	23.94	100.00	65.71	36.28	7.78	92.21	47.16	25.33	25.50	2.17	39.01	47.50	19.67	51.56	48.43	100.00
Total	116,052	116,052	17,450	17,450	56,462	52,702	281,788	281,788	281,788	281,788	281,788	281,788	281,788	281,788	281,788	281,788	281,788

— None.

... No data available.

^a Data as of 30 June 1964.^b Data refers to total cases under surveillance.^c Partial data.^d Data as of 15 November 1964.^e Data as of 31 December 1963.

forms is determined, and assuming that half the indeterminate forms will become lepromatous unless early treatment is provided, some 60 percent of the patients have infectious forms of the disease. Manifestedly, 40 percent of the registered patients did not receive treatment. Lastly, the inaccurately low number of contacts registered becomes obvious, in view of the fact that it amounts to less than 2 per patient, or less than 50 percent of the household, when 5 is the average number of members of a typical family.

No precise estimate is available of the percentage of existing cases that would have to be treated in order to start the incidence and prevalence of leprosy on a downward curve. But it may well be assumed that such a change would first require treatment of at least 50 percent of the cases—after an intensive case-finding campaign in each country. In 1964 we were still far from that objective.

The course to follow, then, should direct the programs towards the attainment of useful objectives, which should be maintained. One of a number of major problems that need to be solved is that the technical and administrative organizations in many countries are unsuitable to control this disease, a situation which must be appropriately modified as soon as circumstances permit.

The following information relates to the status of leprosy control programs in the countries of the Hemisphere. More detailed information will be found in the project reports in Chapter VIII.

In the Central American countries and in Panamá leprosy control programs made steady progress. As of 15 November the situation in those countries was as follows: in Costa Rica there were 649 registered cases, of which 480 were under supervision and 430 of the latter were under treatment; of 4,052 registered contacts, 2,111 were under surveillance. In El Salvador, 146 of the 213 registered cases were under supervision and treatment; of 912 contacts, 456 were under medical surveillance. In Guatemala, 120 of the 151 registered cases were under supervision and treatment; 327 of the 713 known contacts were under surveillance. Honduras had 198 registered cases, of which 139 were under treatment; of 1,657 known contacts, 478 were under medical surveillance. In Nicaragua, 175 of the 228 registered cases were under treatment; 300 of the 1,137 known contacts were under surveillance. In Panamá, 136 of 178 registered cases and 613 of 725 registered contacts were under supervision. In the area as a whole, 73.97 percent of the 1,617 registered cases and 46.64 percent of the 9,196 contacts were under supervision, and 70 percent of the cases were under treatment.

The reorganization and modernization of leprosy control programs continued in several Provinces of Argentina where the status of the control program at 30 June was as follows: total number of registered cases were 7,688, of which 3,439, or 44.7 percent, were under supervision and treatment (1,011 at hospitals); the total number of contacts registered was 12,796, of which 9,956, or 77.8 percent, were under surveillance.

A report on a study of the problem in Bolivia, suggesting that a control program be started in a limited area, with a view to its progressive extension to the entire country, was presented to the Government.

The National Leprosy Control Campaign in Brazil covers 19 percent of the land and 49 percent of the country's estimated population. In 1964 there were 33,650 cases and 134,390 contacts under supervision. During the first semester of the year, 990 cases were detected and 4,876 contacts were registered for the first time.

The status of the leprosy control campaign in Colombia on 30 June was as follows: the number of registered cases was 15,732, of which 14,537, or 91.3 percent, were under supervision. Of the cases under supervision, 4,979 were receiving treatment at hospitals and 9,378 were receiving ambulatory treatment. The number of new cases registered during the first six months of the year was 555. There were 40,280 registered contacts, of which 22,804, or 56.6 percent, were under surveillance.

In Ecuador the program initiated in the Province of Manabí was extended to the Provinces of Azuay, Cañar, El Oro, Guayas, Loja, Los Ríos, and Pichincha. During the year, 192,332 persons, or 91.5 percent of the target figure of 211,039, were examined. With 356 new cases detected the number of cases under control increased to 699. Clinical reviews were undertaken in the case of 1,008 patients, or 84 percent of the target figure for the year, which had been established at 1,200.

A special feature of the program in Ecuador is the use of suitably trained health auxiliaries to make selective checks of the population in an effort to detect leprosy cases. These health auxiliaries, who have been trained to recognize the clinical characteristics of leprosy, record the name and address of suspected cases, the confirmation of the diagnosis being the responsibility of physicians. The considerable measure of success achieved in tracing and identifying cases is attributable to this method. A data registration system designed to provide more complete and reliable records was in use.

Leprosy control activities in México were intensified at the beginning of the first semester of 1964 as a result of plans completed in 1963 and reorganization of the zonal

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units. Three of these were strengthened by the addition of epidemiologists recently graduated from the School of Public Health; moreover, facilities for the area comprising the States of Michoacán, Querétaro, and Guanajuato, which have the highest prevalence of leprosy in the country, were improved by the establishment of an office in the Health Center of Celaya City, Guanajuato.

The 1,132 new leprosy cases detected raised the registered total, up to 31 December to 14,448, of which 9,150 (63.33 percent) were under control.

Health education activities among leprosy patients and contacts was intensified. In the first quarter of the year, 626 key individuals in the communities of the area were interviewed, 220 talks were given to organized groups, and 155 lectures were delivered on different aspects of the disease and the handling of leprosy patients.

In Paraguay, although the quantitative data available for the entire country at the end of the year were incomplete, partial reports revealed that in Health Region II between 60 percent and 80 percent of the cases were under supervision and the surveillance of contacts was well below the levels hoped for. In Health Region III the proportion of cases under supervision was above the target figure (80 percent), except at 3 health centers; the surveillance of contacts varied from about 8 percent to 47 percent at the various health centers. Four cases were discovered among 215 contacts examined (20 per 1,000), whereas 1 case was found among 2,162 apparently healthy persons (0.46 per 1,000). Control procedures in Health Region IV were excellent, exceeding in every community the percentage established for the regional program; there had been outstanding improvement in the surveillance of contacts and the Region had expanded its leprosy control measures to almost the entire area for which it was responsible. In the first semester of 1964, 2 cases were discovered among 5,340 apparently healthy persons examined (0.37 per 1,000); but 6 cases were found among 201 contacts (30 per 1,000).

In Perú the PASB leprosy adviser for Zone IV made a study of the disease in the Department of Loreto. The report included recommendations and a suggested control plan for the area.

Because Uruguay does not have a leprosy control service the extent of the problem was not known. At the request of the Government, the Zone VI leprosy adviser undertook a study of that disease in the country, at the end of which a series of recommendations were made for a national leprosy control program.

The leprosy control program in Venezuela made remarkable progress—an outcome of the program's administrative organization and the methods of control used.

The recently reorganized system of data registration yields, rapidly and accurately, information on the status of the disease in the areas covered by the program and on the extent and nature of the measures being taken.

In recent years trials have been carried out in Venezuela on the treatment of leprosy with DDS in combination with aluminum, in a slow-acting aqueous solution administered intramuscularly every 30 days. This is part of a research program being carried out in several parts of the world, under the coordination of the World Health Organization. The sulfonemias and clinical results thus far obtained with this new form of treatment strongly suggest the advisability of a trial with a large number of registered cases. Such a trial would also provide an evaluation of the relative cost of treatment with DDS in tablet form for oral administration as opposed to injection, as well as the clinical and bacteriological effects and the lasting quality of the treatment.

Training activities in connection with leprosy control programs are described in Chapter III.

VENEREAL DISEASES

Venereal diseases are widespread throughout the Hemisphere, but the true magnitude of this problem is not known. Case-reporting practices vary from country to country—even within the countries themselves—and make the collection of reliable statistics on the incidence and prevalence of these diseases very difficult.

In the United States of America, where an active venereal disease control program has been in operation since 1940, a recent survey of case-reporting by private practitioners indicated that they notified the appropriate health authority of only 11 percent of all cases of infectious syphilis, 38 percent of syphilis cases in other phases, and 11 percent of the gonorrhoea cases they treated during the period of the survey.

A recent global survey made by the World Health Organization in 106 countries and territories revealed a higher incidence of early syphilis.

It is conservatively estimated that at least 3 million cases of new venereally acquired syphilis occur throughout the world annually, which means that the prevalence is at least 30 million cases.

Gonorrhoea is even more poorly reported than syphilis. Data from outpatient clinics indicate that there are about 4 cases of gonorrhoea for every case of syphilis. If this ratio is applied to the estimated worldwide incidence of

syphilis, it is conservatively estimated that at least 12 million cases of gonorrhoea occur throughout the world each year.

Both gonorrhoea and syphilis are consistently among the top 10 compulsorily notifiable diseases in the Americas.

As in the rest of the world, the other venereal diseases such as chancroid, lymphogranuloma venereum, and granuloma inguinale occur in the Americas, although the number of cases is not very high. The chancroid rate in South America is of some significance because it is approximately one half the syphilis rate.

A working document on syphilis and gonorrhoea in the Americas, based on special information supplied by the Governments, was submitted to the XV Meeting of the Directing Council of the Pan American Health Organization (México, D.F., 31 August to 11 September 1964). After considering it, the Directing Council adopted a Resolution which requested the Director to undertake a special study of the current situation of the venereal disease problem in the countries of the Americas, with a view to preparing a proposal for a hemispheric program of control of these diseases, and to report thereon to the next meeting of the Directing Council.

The study requested by the Directing Council was begun at the end of 1964.

The Venereal Disease Department of the Communicable Disease Center of the United States Public Health Service agreed to cooperate with the Organization in a study embracing a glossary of terms relating to venereal diseases and their control; a provisional classification of syphilis, which will be uniformly applied in the Hemisphere; a standard system for venereal diseases data registration; and a uniform system for venereal disease control program reports.

YAWS

The yaws eradication activity in the Caribbean Area has been diminishing in keeping with the decrease in the incidence and prevalence of the disease. The goal of eradication has therefore not been achieved and will be difficult to attain unless support is renewed in the degree and for the length of time necessary.

The program in Haiti suffered a reduction in staff, which in 1964 consisted of 3 workers. Between January and August, 38 suspected cases of yaws were reported, of which 13 were confirmed by laboratory examination.

Of the confirmed cases, 8 occurred in the Department du Nord and 5 in the Department de l'Ouest. Between January 1962 and August 1964, 43 cases of infectious yaws were confirmed. Up to September 1964 the Organization kept a health inspector stationed in Haiti to assist in the organization and conduct of field activities.

Cases of infectious yaws continued to occur in Dominica, Jamaica, St. Lucia, and St. Vincent. The Organization provided advisory services on the conduct of eradication programs in St. Lucia and St. Vincent.

ZOONOSES

The progress achieved in recent years in the control of diseases for which man is the specific host has made it possible to devote greater attention to animal diseases that affect human health. Zoonoses control is therefore an increasingly important activity in the health agencies of the Hemisphere. Most of the countries, with the cooperation of the Organization, have established units of veterinary public health services to handle these control activities. Reports of cases of the most important zoonoses are now regularly included in health statistics, but such data are still very incomplete. Systematic information is needed if the economic losses caused by the various zoonoses are to be determined, and variations in the incidence of these diseases should be recorded for the purpose of facilitating the planning of prevention, control, and eradication programs.

One of the zoonoses that are a serious problem in the Hemisphere is rabies. It is a constant threat to populations and is a major concern of the medical and veterinary public health authorities. Most of the countries report this disease in both animals and man (Table 12). In 1964 there was an increase in the number of cases of rabies. The control activities currently underway were rather palliatives and only a few countries had a national program that was effectively coping with the disease. However, with the cooperation of the Organization, it was possible to achieve positive results in the rabies control programs conducted along the border between the United States of America and México, as well as in the Central American regional program, and the Pan American Zoonoses Center supplied several countries with the necessary strains and biological standards for the study and improvement of rabies vaccine control and production.

I. HEALTH PROTECTION: DISEASES

In the area along the border between México and the United States the Organization collaborated through the adviser on veterinary public health assigned to the El Paso Field Office. The El Paso Field Office continued to be the center for the collection and dissemination of data on the epidemiology and control of rabies in the area. Up to November 1964 the following cases of rabies had been notified from the border States of Arizona, California, New Mexico, and Texas in the United States and the States of Baja California, Chihuahua, Sonora, and Tamaulipas in México: 1 human case of rabies; 275 cases in dogs; 14 in cats; and 31 in wild animals, including foxes, bats, coyotes, and racoons. The Organization therefore continued to stimulate and assist in the conduct of programs for the control of rabies in predatory animals along the border area. These programs covered an area of 750,900 square miles of the Mexican States of Baja California, Chihuahua, and Sonora, and similar programs were conducted in the neighboring areas in the United States.

TABLE 12. REPORTED CASES OF RABIES
IN MAN AND IN ANIMALS, 1964

Country or other political unit	Number of cases	
	In man	In animals
Argentina.....	19	...
Brazil		
State of Paraíba.....	4 ^a	...
State of Pernambuco.....	3	...
Macció.....	1 ^a	...
Natal.....	1 ^a	...
São Paulo.....	9 ^a	...
British Honduras.....	— ^a	1 ^a
Canada.....	1	1,158
Chile.....	4	218
Colombia.....	157	...
Dominican Republic.....	6	34
Ecuador.....	18	68
El Salvador.....	5	72
Guatemala.....	4	282
Honduras.....	8	41
México.....	45	...
Nicaragua.....	2	13
Perú.....	17	...
Paraguay.....	—	37
United States of America.....	1	4,597
Puerto Rico.....	—	30
Uruguay.....	1 ^a	2 ^a
Venezuela.....	17	492

— None.
... No data available.
^a Incomplete data.

Several special and binational meetings were held during the year in the Border States, one in March, in Monterrey and Ciudad Juárez, México; and another in June, in Mexicali, United States. The purpose of these meetings was to coordinate the activities of the rabies control programs underway in the border area.

A Regional Rabies Meeting took place in Yuma, Arizona, in October. It was attended by health authorities from the Border States and from the federal public health services of México and the United States and by PAHO/WHO staff. A review was made of the situation in the States of California and Baja California, where serious outbreaks of canine rabies had occurred, and immediate remedial steps were taken.

A short-term consultant was assigned to the Oswaldo Cruz Institute in Rio de Janeiro and to the Butantan Institute in São Paulo, Brazil, to demonstrate how to prepare a new rabies vaccine for human and animal use, developed by the Institute of Bacteriology of Chile.

The Organization assisted the Governments of Costa Rica, the Dominican Republic, Guatemala, Honduras, México, and Perú to acquire vaccines and poisons for their rabies control programs.

In view of the results of the study on rabies vaccine for human use conducted at the Pan American Zoonoses Center in 1963, technical assistance to the countries was expanded, in particular advisory services and the supply of materials for diagnostic tests and for the production and control of rabies vaccine. At the request of the Government of México the Institute of Veterinary Research was provided with laboratory animals, seed virus, and standard vaccine for its rabies vaccine production and control.

In October Uruguay had an outbreak of rabies in animals and 1 human case, the first in the country in almost 16 years. The Organization immediately furnished technical advisory services, through the Pan American Zoonoses Center, and the immediate steps taken by the Ministry of Public Health brought the situation under control.

As to brucellosis, recent surveys in Latin America indicate that in some places the nonstandardized antigens in use show great variations in the incidence of the disease. In an effort to overcome this failing, the Pan American Zoonoses Center provides the countries with advisory services, serves as a reference laboratory, and supplies the antigens and strains necessary for vaccine production and control.

Brucellosis is a serious public health problem for two reasons. One is that the disease produces cases in human beings (Table 13). The number of cases notified in 1964 must be only a fraction of the total that occurred, because

TABLE 13. REPORTED CASES OF BRUCELLOSIS
IN THE AMERICAS, 1964 ^a

Country	Number of cases
Argentina.....	525
Canada.....	54
Colombia.....	37
Cuba.....	52
El Salvador.....	3
Honduras.....	12
Panamá.....	3
Perú.....	814
United States of America.....	401
Uruguay.....	4

^a Only countries that submit weekly reports on this disease.

^b Incomplete data.

the estimate for the Hemisphere is of over 250,000 per year. The other reason is that the disease causes serious economic losses—decreased production of milk and meat—which adversely affect the economy of the countries.

Except for the eradication program conducted in the United States of America, no major progress was noted in brucellosis control in the Hemisphere. Financial reasons obstruct the elimination of infected animals, which remain a constant source of infection for man and to certain species of smaller animals. Some countries, for example, El Salvador, Guatemala, and Panamá, have introduced the ring test into their programs as a diagnostic procedure. These tests are applied in the large urban centers in order to control infection in the public supply of milk. Brazil (Rio Grande do Sul), Costa Rica, Panamá, and Venezuela, continued their programs for the vaccination of calves and the gradual elimination of positive reactors.

Recent studies on bovine tuberculosis in certain selected areas in Latin America showed infection rates in dairy farms exceeding 40 percent. However, our knowledge of the true status of this zoonosis in both man and animals is very incomplete. In Argentina, Brazil, and México, where typification studies of bacilli isolated from human cases were conducted, it was found that up to 6 percent of these were attributable to infections of bovine origin. Except in Canada and the United States, where bovine tuberculosis is on the point of being eradicated, little has been achieved in the Hemisphere.

Bovine tuberculosis eradication programs are costly because, like those regarding brucellosis, they call for the identification and elimination of the infected animals. In recent years, nevertheless, Panamá and Venezuela have

made praiseworthy efforts in the organization and conduct of control programs.

A summary of the reported cases of other zoonoses is given in Table 14.

Pan American Zoonoses Center

The Pan American Zoonoses Center, in Azul, Buenos Aires Province, Argentina, expanded its research activities, continued to assist the countries to establish and improve their zoonoses services and control programs, and conducted training programs for technical personnel. The Center also provided biologicals and technical information to most of the countries.

Research

Some of the research carried out at the Center during the year is summarized below. Preferential attention was given to the epidemiology of the most important zoonoses in the Americas.

Brucellosis. Research was begun on a bacterin manufactured in Holland with *Brucella abortus* nonagglutinogenic strain 45/20 (McEwan). The use of this bacterin may be of interest in brucellosis control, especially for the immunization of adult and reproductive animals in which *Br. abortus* strain 19 vaccine is undesirable because it gives rise to prolonged seroagglutination reactions. Up to the end of the year the results of this study indicated that the vaccine produced no significant seroagglutination titers, but that more detailed tests were needed to determine its efficacy.

With a view to making a quantitative evaluation of the quality and sensitivity of brucella antigens according to the culture media used in their preparation, a study was made of an antigen prepared from rough colonies of *Br. abortus* 1119, of which different proportions were added to normal antigens. The results showed that an addition of up to 15 percent of the rough forms had little or no effect on sensitivity. A larger proportion of the rough forms caused nonspecific sensitivity and area phenomena.

Because typing of the *Brucella* species has transcendental epidemiological significance, the Center began making studies using phage typing techniques. Trials made with these techniques confirmed a previous observation, namely, that various biotypes of *Br. abortus* occur in

TABLE 14. REPORTED CASES OF ANTHRAX, HYDATIDOSIS, LEPTOSPIROSIS, TRICHINOSIS, TRYPANOSOMIASIS, AND TULAREMIA IN THE AMERICAS, 1964^a

Country or other political unit	Anthrax	Hydatidosis	Leptospirosis	Trichinosis	Trypanosomiasis	Tularemia
Argentina.....	67	256	...	15	1,169	...
Barbados.....	...	...	8	...	...	...
Brazil						
Maceió (City).....	...	...	...	...	5	...
São Paulo (City).....	...	...	26 ^b	...	7 ^b	...
Canada.....	...	...	...	22	...	5
Chile.....	216	...	...	...	...	...
Colombia.....	37	...	...	...	...	...
El Salvador.....	114	...	...	...	60	...
Haiti.....	51	...	...	...	...	...
Honduras.....	1	...	...	...	7	...
Jamaica.....	...	...	23	...	...	...
Panamá.....	4	...	...	...	21	...
Perú.....	...	218	...	...	...	...
United States of America.....	5	...	125	...	...	345
Puerto Rico.....	...	...	5	...	...	...
Uruguay.....	40 ^b	222 ^b	...	...	1 ^b	...

... No data available.

^a Includes only countries and territories submitting weekly reports on these diseases.

^b Incomplete data.

Argentina. This was further confirmed in *Br. abortus* strains (isolated from milk and animals) which, when subjected to the usual serological identification tests, behaved as if they were strains of *Br. melitensis*. The phenomenon was likewise observed in strains isolated from human patients in Córdoba, Argentina. These studies are now being extended to include strains from other countries in Latin America.

Studies of brucellosis in wild animals were continued and indicated that in Argentina the fox is an important species in the epidemiology of the disease, owing to both the density of the fox population and its susceptibility to brucellosis. Agglutination tests made on sera from 728 grey foxes (*Dusicyon gymnocercus antiquus* and *Dusicyon griseus griseus*) captured in the Provinces of Buenos Aires and Río Negro showed agglutination titers in 23.8 percent and significant titers (1:100 and above) in 11.3 percent of the specimens. Bacteriological tests made on both individual and pooled viscera samples of these foxes yielded 5 strains from the pooled and 3 strains from the individual samples. The cultures were identified as *Br. abortus*.

Anthrax. Efforts were continued to devise a simple procedure for evaluating the potency of (Sterne) avirulent anthrax vaccine in guinea pigs, using high-sporulation strains and modifying the culture media. The tests made during the year showed that there is no variation in immunogenic potency, but further studies with minimum

lethal higher challenge doses will be required before definitive conclusions can be reached.

An ecological study of anthrax in enzootic areas of Argentina was begun in cooperation with the Communicable Disease Center of the United States Public Health Service. The first part of this study dealt with the dissemination and survival of *Bacillus anthracis* in the soil. The identification of isolated field strains and of *B. anthracis* vaccine strains with gamma phage or other phages also formed part of this study.

Hydatidosis. Studies on methods of treating canine echinococcosis were continued, concentrating on establishing the dosage, action, and side effects of the naphthalene compound No. 62-415. This drug has shown high efficacy in preliminary tests. The chief purpose of the studies underway was to establish the minimum effective dose for complete elimination of *Echinococcus granulosus* infection in dogs. A statistical analysis of the tests performed showed that doses of 200 and 250 mg/kg of body weight produced complete elimination of the infection, but they also produced toxic effects to the point of causing death. At year's end a new trial with a dose of 150 mg/kg of body weight was underway to determine the minimum effective dose more precisely.

The studies on echinococcosis in foxes were in the final stage. Data on the prevalence of the infection showed that the fox is an important factor in disseminating the

disease in Argentina. A morphological study of the parasite isolated from foxes was also underway, and sheep and swine were being experimentally infected in order to obtain a clear identification of the *Echinococcus* specimen obtained from naturally infected foxes.

Leishmaniasis. The epidemiological studies on leishmaniasis in Paraguay were continued, stressing the investigation of reservoirs, vectors, and human infection. Field activities were conducted in Caaguazú and nearby areas. At year's end, laboratory studies on specimens obtained from captured animals were underway. The identification and classification of vectors was nearing completion and data obtained on the human infection was undergoing tabulation.

Leptospirosis. The epizootiological studies of this disease were continued through bacteriological tests of kidney specimens taken from more than 2,000 cattle processed at the slaughter-freezer plant at Azul. Three strains of leptospirae were isolated and tentatively classified as *Leptospira pomona*. This finding is of great interest in the epidemiology of the disease because the serotype found in prior studies made in other areas of the country was *L. hebdomadis*, which is the serotype most highly prevalent in the bovine cattle of Argentina. For the purpose of verifying the extent of this preliminary finding, these studies were extended to other areas in the country.

Rabies. Work was begun during the year on growing rabies virus in tissue culture. This modern technique supplemented the diagnostic facilities of the rabies laboratory of the Center. The fluorescent antibody and Mann stain diagnostic techniques were also adopted.

A study was begun on the transmission of rabies and on the elimination of rabies virus in experimentally inoculated animals. In addition, different methods of preparing rabies vaccine in nerve tissue were tested, special emphasis being placed on the inactivation of the rabies virus by chemical agents and variations in temperature.

Bovine tuberculosis. A short-term consultant assigned to the Center helped to initiate the preparation and standardization of tuberculin for use in bovine cattle. A study of the sensitivity and standardization of this allergen is of the utmost importance, since the tuberculin test is the only reliable diagnostic test for control and eradication programs.

Technical Services

To the extent of its possibilities the Center continued to provide the countries with advisory services on planning, conducting, and evaluating zoonoses programs.

Advisory services on brucellosis and bovine tuberculosis control programs were furnished to Argentina, Costa Rica, Ecuador, El Salvador, Guatemala, and Panamá; these countries were also provided with biologicals.

A short-term consultant provided technical advisory services on tuberculosis to several institutions in Argentina devoted to the study and control of this disease.

Direct assistance was given to rabies laboratories and institutes in the cities of Buenos Aires and La Plata, in Argentina, and in Montevideo, Uruguay. In the latter country, the director of the Center and the adviser on rabies cooperated with the Government in organizing a rabies control program at the beginning of the outbreak that occurred in October. Advisory services on the establishment of diagnostic services at Uruguay's Institute of Hygiene were also provided.

Institutions and universities of several countries were provided with laboratory animals of different races, types, and strains for purposes of establishing or reinforcing their colonies of laboratory animals.

Among other biological products, 18 lots of brucellosis strain 19 vaccine from Argentina and Ecuador were tested, and potency tests were made on 12 lots of rabies vaccine sent by Argentina, Bolivia, Brazil, and Perú. Table 15 shows the total number of samples and biological products received for testing at the Center's laboratories.

The Center produced the following biologicals: 642 ml of specific sera; 5,811 ml of vaccines; and 9,775 ml of antigens. Biological products sent to the countries of the Americas and of Europe included: 194 samples of cul-

TABLE 15. SAMPLES AND BIOLOGICAL PRODUCTS PROCESSED AT THE PAN AMERICAN ZOONOSES CENTER LABORATORIES, 1964

Material	Number of specimens received according to origin		Total
	From external sources	From Center's research activities	
For diagnosis:			
Whole animals	1	1,112	1,113
Other specimens	59,523 ^a	11,757	71,280
Biological products for testing	46	—	46
Zoological specimens	—	44	44

—None.

^a 59,417 specimens were blood samples sent by the Brucellosis Control Pilot Program of Argentina.

tures and of bacteriological strains; 7,306 ml of various antigens; 251 ml of specific sera; and 389 samples of vaccines and other biologicals.

Training

In 1964 three postgraduate students—from Bolivia, Ecuador, and Uruguay—were added to the 20 who in previous years completed the minimum 12-month training in special studies on one or more aspects of the zoonoses. In addition, 1 technician from Argentina and 1 from Uruguay received short-term training at the Center in the laboratory aspects of brucellosis and the breeding and handling of laboratory animals, respectively.

Scientific Publications

Nine research papers were published on biology, brucellosis, epidemiology, hydatidosis, leptospirosis, mycology, tuberculosis and veterinary public health. The quarterly information bulletin *Zoonoses* continued to be published and widely distributed to interested institutions and professional personnel in various countries.

Pan American Foot-and-Mouth Disease Center

The program of the Pan American Foot-and-Mouth Disease Center continued to consist of four major activities, namely, diagnosis, research, training, and the provision of technical advisory services to Governments that request them. Awareness of the justification and necessity of action against foot-and-mouth disease continued to increase at national and international levels. The South American Conference on Foot-and-Mouth Disease held in Rio de Janeiro, Brazil, in June, was the culmination of several years of preparatory effort and provided the basis for further planning in quest of greater financial support for Ministries of Agriculture to carry out national campaigns and for their eventual integration into multi-national programs.

Simultaneous with these noteworthy developments significant progress was being made in research and much of the new information obtained was being disseminated by means of the training program and by distributing technical literature prepared at the Center.

In connection with the evaluation of projects of the Organization of American States, a Committee made in 1964 an evaluation of the program and activities of the Center. The findings of this Committee, which were presented to the Third Annual Meetings of the Inter-American Economic and Social Council, held in Lima, Perú, in December, confirmed the excellence and value of the Center's work.

Argentina, Ecuador, and Venezuela continued their national campaigns against foot-and-mouth disease; Chile, Paraguay, and Perú made decisions on the orientation they wish to follow and planned trial programs; and Bolivia, Brazil, Colombia and Uruguay concluded the preparatory phase of their national campaigns.

Diagnostic and Reference Services

The Center typed 564 virus samples received from countries (Table 16) and 4,312 samples collected as part of its own research project.

The Center identified 4 virus strains as being distinct subtypes of type A. The World Reference Laboratory for Foot-and-Mouth Disease, at Pirbright, England, accepted the Center's findings—the strains previously known as A Belém, A Guarulhos, A Zulia and A Suipacha are now respectively identified as A₁₆ Brazil, A₁₇ Brazil, A₁₈ Venezuela and A₁₉ Argentina.

Research Program

The research program of the Center continued to be devoted, primarily, to the search for improving the means for protecting susceptible animals against foot-and-mouth disease. This subject covers a broad field as attention must be given to many ancillary points such as the use of techniques of cell culture for the production of virus, the development of practicable tests for determination of the potency of vaccines, the determination of antibody levels in vaccinated cattle, and the survival of virus in cattle exposed to infection.

Inactivated virus vaccines. The bulk of the inactivated foot-and-mouth disease vaccine that is now produced is prepared from virus grown by the Frenkel technique of culture in which portions of normal cattle tongue epithelium are suspended in suitable medium. This technique gives excellent results when an adequate supply of tongue tissue is available. As this, however, is not always the case, investigation has proceeded in

TABLE 16. DIAGNOSIS AND TYPE IDENTIFICATION OF 564 VIRUS SAMPLES EXAMINED AT THE PAN AMERICAN FOOT-AND-MOUTH DISEASE CENTER, 1964

Country or other political unit	Number received	Type identification					Negative	Under study
		Foot-and-mouth disease			Vesicular stomatitis			
		O	A	C	New Jersey	Indiana		
Argentina.....	281	74	160	10	—	8	29	—
Brazil.....	160	57	34	38	—	—	23	8 ^a
Colombia.....	48	13	20	—	7	6	2	—
Costa Rica.....	1	—	—	—	1	—	—	—
Ecuador.....	10	—	7	—	—	3	—	—
El Salvador.....	4	—	—	—	2	—	2	—
Guadeloupe ^b	1	1	—	—	—	—	—	—
Nicaragua.....	5	—	—	—	2	2	1	—
Panamá.....	14	—	—	—	1	4	9	—
Paraguay.....	1	1	—	—	—	—	—	—
Perú.....	19	8	7	3	—	—	1	—
Uruguay.....	19	5	10	4	—	—	—	—
Venezuela.....	1	1	—	—	—	—	—	—
Total.....	564	160	238	55	13	23	67	8

^a Samples collected in August, during an outbreak of vesicular disease in horses, mules, and cattle in the State of Alagoas, Brazil. Findings at the end of the year showed that the virus had some relationship to Indiana-type vesicular stomatitis, but definite identification had not been made.

^b Sample received from France from a November outbreak of foot-and-mouth disease in Guadeloupe.

several institutes, including the Center, on the use of systems of cell culture, for example, primary cultures of cattle or pig kidney cells.

Since 1962 increasing attention has been given to the use of an established cell line, BHK 21, developed in the Virology Department of Glasgow University from baby hamster kidney. The Center has been working with these cells since late 1962, and one of its research projects has been the use of these cells for the production of virus for preparation of vaccines. The results obtained with regard to virus titer have been more consistent than with, for example, primary cultures of cattle or pig kidney cells.

In 1964 a series of experiments testing monovalent vaccines prepared from BHK 21 culture virus were concluded. The amount of virus required to be incorporated in the vaccine compares favorably with that using the Frenkel technique or cattle or pig kidney cell cultures. The testing of these vaccines was also done in young adult mice and in fowls as part of the program to find a reliable and practicable test of vaccine potency that would not require the use of cattle. The possibility of using mice has already been demonstrated. This newer work using fowls may have a practicable application for the testing of vaccines containing adjuvants, such as saponin, that are too irritant for use in mice.

Other studies with inactivated virus vaccines included the use of betapropiolactone and ultraviolet irradiation for virus inactivation and mineral oils as adjuvants.

Modified live virus vaccines. The use of cultures of BHK 21 cells has also been studied for the production of modified strains of virus for use of vaccines, with satisfactory results.

With the necessity of adapting virus strains to rabbits, mice, or chick embryos—with the subsequent passaging in these hosts in order to obtain a suitable degree of modification by the loss of pathogenicity for cattle—the tendency has been for most vaccination experiments to be performed with monovalent vaccines. With, however, the satisfactory modification of virus O, A, and C—the 3 types found in South America—it has been possible to progress into the use of polyvalent vaccines. In the field trials of modified live virus vaccine being conducted by the Center in Brazil an increasing use was being made of bivalent vaccines.

In the past, research work on vaccination in foot-and-mouth disease seldom extended into controlled studies of the duration of the immunity conferred by vaccines because of the cost and inconvenience of keeping adequate numbers of vaccinated cattle within conditions of strict isolation for long periods. In 1964, however, a program

was started in which the immunity of vaccinated cattle is challenged. The vaccine used was monovalent type A Cruzeiro and the first tests at 1 month and at 4 months were completed, using groups of 10 vaccinated cattle and 4 controls in each case. After 1 month, all 10 vaccinated cattle were protected; and after 4 months, 6 were protected, 2 were partially protected, and 2 were not protected.

The use of a live vaccine in cattle, other than in the experimental stage, demands the acquiring of knowledge about the persistence of vaccinating virus in the animal and of virus survival in products of animal origin. In 1964 the subject was being studied from two aspects; namely, by attempting to recover virus from the blood and saliva of cattle following vaccination, and by studying the thermal inactivation of modified strains of virus in comparison with natural virus. In vaccinated cattle, the recovery of virus was by no means regular and positive results were confined to the period of 1 to 8 days after vaccination.

As to the survival of the vaccinating virus in products of animal origin the Government of the United States of America provided to the Center, for a period of 3 years, a specialist in food technology. This specialist engaged in a study of the survival of the virus of foot-and-mouth disease under various chemical and physical conditions, with special reference to the survival of the virus in products of animal origin. The work was being carried out using natural and modified strains of virus. At the end of 1964 the stage of the investigation was the determination of basic data on thermal inactivation using purified virus suspensions at various temperatures and hydrogen-ion concentrations.

In addition to the continuing work with modified live virus vaccine in Brazil and in Venezuela, experiments had been started in 1963 in Chile, Ecuador, and Colombia. In early 1964, following the successful completion of the preliminary stages of this field work, 5,500 cattle in Chile and 3,162 in Ecuador were vaccinated with monovalent modified live virus vaccine of type A supplied by the Center. Seed virus had already been sent to Ecuador and vaccine preparation was underway at the Animal Health Center in Guayaquil. The Ecuadorian Center's first production was applied at the same time as vaccine received from the Pan American Center. Seed virus was also later supplied to Chile.

In Colombia the program consisted of initial experiments with a type O modified strain and of revaccinating with type A vaccine approximately 5,000 cattle included in the first trial one year earlier.

Determination of antibody levels. In the routine work

of the Center some thousands of samples of cattle serum are examined yearly in connection with trials of vaccines both in the laboratory and in the field. With the extension to a number of countries of the use of modified live virus vaccine under the supervision of the Center, large numbers of serum samples used to have to be kept refrigerated and shipped by air to Rio de Janeiro.

From the application of a new technique investigated at the Center it was verified that it is possible to collect blood from the animal in the field straight onto a strip of blotting paper, and to store and ship without refrigeration the specimens thus collected. This technique was put into practice in Bolivia, Brazil, Colombia, and Ecuador; the subsequent test of the samples collected in the countries is done at the Center by eluting the dried blood from the paper in a suitable medium and using the resulting eluate in a serum neutralization test in BHK 21 cell cultures or in a serum protection test in unweaned mice.

Cell culture and its applications in virology. Reference has already been made to the use of BHK 21 cells which have proved to be so useful in foot-and-mouth disease research. Since receiving a sample of the cells in 1962, the Center has acted as a distribution center for this cell line in South America.

During the past years, work has been in progress at the Center to establish other lines of cells of various origins that maintain a susceptibility to the virus of foot-and-mouth disease. One such line of diploid cells was established in 1964 from cultures of calf kidney cells with retained susceptibility to foot-and-mouth disease and vesicular stomatitis viruses.

Epizootiological studies. Although in many areas of South America the spread of foot-and-mouth disease obviously occurs either by means of the movement of infected animals or by movements of persons or vehicles associated with infected animals, with greater control of the disease, however, the origin of the smaller number of outbreaks is not always so obvious, and it is important that the disease control authorities be in possession of the essential information about the epizootiology of the disease so that appropriate action may be taken to avoid preventable dissemination of infection.

In 1959 the results of work in the Netherlands demonstrated that foot-and-mouth disease virus could be recovered from vaccinated cattle some months after they had been exposed to infection even without having reacted at that time. The investigation of this possible survival of virus was started at the Center during 1964 and preliminary results would appear to be in confirmation of the Dutch findings.

The Argentina-United States of America joint research

program, begun in 1962, was continued. During 1964 the Center examined 8,142 sheep and 1,491 cattle specimens in the screening test from Tierra del Fuego; 619 sheep specimens from New Zealand, a country recognized as never having been affected with foot-and-mouth disease, were included as controls. An additional 828 samples were submitted to further examination in mice. The results of the examinations provided no evidence of the presence of foot-and-mouth disease in Tierra del Fuego, confirming the fact that during the epizootiological survey conducted there in 1963 no evidence was encountered of any suspicion of the presence of the disease.

Technical and Field Services

Economic importance of foot-and-mouth disease.

The Inter-American Economic and Social Council, at its level. Represented by technical delegations were Argentina (November 1963), passed a resolution calling attention to the economic importance and consequences of foot-and-mouth disease to the Americas and called upon the Pan American Sanitary Bureau to convene through the Pan American Foot-and-Mouth Disease Center a meeting of the authorities in control of animal diseases from countries affected by foot-and-mouth disease.

The South American Conference on Foot-and-Mouth Disease was held in Rio de Janeiro, Brazil, from 22 to 27 June 1964, at the technical level and at the Ministerial level. Represented by technical delegations were Argentina, Bolivia, Brazil, British Guiana, Chile, Colombia, Ecuador, Paraguay, Perú, Uruguay, and Venezuela. Also present were observers of AID, FAO, OAS, OIE, PAHO/WHO, the Department of Technical Cooperation of the British Government, and several Brazilian institutions. Objectives of the Conference were to study and discuss plans of effective national campaigns, their integration into regional campaigns, their cost, and the extent to which this could be supported by national sources.

During the Conference at the technical level each delegation presented, with the exception of British Guiana (free of the disease since the end of 1961), a report about the current situation with respect to foot-and-mouth disease and plans for an effective campaign on a national scale capable of being integrated into a regional campaign in collaboration with the neighboring countries of each epizootiological area of the disease in South America.

After the presentation of reports by each delegation, meetings of representatives of neighboring Brazil-Paraguay-Uruguay-Argentina-Chile, Colombia-Ecuador, Brazil-Bolivia-Perú, and Brazil-Venezuela-British Guiana

were held. Each group analyzed the situation in each frontier region and discussed special measures that would prevent the spread of foot-and-mouth disease from one country to another.

The last two days of the Conference were devoted to meetings at Ministerial level with representatives of the Ministries of Agriculture of Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Perú, Uruguay, and Venezuela. At this meeting, the reports of the work accomplished at the technical level were presented and were approved. A report on the results of the Conference was then presented at the Third Annual Meetings of the Inter-American Economic and Social Council, in Lima, Perú, 5-11 December 1964. At this meeting, the Pan American Sanitary Bureau and the Center received further endorsement of their assistance to the countries.

Since the South American Conference, two important measures were accomplished with regard to multinational programs by which the actions of one country could be of fundamental importance to its neighbors. An agreement was signed between Ecuador, Colombia, and the Pan American Health Organization for a program in the Department of Nariño, Colombia, to prevent the spread of foot-and-mouth disease from Colombia into Ecuador. Another agreement was signed between Panamá, OIRSA, (International Regional Organization for Health in Agriculture and Livestock) and the Pan American Health Organization, for the transfer of an adviser, from the Pan American Foot-and-Mouth Disease Center to Panamá, to enable the Center to contribute more effectively with regard to an agreement signed earlier in 1964 between Colombia, OIRSA, and the Pan American Health Organization for a special program in Colombia's Department of Chocó, with the object of removing, so far as possible, the danger of the propagation of foot-and-mouth disease from the affected to the free countries. The adviser took up duty station in Panamá in December.

Control of the production of vaccine. In reports of previous years reference has been made to the part played by the Center in connection with the establishment of the present program in Argentina for the control of the quality of foot-and-mouth disease vaccines. This assistance of the Center was supplemented in early 1964 by the services of a French expert on vaccine control, contracted by the Argentine Government and working in close collaboration with the Center.

The Government of Uruguay also requested the Center's assistance in obtaining the services of the expert to establish a similar program in that country. The expert began the work in Uruguay in June.

Evaluation of the campaigns. The increasing in-

vestments by some countries in their campaigns against foot-and-mouth disease and the investment being planned by others, including the possibility of obtaining assistance from international credit agencies, makes campaign evaluations imperative to ensure that the investments are applied to the best advantage.

The Center discussed evaluation with the Argentine officials responsible for the growing campaign in the country, where not less than 40 million cattle are being vaccinated 3 times a year. Accordingly, in early 1964 the Center contracted the services of a veterinarian experienced in the design of surveys and the application of statistical methods. The consultant, accompanied by a regular member of the Center's staff, spent 2 months in Argentina advising on the planning and execution of surveys and on the collection and analysis of data. Because this type of evaluation was being considered for other countries, the Center made plans to hold a training course on the subject in 1965.

Middle America. México, the countries of Central America, and Panamá, being free of foot-and-mouth disease, the Center's activity in the area was limited in comparison with work in South America, the affected area. Nevertheless, close contact was maintained with the national authorities responsible for the control of animal diseases, especially in the area where OIRSA functions.

In the remainder of the area free of foot-and-mouth disease, the most noteworthy event was an isolated outbreak of the disease on the island of Guadeloupe in November. In accordance with the Center's Plan of Action in the case of an outbreak in a country free of the disease, an immediate offer of assistance was made and the other free countries were informed. The source of the infection was not determined. The virus responsible was of type O but the results of the examination at the Center did not reveal sufficiently unique characteristics to identify its origin.

The presence in México, Central América and Panamá, as well as in Southern United States, of vesicular stomatitis—a disease clinically indistinguishable from foot-and-mouth disease—poses a problem in differential diagnosis. In 1964 the Center provided diagnostic services for Costa Rica, El Salvador, Nicaragua, and Panamá—each case, fortunately, being negative for foot-and-mouth disease. In view of the awareness that more attention should be given to the epizootiology of vesicular stomatitis and its prevention (in 1964 vesicular stomatitis, Indiana type, was identified for the first time in Argentina and Bolivia), the Center participated in the session devoted to vesicular diseases during the First Veterinary Congress of Central America and Panamá, held in Panamá City in August.

South America. The most important aspect of the Center's collaboration with Argentina during 1964 was probably in connection with the evaluation of the progress of the foot-and-mouth disease campaign, the designing and execution of a survey to verify the incidence of the disease in relation to the official statistics, and the planning of a field trial to study points related to storage, distribution, and application of vaccine. The scale on which the foot-and-mouth disease campaign was being conducted in Argentina far exceeded anything yet realized in the Americas or Europe. During 1964, for example, approximately 150 million doses of trivalent vaccine were produced, all of which has to comply with certain standards imposed by the official laboratory of the campaign. In addition, however, potency tests were performed in cattle of samples that corresponded to over 60 million doses of the total production. The distribution of the vaccine is done by the commercial houses engaged in its production and sale, and the application is done by the farmer. There were, however, over 200 veterinarians employed in the field by the campaign, which markedly improved the extent to which professional supervision and intervention is possible.

The Institute of the Ministry of Agriculture in La Paz, Bolivia, made the first type identifications of foot-and-mouth disease virus and commenced preliminary work on the culture of virus for the preparation of vaccine. This development had the assistance of the Center's adviser stationed in Lima, Perú. To assist the veterinary services in acquiring more practical experience, the Center provided vaccine for a pilot control program in the area of Cochabamba. The Government and the Pan American Health Organization signed an agreement with reference to this program, and vaccination with the Center's inactivated virus vaccine was begun in November.

March saw the completion of a 2-year agreement between the Ministry of Agriculture of Brazil and the Pan American Health Organization for a pilot vaccine program at Itanhandú, State of Minas Gerais. In the meantime, the Center continued to provide the vaccine and the supervision required for this program in anticipation of a decision with regard to the continuation of the program. The National Research Council of Brazil approved a grant of Cr\$12 million a year to the Center for 2 years commencing 1 January 1965 as a contribution to the research program on the development of modified live virus vaccines. The Council also initiated consideration of whether the Center could receive recognition of having University status by the Rural University of the Ministry of Agriculture, thus enabling postgraduate students to work for higher degrees at the Center.

The Center provided advice and assistance to Colombia on the preparation of a plan of campaign for the area of the Department of Magdalena, which is favorably situated with regard to the possibilities of control of the disease. Also, the program initiated toward the end of 1963 on the introduction of the application of modified live virus vaccine was continued by the examination of samples of serum for antibody from the cattle vaccinated with the type A vaccine and by the first trials of a type O vaccine.

In Chile the Center continued the field application of type A modified live virus vaccine, first in a group of 287 cattle and later in 5,500. With the successful completion of these trials, seed virus for the preparation of the vaccine was supplied to the Chilean authorities. At the end of the year the Minister of Agriculture requested of the Center the services of a consultant for a period of 3 months to assist in the planning of disease control measures.

The year 1964 was very fruitful in Ecuador, with regard to the results of the training program of the Center, in that production of foot-and-mouth disease vaccine was commenced for the first time in the country; the seed virus, provided by the Center, was the modified strain of type A. Early in the year, in continuation of the program on the introduction of the application of modified live vaccine, 3,162 cattle were vaccinated with the Center's vaccine and, on the same occasion, 2,000 cattle were inoculated with the first batch of vaccine produced in Guayaquil. National production steadily increased, as did progressive application in the field. Another step forward was that virus diagnosis and identification was so well established that the Center's confirmatory testing of duplicate samples was discontinued.

The Center prepared a detailed plan for the construction and equipping of an institute in Asunción, Paraguay, for the production of foot-and-mouth disease vaccine, the control of production, virus diagnosis, and ancillary services. This plan was subsequently elaborated as a draft loan request and submitted for study to the Inter-American Development Bank.

The year under review was the first in Perú in which all the production of vaccine was solely by the Frenkel method of virus culture. The scale of production rose from about 200,000 doses in the first quarter, to about 500,000 in the second quarter, and to 950,000 in the third quarter. In the fourth quarter, difficulty in obtaining tongue tissue, due to a reduction in the number of cattle slaughtered, led to a drop in production to around 600,000 doses. At the Foot-and-Mouth Disease Institute, modifications were completed to permit the testing of the vaccine in cattle

in a small stable as a temporary measure until new premises are available.

In Uruguay, in collaboration with the Ministry of Agriculture, a revision was made of the relevant regulations for the control of vaccine production and for the compulsory vaccination campaign. The Center assisted the Ministry in obtaining the services of an expert on the control of vaccine production. A Center representative attended a meeting sponsored by Uruguay and attended by animal health authorities from Argentina, Brazil, Chile, Paraguay, and Uruguay, to discuss joint action with regard to the control of diseases of animals. High priority was given to foot-and-mouth disease and a Regional Technical Animal Health Commission was formed.

Venezuela produced only modified live virus vaccine, using an O type strain modified in Venezuela and an A type strain modified at the Center. The latter supplied the country with inactivated virus vaccine for swine.

Training

The Center's XIX Training Course was held at Center headquarters from 16 November to 11 December. This course, on "Modified live virus vaccines against foot-and-mouth disease," was attended by 14 students. Training on an individual basis was continued for 4 fellows who had received awards in 1963 and provided to 7 others (see AMRO-77, Chapter VIII).

Dissemination of Information

The Center continued to publish and distribute *Cuadernos del Centro Panamericano de Fiebre Aftosa*. Volume 2, Numbers 1 to 10, included 2,032 bibliographic references, 130 abstracts of scientific papers, and 3 publications of epizootiological information. *Cuadernos* was distributed to 439 addresses, the great majority in the Americas but, as the result of requests received, including addresses in 16 countries outside the Hemisphere.

Published or prepared for publication were 11 papers on techniques of virus sampling and modification, identification of subtypes, production of inactivated-virus and modified-virus vaccines, economic importance of foot-and-mouth disease, and control measures. The articles published appeared in journals of several countries of the Americas, including Canada and United States, and of Paris, France.

Financing and Staff

The main financial support for the Center continued to be provided by the Program of Technical Cooperation of the Organization of American States, but financial assistance was also received from AID for Center participation in a joint program of Argentina and the United States of America. This program was concluded during the year and resulted in a consequent small reduction in force. The combined staff as of 31 December was 17 professional and 107 auxiliary members, plus 25 laborers paid from the maintenance grant of the Brazilian Ministry of Agriculture.

PLAGUE

The high incidence of plague in the last few years in Bolivia, Brazil, Ecuador, and Perú is cause for concern for the health authorities in those countries. Yearly totals of cases beginning with 1960 were 258, 343, 527, and 423. The 654 cases of plague notified for 1964 to the Organization represented an increase of more than 50 per cent over the previous year (Table 17).

The 49 cases reported in 1964 in Bolivia occurred in the Department of Chuquisaca. In August, at the request of the Bolivian Ministry of Public Health, a team of experts from the U.S. Communicable Disease Center cooperated with the health authorities of that country in an epidemiological study of the outbreak.

Brazil's 285 reported cases were distributed in 4 States of the Northeast: Alagoas, Bahia, Ceará, and Pernambuco. The Government expressed interest in carrying out epidemiological studies aimed at establishing an adequate

plague control program in the enzootic and endemic areas of the country. Preliminary discussions on the subject were held during 1964 between the Organization and the Brazilian health authorities.

The serious spillover of sylvatic plague to domestic rats which began in 1960 in Ecuador in the Provinces of Chimborazo, El Oro, Guayas, Loja, and Manabí continued to cause concern in 1964. As in the previous 3 years the majority of the 1964 cases—108 out of the 195 reported—occurred in the Province of Manabí. At the request of the Government, a short-term consultant provided by the Organization visited the country and cooperated with the national health authorities in the preparation of a detailed plague control program.

In Perú, 88 of the 125 cases reported occurred in the Province of Huancabamba, in the Department of Piura, which borders on the Province of Loja, Ecuador, and is part of the focus which exists along the border of the two countries. The other 37 cases occurred in the Province of Bagua, in the Department of Amazonas, on banks of the Alto Marañón River.

Concerned with the increased incidence of plague in their countries, and because the disease is spreading toward the East, the Ministers of Health of Ecuador and Perú met in Quito in April and agreed to coordinate their programs for the control of the disease.

Three short-term consultants of the Organization visited Perú. Two of them visited the Huancabamba plague focus in the northern part of the country to prepare plans for epidemiological studies. The other consultant cooperated with the Peruvian health authorities in the preparation of a detailed control program.

Fleas from a sick rat collected in the Southwest slope of San Bruno Mountain, San Mateo County, California, were found infected with plague. The infected area was isolated and closed to international traffic, and control measures were instituted by local and State health authorities and the United States Public Health Service.

The incidence of human plague has declined in Venezuela in recent years, although the disease still exists in the wild rodent population of a limited area of the States of Aragua and Miranda. At the request of the Government, in late 1963 a consultant of the Organization began an epidemiological study in collaboration with the national health authorities; when the study was finished in 1964 it revealed that the rodent fauna had been greatly reduced, particularly as to *Sigmodon hispidus hirsutus*, the species previously most abundant. *Xenopsylla cheopis* had also disappeared. These two facts explain the decline of plague in the area.

TABLE 17. REPORTED HUMAN CASES OF PLAGUE IN 6 COUNTRIES OF THE AMERICAS, 1963 AND 1964

Country	1963	1964
Bolivia.....	53	49
Brazil.....	39	285
Ecuador.....	258	195
Perú.....	72	125
United States of America.....	1	a
Total.....	423	654

— None.

a. Rodent plague reported.

POLIOMYELITIS

Serological tests made in samples from various countries of the Hemisphere gave evidence of widespread poliomyelitis virus, even in places where there had been no awareness of the presence of the clinical form of the disease. Improved environmental sanitation and increasingly better living conditions, and therefore health habits, reduced the dissemination of enteric agents. That sector of the population which had experienced poliomyelitis infections in the first months of life escaped its contact, thus increasing the number of susceptible groups.

The 1964 outbreaks of poliomyelitis required the use of vaccine, in campaigns at first, and subsequently as one of the regular activities of the general immunization services. The Organization cooperated in these activities by providing the Governments with the services of advisers who assisted in the planning and execution of immunization programs, the conduct of surveys, and the acquisition of vaccines through either purchase on behalf of the Governments or donations by other countries.

In the Central American countries, immunization programs continued to be carried out through the local health services, which vaccinated 18,650 children in Costa Rica, 4,269 in Honduras, and 34,400 in Nicaragua.

An outbreak in which 51 paralytic cases and 2 deaths were reported occurred in the Bahamas in mid-March. A mass vaccination campaign with oral trivalent vaccine, which immunized 60,000 persons (71.4 percent of the population) in New Providence and 45,077 (93.7 percent) in the so-called Out Islands, was completed by 11 April.

The poliomyelitis outbreaks that occurred in the States of Guanabara and Rio de Janeiro in Brazil, despite regular vaccinations with attenuated live virus, were caused by type 2 virus. Virological studies made in cooperation with the Organization by the Oswaldo Cruz Institute in an isolated community showed a very poor serologic response to the application of 2 doses of trivalent vaccine. The same studies also indicated that the number of virus particles in the doses used was inferior to the recommended amount, and that the enterovirus rate in the population under study was high.

In an outbreak in Chile, in early February, the largest concentration of cases occurred in the Province of Santiago, with other localized outbreaks in the northern and southern parts of the country. After a peak of 228 cases, the outbreak decreased by the end of March. Virological studies showed that it was caused exclusively by type 1 virus. The reduction in number of cases was attributed to the vaccination of the population aged from

3 months to 3 years in a campaign carried out by the National Health Service, which in the Province of Santiago alone immunized 170,000 children.

A campaign was carried out in the urban areas of Ecuador, during which vaccine was administered to 165,000 children, aged 3 months to 6 years.

Intensive vaccination against poliomyelitis continued to be carried out in the United States of America. The number of paralytic cases reported was 91, which is less than one third the figure reported in the previous year. From 1960 to 1964 the figures for poliomyelitis have declined steadily, as follows:

<i>Reported cases</i>	1960	1961	1962	1963	1964
Paralytic forms	2,229	885	717	382	91
Total cases	3,190	1,312	910	449	121

An outbreak confined to St. Andrew parish, which includes the city of Kingston, occurred in Jamaica during the last months of 1964. This outbreak differed from those of previous years in that it was limited almost exclusively to the 1-4 age group. A check of the cases reported and of charts in Kingston hospitals revealed a total of 60 cases, of which 3 ended in death and only 4 came from the interior of the Island. However, the virus was probably present in the entire country, since during the epidemic 1 case was notified in St. Catherine parish and 1 in Portland parish, and 5 cases had occurred in St. James parish before the outbreak began. The fact that the outbreak did not acquire major proportions is attributed to a vaccination campaign carried out in the rural areas in the fall. Of all cases, 91 percent occurred in children under 5 years of age, and 71 percent in children under 2 years; 90 percent of the cases had not received a previous vaccination against the disease.

In Uruguay, where a vaccination campaign which covered 80 percent of the population aged from 3 months to 20 years was carried out in the last quarter of 1962, no paralytic case of the disease was reported from 1963 to January 1964. From that date on, a total of 10 cases was notified during the months of February, March, and April.

A national campaign was carried out in Venezuela during which 2 doses of trivalent vaccine were applied to each of approximately 1.5 million children aged from 2 months to 4 years.

INFLUENZA

As in previous years, the Organization assisted the countries of the Hemisphere by providing them with

information on influenza outbreaks throughout the world, reagents for early diagnosis of the disease, and, in certain instances, vaccines for control activities.

Influenza outbreaks caused by virus A2 occurred at the beginning of the year in 26 counties of the State of Washington, U.S.A. At first the disease was confined to small localities, but it later spread to neighboring communities in the States of Idaho and Oregon. Localized and scattered outbreaks also occurred in the State of California.

Influenza outbreaks occurred in Puerto Rico from August to the end of October, which at first were localized in San Juan, the capital, but later spread to the remainder of the Island. Virus A2 was isolated from clinical cases.

The Organization supplied 600,000 doses of vaccine made from the following strains: A/PR8; Ann Arbor 1/57; A2/Jap./303/57; A2/Jap./170/162; B/Maryland; and B/Great Lakes. The countries that made use of these vaccines were Bolivia, British Guiana, the Dominican Republic, Guatemala, Haiti, México, Paraguay, and Venezuela.

ARBOVIRUS INFECTIONS

The varied ecological conditions in the countries of the Americas offer many possibilities for the persistence and spread of arthropod-borne viruses. The number of infections caused by these agents increases as land-settlement programs are carried out and the construction of new roads expose man to contact with further ecological foci. These undertakings can be more successful if they are carried out in the wake of a careful investigation of the factors involved in the transmission cycle of arthropod-borne viruses and the adoption of effective control measures.

Encephalitis

During 1964 the Surveillance Unit of the Communicable Disease Center of the United States Public Health Service received reports of 1,016 human cases of encephalitis caused by arbovirus in various areas of the country. The most active was the St. Louis virus, which was responsible for 120 clinical cases and 8 deaths in 2 counties of the State of New Jersey; for 40 cases, 2 of which were fatal, in the State of Colorado; for 12 cases in Illi-

nois; for outbreaks of an encephalitis syndrome, serologically confirmed, in Kentucky; for 4 cases in Tennessee; and for 711 cases with 33 deaths in Harris County, Texas, where a very high infection rate occurred among septuagenarians (166.6 compared with 57.2 per 100,000, the overall average).

Eastern equine encephalitis virus caused infections in both human beings and horses in the State of Florida; the agent was isolated from mosquitoes captured in the areas in which the outbreaks occurred. Western equine encephalitis virus caused infections in man and horses in various areas of the States of Kansas and Texas. An outbreak of encephalitis occurred in the State of Indiana, during which a significant rise of hemoagglutination-inhibiting antibodies for California encephalitis virus was verified.

The epidemic of Venezuelan equine encephalitis that began in the State of Zulia, Venezuela, in March 1963, continued to spread to other localities in the country. In 1964 the human cases reported totalled 12,176. In view of the serious situation, the Government decided to initiate ecological studies to obtain more information about the various factors that enter into play in the genesis of this infection. To this end, a Committee for the Study of Venezuelan Equine Encephalitis was established in the Ministry of Public Health; the membership included representatives of the National Institute of Hygiene, the Venezuelan Scientific Research Institute, the Institute of Veterinary Research, and of other institutions interested in the problem. A consultant provided by the Organization assisted the Committee in the formulation of a general plan of action, including research and control activities.

Dengue

The dengue epidemic that began in several Caribbean Islands in 1963 spread to territories still infested with *Aedes aegypti*. An outbreak in the Anguilla, Nevis, and St. Kitts group produced 405 cases. In Antigua, where 300 cases were reported in the last 2 months of 1963, new cases of dengue continued to occur during 1964; there were 494 cases in all. In Curaçao, 8,000 cases were reported between December 1963 and June 1964. Between 8,000 and 10,000 cases were observed in Martinique between October 1963 and December 1964, but many of the cases were benign or had an atypical form of the disease. Serological tests made at the Pasteur Institute in Paris attributed this outbreak to a virus belonging to

arbovirus group B. In Dominica, 41 cases having a dengue-like syndrome were observed.

The dengue outbreaks that began in Jamaica in March 1963 continued during the first half of 1964; all together, 1,717 cases were reported.

In Puerto Rico the epidemic that began in August 1963 and produced 25,509 cases during that year continued to spread in 1964 to the extreme west of the Island; a total of 28,161 cases were reported.

In the continental territory of the United States of America 28 imported cases of dengue occurred in persons who had acquired the infection in the Caribbean Islands.

An outbreak of dengue that began in Venezuela in July 1964 produced 13,441 cases in the States of Anzoátegui (8,318); Bolívar (803); Miranda (207); Monagas (275); and Sucre (3,838).

Hemorrhagic Fever

Cases of hemorrhagic fever continued to occur in Argentina and Bolivia in considerable numbers.

In Argentina the infection known as "corn-stubble disease," or Argentine hemorrhagic fever, attacks chiefly agricultural workers. Although the disease was described as early as 1943, it did not arouse national interest until the 1959 epidemic when 300 cases were reported with a mortality rate of 20 percent. The number of cases notified in 1964 was 3,026. Improved diagnostic methods have shown that the virus exists in a much larger area than it was originally thought. It may well be that the infection is widespread among lower animals both in Argentina and Bolivia.

Two localities in the Department of Beni, in Bolivia, have been affected by Bolivian hemorrhagic fever since 1959. One is the village of Orobayaya, which was abandoned by its inhabitants, and the other, the community of San Joaquín, which has suffered several outbreaks. In 1964, 169 cases with 23 deaths (13.6 percent mortality) were notified in San Joaquín. Epidemiological studies conducted by the Middle America Research Unit of the United States Public Health Service in cooperation with the Organization revealed that the infection is widespread in lower animals (*Proechimys guayanensis* and *Callomys callosus*), from which it is probably transmitted to man. In order to verify this, a controlled study was begun on 1 May with the capture and extermination of peridomestic rodents and, although 152 cases had been admitted to the hospital during March and April, within 10 days after the control campaign was begun, the incidence in

the area under study fell sharply. Control activities in the remaining part of the area were begun on 2 July, and again there was a reduction in the number of cases of hemorrhagic fever. Although the possibility of other factors cannot be excluded, there may be a cause-and-effect relation, since in previous years the incidence increased during the same months and in 1964 there was a large susceptible population.

PARASITIC DISEASES

Chagas' Disease

The PAHO Advisory Committee on Medical Research, at its Second Meeting (1963), recommended the establishment of centers responsible for the production and control of antigens for laboratory diagnosis of Chagas' disease, as a means of advancing research and as a tool for surveys designed to evaluate the true extent and magnitude of this problem in the Hemisphere. In compliance with this train of thinking, in 1964 the Organization extended the agreement with the School of Medicine of the University of Chile for the provision of free-of-cost standard antigen for the American countries.

The report on the Inter-American Investigation of Mortality presented to the Third Meeting of the PAHO Advisory Committee on Medical Research (June 1964) indicated that the mortality ascribed to heart disease in Ribeirão Preto, São Paulo, Brazil, was excessively high in young adults. Toward the end of the year the Organization sent a team composed of a pathologist and a clinician specialized in cardiovascular diseases to investigate the status of Chagas' disease and cardiopathy in the Ribeirão Preto area and to make recommendations which might throw further light on this subject. The report of the consultants will be available in early 1965.

At the above-mentioned meeting a review was made of the work carried out by the Chagas' Chemotherapy Research Group which PAHO organized in 1963. Particular interest was expressed by the Advisory Committee in the findings that point, for the first time, to the possibility of curing the disease by prolonged, intensive chemotherapy. The Advisory Committee recommended that further research in this area should receive full support.

The Committee was also of the opinion that further studies of antigenic differences, and differences in virulence and drug resistance among various strains of *Trypanosoma cruzi*, as well as of other immunological aspects

I. HEALTH PROTECTION: ENVIRONMENTAL SANITATION

of the disease, should be pursued. It also recommended that the Chagas' Chemotherapy Research Group meet again, at the time of the International Congress of Parasitology scheduled for Santiago, Chile, in 1965.

Schistosomiasis

The Organization continued to collaborate with the Government of Brazil in the support of the International Center of Snail Identification for the Study of Schistosomiasis, established in 1963 and located at the National Malacology Research Center of the National Institute of Rural Endemias, in Belo Horizonte, Brazil.

The International Center is a depository of live and preserved snail vectors of schistosomiasis, some collected on the Center's own initiative and others received from recognized workers and institutions. The collection at the Center is one of the best for the neotropical planorbids. There is a good number of topotypic snail specimens and other material.

The Center also carries out research on taxonomy, variability, ecology, population dynamics, susceptibility to infection, snail physiology and genetics, and other studies on the snails concerned. The establishment of the Center builds up the facilities and services for studies

essential to a better understanding of the epidemiology of schistosomiasis and for the training of personnel who will carry out the task of studying and controlling the disease.

Although recently established, the Center has already carried out several studies on planorbids of the Americas. The presence of the planorbid snail *Australorbis tenagophilus* in Perú was recorded for the first time and its susceptibility to *Schistosoma mansoni* was demonstrated. Another species of planorbid found in Perú was still undergoing identification studies at the end of the year. The Center identified 4 species of snails collected in several areas of Surinam. Several species of planorbids were found in Guadeloupe, the presence of some of which had not been previously recorded.

The Center provided material for experiments carried out in the School of Public Health of Harvard University and in the Department of Biological Sciences of the University of Cincinnati, U.S.A.

The Organization provided a consultant to assist the Center in establishing its program. The consultant, in collaboration with the staff of the Center, carried out studies on the distribution and diagnostic characteristics of the neotropical planorbid snails that are actual or potential intermediate hosts of schistosomiasis and on determination of transmission patterns of the disease by snail immersion in cercariae-infested waters.

B. ENVIRONMENTAL SANITATION

Significant progress in environmental sanitation was achieved in the Region of the Americas during 1964. This was reflected not only in the advances made in specific programs, but also in the growing interest among the engineering profession, and the public works, health, and university authorities. The specific results of this trend may be seen in the sanitary works carried out in rural areas and small communities, and in the notable increase in teaching of sanitary engineering and continuing education, at the local level, of professionals working in this field.

As in previous years, preferential attention continued to be given to water supply programs in both urban and rural areas, to sewage and waste disposal programs, and to programs relating to industrial hygiene and safety.

Despite the fact that it was not possible to establish a special fund for health and rural welfare, considerable progress was achieved in the formulation and development of national water supply programs in rural areas.

There is now general awareness of the need for extending water supply programs to small and medium-size localities, which have not previously received any attention, and which contain over 50 percent of the total population of Latin America. Chile, Perú, and Venezuela already have active rural water supply programs, partially financed through the Inter-American Development Bank. The countries of Central America and Panamá have also formulated their national plans and submitted their loan requests to the IADB. Other countries, among them Argentina and Brazil, were getting ready to formulate their national plans and their requests for financial assistance. Hopefully all these programs will be begun in the course of 1965. The increased activity in the rural areas will call for more PAHO assistance to the countries, not only in planning and program formulation, but also in program execution; these are the most difficult phases.

As to urban water supply programs, in 1964 the national and municipal Governments in the countries paid

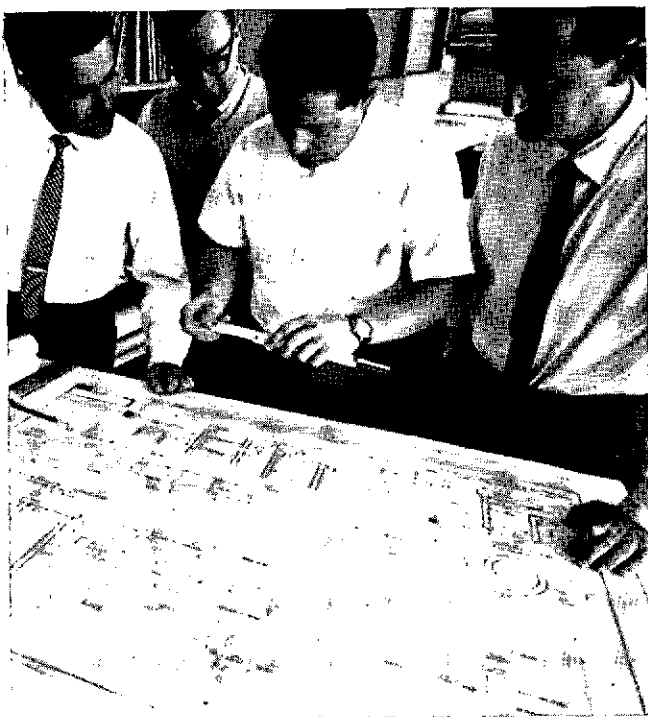
WATER SUPPLIES

The cooperation of the Organization with the Member Governments regarding water supplies covered, as in previous years, all aspects, that is, assistance in the design of waterworks, in obtaining financial assistance to construct the systems, in the organization and administration of the services, and in the training of personnel.

To provide assistance to the countries the Organization had, by the end of 1964, 13 full-time engineers specialized in potable water supplies assigned as follows: Caribbean Territories, Colombia (2), Costa Rica, Dominican Republic, El Salvador, México (2), Nicaragua, Perú, Venezuela, and Headquarters (2); in addition, 27 other engineers assigned to general activities in environmental sanitation dedicated about half of their time to water supply activities.

Short-term consultants also provided assistance: in Brazil, on the administration of water supply systems in the Northeast of the country and on accounting procedures of the water service for the city of São Paulo; in British Honduras, on a survey of the water supplies of Belize; in Chile, on a study to determine the most suitable way of drawing water from the Maipo River to supply the city of Santiago; in El Salvador, to the National Administration of Water Supply and Sewerage Services in planning a system of water rates; in Honduras, also in the planning of water rates, and in a sanitation and city-planning study for Puerto Cortés; in Jamaica, on a rural water supply program; in Perú, on the administrative and organizational aspects of the national program of rural water supply; in Trinidad, on legislation regarding water services; in Uruguay, on sewage disposal in Montevideo; in Venezuela, to the National Institute of Sanitary Works on a Management Report basic to obtaining financial assistance to expand the water supply systems of Caracas, based on the reorganization of the Metropolitan Zone as a separate administrative and operating organization accountable directly to the Institute, and on the introduction of an improved accounting system for the water supply services of Caracas; in Grenada, on the organization and administration of a central water authority; and in Antigua, on a survey of the Island's water supplies.

As the water supply programs in the countries move along, technical assistance becomes increasingly complex. Developed countries solved many of their water supply problems under economic and social conditions that were different from the ones presently prevailing in the developing countries, and frequently the available experience is not applicable; furthermore, many of the water supply

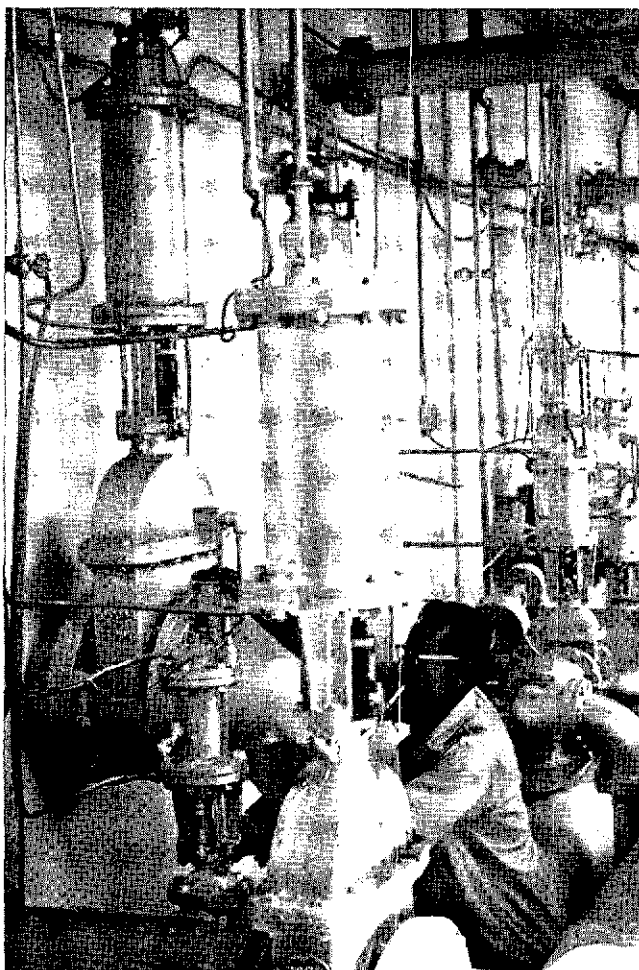


A PASB/WHO consultant discussing plans with local engineers at the National Water and Sewerage Service headquarters in San José, Costa Rica.

greater attention to the construction and expansion phases and the strengthening of competent agencies than they did to the submission of projects to international credit agencies. The Organization and the Inter-American Development Bank exchanged ideas on measures countries could take to prevent any interruption in the submission of new projects designed to meet real needs. It is expected that a greater number of projects will be submitted to the IADB and other credit agencies during 1965.

Continued attention was given to the organization and administration of water authorities and services, since delays in putting the programs into operation were considered in many instances to have arisen from deficiencies in those two aspects. Special consideration was also given to education and training in water supply design and administration, the development of local firms of engineering consultants, the local manufacture of materials and equipment, and the promotion of applied research in this field.

Education and training activities in sanitary engineering had ample development during the year; the details are to be found in Chapter III.



Filtration system at the water treatment plant in Chitré, Panamá.

problems in developing countries are unique. On occasions the knowledge available is not sufficient or not sufficiently specific to solve certain problems. It then becomes necessary to make new experiments in order to obtain special knowledge to meet particular needs. Technical assistance therefore should include, besides the advisory-type, an applied-research type of activity.

The Organization is being increasingly looked upon by the countries as a source of information on successful approaches and solutions to water supply problems. To meet this expectation, it has been necessary to strengthen the feed-back mechanisms from the field to central intelligence and to devise more flexible ways of utilizing field engineers. On an experimental basis, engineers assigned to one project were encouraged to specialize in certain professional areas, to enable them to provide assistance in

those special areas to other countries within the same Zone and even outside of it. Results were good, and the trend will be accentuated in the near future.

International credit agencies continued to participate in the financing of water supply and sewerage systems (Table 18). The Inter-American Development Bank became the leading source of financing for sanitation works in the Americas. By the end of December and since starting operations, IADB had approved loans of more than \$210 million (including a small amount for sewerage works) and had under consideration applications amounting to several million more. Funds from other sources up through 1964—mainly EXIMBANK and AID—amounted to approximately \$100 million.

In spite of the impressive totals shown in Table 18, the figures reveal a trend that is cause for concern. The large amounts loaned in 1962 probably resulted from urgent projects for which financing had been delayed a long time, and therefore the new source of funds was immediately seized by the Governments. The decline in loans sought and obtained during 1963 and 1964 demands a careful analysis and steps were initiated for finding the causes and suggesting remedial action because, as development plans move, the borrowing capacity of the countries for new projects gradually diminishes while competition among national sectors increases—which may lead to a decrease in water supply activities.

Another factor leading to increased complexity is that water supply programs usually move from larger to smaller communities. In order to serve equal increments of population every year the program would have to consider a yearly-increasing number of communities. The program moves from tens to hundreds to thousands of communities, which in many instances requires profound adjustments in organizational structures as well as new administrative and technical approaches.

In many countries central and quasi-independent water authorities were established, in other countries local agen-

TABLE 18. TOTAL FUNDS LOANED FOR WATER SUPPLY AND SEWERAGE PROJECTS IN LATIN AMERICA BY LEADING INTERNATIONAL OR BILATERAL AGENCIES, 1960-1964
U.S. dollars in millions

Loans	1960	1961	1962	1963	1964
By year	12	16	122	85	61
Accumulated . . .	12	28	150	235	309

cies revised their organizational structures, and in almost every country new provisions were made for planning and financing water supplies. Feasibility studies received the highest attention and almost everywhere water supply agencies were extraordinarily interested in integrating their programs in the total national development plan. Several countries were considering new engineering approaches, such as the large-area concept where a region comprising many communities is supplied by means of a single system.

Standardization of equipment and procedures was also being seriously considered in large-scale programs. Increasing consideration was also being given to such problems as the training of national technical personnel, the development of national consultant firms, the local production of materials and equipment, and the establishment of local laboratories and of research, investigation, and service institutions.



This pipe will carry water from Panamá City to the population of Río Abajo, Panamá.

Rural Areas

Water supplies for rural dwellers represent an important component of the total community water supply needs. It is estimated that at least 53 percent of the population of Latin America is rural, where *rural* means not only widely separated households but also populated centers generally of less than 2,000 inhabitants. Many countries in the Hemisphere have active rural water supply programs but, at the rate of speed at which they were developing, most of them may fall short of reaching the goal established by the Charter of Punta del Este. The Member Countries, recognizing this shortcoming, in 1964 requested the Organization to give special attention to this area of need and several important steps were taken toward that end.

Studies prepared on (a) the Continent-Wide Program of Rural Environmental Health and Well-Being and on (b) Rural Water Supply in Central America—Outline for a Two-Year Program were considered during the simultaneously held meetings, from 25 to 28 February, of the PAHO Technical Advisory Committee on the Rural Water Supply Program and the PAHO Behavioral Sciences Advisory Committee. During the rest of the year some progress was made in implementing the recommendations of the Advisory Committees.

Data on the status of rural water supplies in Latin America were collected by means of a questionnaire, analyzed and presented at a Regional Conference on Water Supply in Rural Areas, sponsored by the Organization and held in Bogotá, Colombia, from 28 June to 3 July. This meeting was attended by 80 delegates from 27 countries and territories in the Americas. The Conference suggested that rural water supply systems be designed and constructed in the most practical way to provide an acceptable service in terms of the needs of the people, the economics of the area, and the feasibility of operating, maintaining, and managing such systems and of extending the services to meet population and economic growth. It underlined the importance of (a) stimulating community organization through which to develop the community self-help concept; (b) establishing in each country the organizational structure to cover the planning, construction, maintenance, operation and management (including financing) of rural water supply systems; and (c) developing some type of special funding for rural water supply projects including the setting up of revolving funds.

A Progress Report on the Program of Rural Water Supply and Well-Being was presented to the XV Meeting of the Directing Council of the Pan American Health Organization, and the Council, bearing in mind the

I. HEALTH PROTECTION; ENVIRONMENTAL SANITATION

urgency of providing rural community water supplies in view of their importance to health and to the social and economic progress envisioned by the Alliance for Progress, adopted a Resolution urging a Continent-wide program of rural environmental health and well-being which assigns high priority to community water supply programs and calls for participation of the communities, the establishment of national revolving funds, and contributions from outside sources so as to achieve the objectives contained in Resolution A.2 appended to the Charter of Punta del Este.

Good progress was made in the preparation of requests and obtention of loans from the Inter-American Development Bank for rural community water supply programs. Whereas the IADB granted only 2 loans for such programs in 1961 and none in 1962 or 1963, 4 loans were made in 1964, 4 more were presented and 2 of them were under study at the end of the year, and 3 additional requests were in preparation in as many countries (Table 19).

A significant characteristic of the year was an awakening interest in the urgency of the water supply problem in the smaller communities, not only as evidenced by the preparation of requests for loans to provide for supplying

water to this generally neglected sector of the population but also as evidenced by widespread preparation of country and statewide plans for rural water supply programs, in many cases to serve as basis for future requests for loans. The status of these plans varied all the way from (a) arrangements to start islandwide surveys in Antigua, Barbados, Grenada, St. Vincent, and other islands, through (b) plans being prepared for, among other places, Brazil, Colombia, the Dominican Republic, México (where the national plan covered 10 States with a population of approximately 2 million persons in nearly 2,000 communities), and Nicaragua, to (c) completed preliminary or final plans, in Argentina, Bolivia, Chile, Ecuador, Panamá, Perú, Trinidad and Tobago, Venezuela, and the countries of Central America.

Considerable interest was also displayed in establishing revolving funds for financing rural community water supply projects. Costa Rica already had legislation authorizing such a fund. Colombia planned to establish a revolving fund in 1965 and Perú was considering the possibility for establishing one sometime in the near future.

Actual construction of the smaller water supply systems still lagged far behind the rate necessary to meet the 50 percent goal set for the decade by the Charter of Punta

TABLE 19. STATUS OF FINANCING OF THE RURAL WATER SUPPLY PROGRAM, 1964
U.S. Dollars

Country	Cost of project	Financial assistance			Agency requesting loan
		Amount needed	Request	Loan approved by IADB	
Argentina	10,000,000	5,000,000	In preparation	—	Ministry of Social Welfare and Public Health
Brazil	30,000,000	15,000,000	In preparation	—	Ministry of Health
Chile	5,000,000	2,500,000	—————→	March 1964	National Health Service
Costa Rica	2,000,000	1,000,000	Under study by IADB	—	National Water Supply and Sewerage Services
El Salvador	{ 1,500,000	1,000,000	—————→	Oct. 1961	National Administration of Water Supply and Sewerage Services
	{ 1,540,000	1,060,000	—————→	Oct. 1964	
Guatemala	1,207,000	500,000	Under study by IADB	—	Ministry of Public Health and Social Welfare
Honduras	1,000,000	500,000	Presented to IADB	—	Ministry of Public Health and Social Welfare
Nicaragua	1,000,000	500,000	In preparation	—	Ministry of Public Health
Panamá	1,000,000	500,000	Presented to IADB	—	National Institute of Supply and Sewerage Services
Perú	3,100,000	1,650,000	—————→	March 1964	Ministry of Public Health and Social Welfare
Venezuela	{ 20,000,000	10,000,000	—————→	Dec. 1961	Ministry of Health and Social Welfare
	{ 20,000,000	10,000,000	—————→	Dec. 1964	

— None.

del Este. This was demonstrated by estimates which indicated that, although approximately \$71 million per year is needed to make it possible to reach that goal, only about \$20 million was being spent for the purpose. However, the 1964 increase in applications for international loans for rural water supply projects and the number of requests being prepared for 1965 clearly indicated that the program was beginning to gather impetus.

The Organization participated in all phases of this program through (a) the Zone Offices; (b) advisers assigned in most of the countries, some specifically for work on rural water supply programs, others for both urban and rural water supply activities, and others to work with environmental health programs; (c) short-term consultants; and (d) work at Headquarters level, particularly through coordination with the Inter-American Development Bank and other international lending agencies.

The work of the Organization in Central America and Panamá was given special impetus by assigning additional personnel to work on a regional basis. Included were advisers on administration of water supply systems, water supply engineering, health education, well drilling, and an adviser on community development.

WASTE AND SEWAGE DISPOSAL

Many of the above-mentioned programs for the expansion or construction of water supply systems also provide for the expansion of the sewage disposal services of the same cities. Thus, up to the end of 1964, the Inter-American Development Bank had approved loans totaling \$33,317,360 for the building of new or the expansion of existing sewage disposal systems in Brazil, Colombia, Ecuador, El Salvador, Guatemala, México, Perú, and Uruguay, as well as for the preparation of projects for Costa Rica and Nicaragua (Table 20). The countries of the Hemisphere showed interest in solving the sewage disposal problem in large metropolitan areas and medium-size cities, especially those in which the water supply system was being expanded or in which such expansion had been planned for the future. This was not the case, however, in rural areas or small localities; there, water supply continued to be the main goal of the communities.

In 1962 the Organization made a study which showed that in Latin America only 32 percent of the urban population was served by sewage disposal systems, and that in only 157 localities was waste water given some type of

treatment. This situation, which probably had not changed much up to 1964, indicates the seriousness of the problem and the need for sewage disposal programs to be closely related with water supply programs.

The Organization provided advisory services on water pollution by industrial wastes in San Pedro Sula, Honduras. Requests for advisory services were received from the Sanitary Corporation of Lima, Perú, and the Secretariat of Public Works of Pôrto Alegre, Brazil, to enable them to study problems relating to waste disposal and to water pollution by industrial wastes. Arrangements were also made with the Curaçao authorities to work with them on the discharge of wastes into the ocean. Plans were also approved for the Organization to cooperate in a study of water pollution in the metropolitan area of São Paulo, Brazil, which is the largest industrial area of Latin America.

The latrine construction and installation programs were continued in most countries. Some of these programs continued to receive UNICEF assistance in the form of equipment and materials, and, in some cases, the training of health inspectors. The program begun 5 years ago in the Caribbean Area continued in Barbados, British Guiana, Grenada, St. Kitts, St. Lucia, St. Vincent, and Trinidad. By the end of 1964 a total of 90,621 latrines had been built, or 64 percent of the target of the 142,000 set for the program.

HOUSING

The Organization assigned 2 consultants specialized in the planning of rural communities to the Ministry of Public Health and Social Welfare of Venezuela where they worked with local officials for 3 months.

The United Nations Economic Commission for Latin America (ECLA) requested the Organization to participate in the missions it sends to the various countries of the Hemisphere to study housing and town planning problems; PAHO will study the health aspects of such programs, in particular water supply and sewage disposal services.

An adviser specialized in housing and town planning was appointed to coordinate the activities of the Organization with those of the Ministries of Health. An important document was distributed on possible joint action between Health Ministries and the Organization in matters of national housing programs, which may serve as a guide for initiating these activities.

I. HEALTH PROTECTION: ENVIRONMENTAL SANITATION

TABLE 20. FUNDS USED FOR THE CONSTRUCTION OF WATER SUPPLY AND SEWERAGE SERVICES
IN LATIN AMERICA, 1960-DECEMBER 1964
U.S. Dollars

Country	IADB		IBRD	AID	EXIMBANK	Estimated amount of domestic funds	Estimate of population served
	Water	Sewerage	Water	Water and sewerage ^a	Water		
Argentina	5,500,000	—	—	—	—	8,800,000	1,970,000
Brazil	55,110,000	14,650,000	—	12,300,000	—	62,230,000	13,400,000
Chile	11,145,000	—	—	2,840,000	—	10,604,000	1,580,000
Colombia	26,165,930	7,833,000	—	8,000,000	—	36,334,158	6,030,000
Costa Rica	100,000 ^b	140,000	—	5,400,000	4,500,000	2,450,000	550,000
Dominican Republic	1,340,000	—	—	—	—	1,260,000	190,000
Ecuador	5,200,000	3,568,000	—	—	9,000,000	2,933,000	1,300,000
El Salvador	7,680,000	1,520,000	—	—	—	4,540,000	1,950,000
Guatemala	5,730,000	1,200,000	—	—	—	4,285,000	440,000
Haití	2,360,000	—	—	—	—	160,000	280,000
Honduras	2,550,000	—	—	3,050,000	—	650,000	400,000
Jamaica	—	—	—	3,700,000	—	—	200,000
México	8,650,000	550,000	—	—	—	6,080,000	1,730,000
Nicaragua	—	185,000	3,000,000	600,000	—	3,000,000	240,000
Panamá	2,762,000	—	—	9,815,000	—	2,553,000	720,000
Paraguay	—	—	—	1,000,000	8,250,000	—	540,000
Perú	4,389,539	1,171,360	—	8,800,000	6,500,000	7,939,000	1,410,000
Uruguay	5,743,000	2,500,000	—	—	1,900,000	18,257,000	3,120,000
Venezuela	36,000,000	—	—	—	7,500,000	45,600,000	2,370,000
Total ^c	180,425,469	33,317,360	3,000,000	55,505,000	37,650,000	217,675,158	38,420,000

—None.

^a It has not been possible to separate the amount for water supply projects from that for sewerage projects; however, it is known that sewerage projects are allotted a relatively small amount.

^b Loans solely to finance studies.

^c International loans: \$309,897,829; Government contributions to the same loans, \$217,675,158; projects of the countries financed by themselves or with the aid of grants from international agencies or foundations, estimated at \$115,000,000; approximate total, \$642,572,987.

OTHER SANITATION ACTIVITIES

The Organization assisted the Governments of Argentina, the Dominican Republic, and Venezuela in finding technical solutions to problems of refuse and garbage collection and disposal in large urban areas. In Argentina, conditions in the city of Buenos Aires and the municipalities of its greater metropolitan area, as well as those in the cities of Mendoza and San Juan, were studied and measures to improve them were recommended. A seminar on refuse disposal held at the School of Sanitary Engineering of the University of Buenos Aires was attended by 70 engineers and officials from various localities in the country. Advisory services were given to the Dominican Republic and to Venezuela in connection with the refuse collection and disposal systems of Santo Do-

mingo and Caracas whose reorganization was recommended. Health authorities of the United States of America and México and technical staff of the Organization made an inspection tour of the border area between both countries to identify the refuse disposal problems of the border towns and initiate joint activities in this field.

The revision of the manuals on food hygiene and school hygiene, which had been prepared by 2 consultants, was completed. At the end of the year it was planned to publish and give wide distribution to these manuals, or guides, during 1965. The manual on school hygiene was translated into English and offered to the World Health Organization for possible use in other Regions. Assistance continued to be given to various countries in the matter of food hygiene, in particular in the training of food inspectors.

The Organization took an active part in the planning and conduct of the IX Congress of the Inter-American Association of Sanitary Engineers (AIDIS), which was held in Bogotá, Colombia, from 6 to 12 July. It was attended by 450 sanitary engineers from all the countries and various territories of the Hemisphere, representing most of the national institutions and agencies engaged in sanitary engineering, public health, and water supply, or

in the teaching of these subjects at universities. The Organization and AIDIS agreed on a program of mutual cooperation aimed at developing and improving sanitary engineering in the Americas; AIDIS, which has more than 2,000 active members in the various countries of the Hemisphere, is in a position to vigorously promote and improve environmental sanitation conditions in the countries.



II. PROMOTION OF HEALTH

A. GENERAL SERVICES

GENERAL HEALTH SERVICES

The rapid improvement in the health situation in the world today is the result of a scientifically oriented and uninterrupted attack on the phenomena that, unchecked, reduce the life expectancy of individuals and undermine their energy. This progress brings us closer to the attainment of that "state of complete physical, mental and social well-being," which the Constitution of the World Health Organization defines as health. The progress achieved, however, is still not assured—despite the enormous investments in efforts and human and material resources that the countries are devoting to health—and its future will be seriously threatened if the countries are unable to reinforce the structures of their health services. Permanent services—staffed by qualified personnel, endowed with the necessary material resources, and guided by feasible work plans based on careful studies of national problems—are a guarantee of continuous and harmonious community health action; they are also the appropriate instrument for keeping watch for any sign of the reappearance of difficulties already surmounted and for strengthening the gains already achieved.

It is a matter of record that the Directing Council of PAHO recommended, both to Governments and the Organization, that priority be given to the improvement of national health services. The health service projects were the Organization's answer to the initiative of the Governments. The purpose of these projects is to study in each country the prevalent problems and seek ways and means of solving them, and to improve and strengthen national health services. If the services are multipurpose and made available at strategic local levels, they will constitute both a network providing an increasingly larger proportion of the population with medical care and a means of consolidating the gains of campaigns aimed at solving specific problems.

A complex of phenomena found in most of the countries may be attributed to the prolonged and continuous action of health service projects. Among the former, special mention should be made of the following: increasing interest in ascertaining and evaluating health problems; the establishment of a national health policy that takes into consideration the relation of health problems to educational level and degree of social development of the population as well as the economic development of the country; the developments in most of the countries aimed at improving the national health services; the framing of long-term national plans designed to make the best possible use of available resources; and interest in the appropriate training of professional and technical personnel for specific program activities.

At the end of 1964 the Organization was collaborating with the Governments in 26 active projects to improve services in the countries. The projects were in different stages—whereas in some countries studies were underway to determine the scope of the project and the type of technical assistance required, in others the projects had already been extended to the whole country and national health plans were being formulated and coordinated with those of other Ministries as part of a national development plan.

In 11 countries the Ministries of Health set up planning units to study health problems and ways of solving them, and staffed the units with national technicians who had received special training under fellowships provided by the Organization.

The concept of health services has changed since the Organization and the Governments first agreed to develop projects of this type. Today, adapting the projects to the problems and characteristic of each country and each region is the base principle. Nevertheless, in 7 countries in which the problems and characteristics are common to the whole national territory or in which it is desired to make special studies, demonstration areas

II. HEALTH PROMOTION: GENERAL SERVICES

were continued for the testing of health techniques and training of personnel. In the countries in which demonstration areas have been incorporated into the general health services, they are considered to have had a marked influence on the progress and development of the services. Standards and procedures initiated in the area became routine throughout the country, and national staff holding key positions obtained their practical experience in those areas.

In 14 countries technical assistance was again given in the field of nutrition and was aimed in particular at the reorganization of nutrition services included in the general health services. At the end of the year the health services in several countries had under consideration the establishment or reorganization of nutrition departments with policy-making functions at the national level and the benefits that could be derived from a network of supervisors in key positions in the executive structure. In 9 of the countries in which such departments already exist, they were participating in the development of applied nutrition programs established in coordination with the Ministries of Agriculture and Education and with the assistance of FAO and UNICEF.

Programs intended for the promotion, protection, and restoration of health, which always constituted the central objective of the general health service projects, continued to receive careful attention and their rate of progress was limited only by the availability of resources. The notification of communicable diseases was improved, and immunization programs were intensified. In some countries, special emphasis was given to the control of gastroenteritis, which continued to occupy a leading place among the causes of death in Latin America; activities included the early treatment of children, the setting up of rehydration centers, and environmental sanitation preventive measures.

Efforts to improve vital statistics were continued in most of the countries, and in 2 of them registration areas were established.

Maternal and child health activities, a major concern of the general health services throughout the Region, were reorganized in 3 countries. And in a selected area a maternal and child health pilot project was started for the study and evaluation of new standards and procedures.

Both ambulatory care and hospital care for the restoration of health continued to be a constant concern of the general health services. In most of the countries there was an increase in the number of beds in the establishments of the Ministries of Health and, in some, studies were made and steps were taken to improve

utilization. Special emphasis was laid on the expansion and strengthening of hospital nursing services, the improvement of statistical services, the writing up of clinical histories, and the study and adoption of improved systems of recording activities.

The health authorities of all the countries continued to give special attention to environmental sanitation programs. Many of these programs are carried on independently of the general health services, for administrative and planning reasons, even though their efforts converge on the same objective; in other cases environmental sanitation activities are included in the general health services as a constituent of their integrated action for better health. The corresponding governmental organizations continued to be responsible for the preparation of plans for the construction and maintenance of water supply systems in both urban and rural areas; of the projects thus prepared, some were underway and for others the respective Governments had initiated negotiations with international credit institutions. As for sanitation activities carried out within the general health services, they continued to be limited to small-scale works for groups of rural populations and to the supervision of environmental sanitation conditions, the health education of the public, and the correction of deficiencies or the reporting of them to the responsible authorities. Unfortunately the resources available were not always adequate to meet the needs of the community or the targets fixed for the programs.

The Organization has given its full support to the efforts of the Governments to extend the area covered by the general health services, even when the expansion is carried out at an obvious but temporary sacrifice in depth, so as to provide medical care to communities in peripheral areas that had received little or no previous service. This lack of complete coverage, common to the services in most of the countries of Latin America, is due in part to the lack of sufficient material and human resources and in part to a desire to improve the quality of the services, without due consideration to their extension to communities distant from urban centers. It is now acknowledged that a better distribution of resources, providing simpler but more widespread coverage, is the best way to achieve the objectives of the general services, especially because they must assume new responsibilities as several specific programs for the eradication and control of diseases enter into their final phase.

The latter aspect came to the fore when the malaria eradication campaigns in several countries simultaneously reached the consolidation phase. At the Seminar held at Poços de Caldas, Brasil, from 26 June to 4 July,

there was a thorough discussion of the role of the general health services in this final phase and it became evident that the services would have to be reorganized so that they may take over the corresponding activities.

The above-mentioned Seminar also drew attention to the fact that there are vast rural areas with scattered population, which demanded intense action during the course of the malaria campaigns, in which there are no health services of any kind. In these areas medical care can be given only if the sick can be transported to the nearest urban centers, and it is also impossible to have surveillance services that would permit to take remedial action if cases of malaria reappear.

General health service projects also included the training of professional and auxiliary personnel. In some cases the training was given in the country itself, by means of specific courses and inservice programs; in others, fellowships were awarded for training abroad. A detailed account of these activities is to be found in Chapter III.

NURSING

The provision of comprehensive nursing care to meet the demands of new and existing health services is the challenge that faces nursing in the developing countries. The quantity and quality of nursing personnel prepared and absorbed by the services is determined by the socio-economic level of the country and plans to meet the ever increasing health demands of the people must be within their economic limitations. This has highlighted the necessity of evaluating the present situation with a view to securing greater and improved utilization of existing resources.

Throughout 1964 the Organization provided 15 nursing advisers at the local level in 13 countries and maintained 5 nurses at the intercountry, or Zone, level to collaborate with the Governments in planning for, strengthening, and improvement of nursing services. Studies of actual nursing resources were completed in Bolivia, Ecuador and Perú, initiated in Colombia, and were in the planning phase in México and for some Provinces in Argentina. The Ecuador study was complemented with estimates of present and future needs. The same type of estimates were also formulated for the Dominican Republic. The estimates, however, can only be approximations because of the almost general nonexistence of nursing norms specific for each country and on which the deter-

minations should be based. This lack has led to a growing awareness of the need for the establishment of standards related to the possibilities of each country as well as to the availability and functions of medical and paramedical personnel. During 1964, tentative nursing norms were established in Cuba for the staffing of services.

Greater utilization of nursing resources can only be obtained through improved administration of nursing services. To this end, a seminar on improvement of nursing services was held in Tobago from 9 to 17 November, with the participation of 46 nurses representing 19 countries and territories in the Caribbean Area. In addition, inservice-education seminars or courses were held in Argentina and Bolivia better to prepare key personnel to carry out their administrative and supervisory functions.

In practically all the countries with nursing units at the national level direct advisory services continued to



A visiting nurse in a rural area in Latin America teaches a mother about diet and health habits.

be provided towards the development of improvement of the structural and functional organization.

At the local level, assistance was given in the establishing of 4 intensive-care units in hospitals in Argentina; in the improving of hospital services and establishing of new health unit services in Cuba; in the organization of nursing services in 4 hospitals in Colombia; and in the improvement of hospital records and clinic services in Argentina, the Dominican Republic, and Uruguay.

To prepare the available personnel in the Caribbean Area for better performance of their functions a course in orientation to public health was organized, with 30 nurses attending. In México the course initiated in 1962 in the State of Michoacán was continued, and 24 nurses were prepared during 1964.

Patient care in Latin American countries is carried out mostly by auxiliary nursing personnel. Because more than 70 percent of this group were empirical, which was directly reflected in the level of care being given, emphasis was placed on inservice-training programs as an expedient to raise the level of care until such time as more of the group can benefit from formal courses. In Argentina, as one example, 411 nurses and 579 nursing auxiliaries benefited from the inservice training program; and in Ecuador, 69 nursing auxiliaries were prepared to work for the Andean Mission and in the Manabí Province.

VETERINARY PUBLIC HEALTH

Veterinary medicine is passing through a transition period during which it must meet the challenge of a rapidly changing world. New scientific discoveries in the field of public health are providing the instruments for the control or eradication of certain infectious diseases of animals and man; nevertheless, these diseases continue to plague man and animals and will probably do so for many years to come.

The protection of the food supply of animal origin and the prevention and control of the zoonoses are the responsibility of the veterinarian. In public health, the role of the veterinarian is becoming increasingly important locally, nationally, and internationally.

In 1964 the Organization continued to assist the countries through its veterinary public health services, the Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center, in the establishment

of veterinary services, the study and control of zoonoses, improvement of laboratory services, food and drug control, and the teaching of veterinary medicine. Local and international training courses were given at universities and for the staff of public health services.

In Brazil assistance was given to the State and Federal Public Health Ministries in establishing veterinary public health services in the most important areas of the country. In Honduras a veterinarian of the Ministry of Public Health was appointed to the Division of Epidemiology. In Chile, Perú, and Venezuela public health veterinary services continued to be developed, especially at the level of local health services, and food hygiene activities were expanded to include fish inspection; the latter is a basic service in these countries in view of the degree of development attained by the fishing industry.

In Panamá the Food and Drug Control Section of the Public Health Department was reorganized, and veterinarians were engaged as food inspectors.

Further progress was made in the rabies control programs in the México-United States border area and in Central America and some countries of South America. In Costa Rica, Panamá, and Venezuela, intensive bovine tuberculosis control campaigns were continued. The veterinary public health services of El Salvador, Guatemala, and Panamá initiated brucellosis control activities, using the milk-ring test, in the dairy farms supplying the chief urban centers. Basic data on such veterinary public health problems as zoonoses and food hygiene were compiled in Brazil, Guatemala, and Panamá. On the basis of the information gathered, technical assistance in the matter of establishing food hygiene programs was given, research on zoonoses was begun, and the laboratory services for the diagnosis of rabies and other diseases were improved.

In recent years, diseases in animals, both domestic and wild, have received considerable attention from research workers in several parts of the world. The results of these studies have considerably increased our knowledge of these diseases. Moreover, they have created an awareness of the need for better veterinary public health services to enable the health services to effectively study and control the zoonoses in the countries.

PUBLIC HEALTH LABORATORIES

The expansion of the public health laboratory services in the Hemisphere, which has been going on in recent years, continued in 1964. Because they are necessary for

the diagnosis, control, and prevention of diseases, and the investigation of environmental factors, public health laboratories perform an essential role in preventive and curative activities, environmental sanitation programs, and preparation of biological products, and are thus key elements in any well-formulated national health plan. Their importance is reflected in the increasing number of requests the Governments are submitting for technical assistance in setting up a network of laboratory services capable of coping with present and future needs at both the central and the local level.

In El Salvador a study was made of existing health laboratory services, and recommendations for making better use of resources and for initiating future programs were submitted.

The Organization again cooperated with the Government of Haiti to improve its central laboratory services and to expand the activities of the local laboratories, including those in the region devastated by hurricane Flora. Epidemiological research programs were undertaken in mycobacteriology, treponematoses, leptospirosis, and enteric bacteriology.

In México the Organization cooperated with the national authorities and the School of Medicine of the University of Maryland, U.S.A., in studies on immunization against epidemic typhus by means of the E strain of *Rickettsia prowazeki*. The work began with a serological survey to ascertain the prevalence of this and other rickettsioses in typhogenic areas in the country.

Technical assistance and technical information, and in some cases reagents and equipment, were provided to Argentina, Brazil, Colombia, Costa Rica, Chile, Ecuador, El Salvador, Guatemala, Haiti, Honduras, México, Panamá, Perú, Trinidad and Tobago, and Venezuela, as well as to several territories in the Caribbean Area, in connection with the planning of new and the reorganization of existing laboratories.

Virology Laboratories

New methods of tissue culture have simplified the isolation and typing of viruses, facilitating the undertaking of virological programs in many national laboratories. The development and use of new virus vaccines (poliomyelitis, measles) and the increasing importance of virus diseases has quickened the interest of national authorities in the establishment of new virological units.

In Bolivia the Middle America Research Unit of the United States Public Health Service continued to coordinate its activities with those of the Organization with a view to ascertaining the mode of transmission of Bolivian hemorrhagic fever. MARU researchers succeeded in isolating the causal organism, the Machupo virus, from human samples as well as from the peridomestic rodent *Callomys callosus*; serological studies showed that this animal may play an important role as a reservoir. The Machupo virus has many antigenic characteristics in common with the Tacaribe and Junín viruses, but neutralization tests proved that they are independent types of the same group.

PAHO assigned an adviser to the Oswaldo Cruz Institute in Rio de Janeiro, Brazil. Work on enteroviruses, which has been temporarily interrupted, was resumed and the use of new cell cultures facilitated the isolation of the cytopathogenic agents of outbreaks of paralytic poliomyelitis in the States of Guanabara and Rio de Janeiro and in Brasilia, the Federal District. A pilot study was undertaken in a community near Rio de Janeiro with a view to determining the effectiveness of oral poliomyelitis immunization programs.

In Costa Rica a short-term consultant introduced at the national laboratory the techniques for the isolation and typing of respiratory viruses. In cooperation with the health centers of the Capital, a start was made on a program aimed at determining the prevalence of viral respiratory ailments in the children being cared for by these services. The laboratory participated in the smallpox eradication program by testing the vaccine used in the program.

In México, in cooperation with Cornell University of the United States of America, studies were continued on the role of birds in the intercontinental spread of arbovirus. Research was concentrated on the ecology of the agent of Venezuelan encephalitis, which was isolated for the first time in México.

One of the main obstacles to the development of virology programs has been the lack of reliable reagents for the typing of the agents isolated. To improve this situation the Organization entered into an agreement with the National Institutes of Health of the United States Public Health Service whereby the Institutes supply standard strains, and the corresponding antisera for enteroviruses, for research workers in other countries of the Hemisphere. This agreement, together with those already operating to supply reagents for respiratory viruses, will promote the further development of virology programs.

Production and Control of Biological Products

In implementation of Recommendation C.1¹, of the Task Force on Health at the Ministerial Level (Washington, D.C., April 1963), the Organization convoked a Working Group to study the establishment of a Latin American Common Market for Biological products, which met in Washington, D.C., from 3 to 6 August. The Group was composed of scientists from Brazil, Canada, Colombia, Chile, México, Perú, the United States of America, and Venezuela. At the meeting, which was also attended by representatives of the IADB, ECLA, OAS, and the Pharmaceutical Manufacturers Association (U.S.A.), a careful examination was made of the factors hampering the widespread use of immunizing agents in the prevention of communicable diseases. With a view to ensuring that present and future needs for biological products will be satisfied, the Working Group made recommendations on the training of personnel; assistance to applied research for improving the production and control of biological products; modernization of installations, equipment, and methods; adoption of uniform, high-quality control procedures; and greater use of the reference services which the Organization makes available to the countries. The Working Group also recommended that the Organization explore the possibility of obtaining from the IADB long-term loans for implementing the pertinent recommendations of the Task Force on Health.

A consultant visited Brazil, Chile, Guatemala, Panamá, Uruguay and Venezuela and advised national laboratories on the production and control of immunizing agents, especially DPT.

The Organization assisted the countries to control the quality of the biological products produced in their national institutes, by placing at their disposal laboratory reference services. The services provided by the latter—comparison of national-laboratory biologicals against reference-laboratory products—encourages the use of better production techniques and up-to-date production methods. In 1964 the countries sent only 16 products for testing. The Working Group recommended that the countries make greater use of the reference services provided by the Organization.

¹ Official Document PAHO 51: 40.

Biological Reagents

The Organization again provided national laboratories with biological reagents, such as strains of bacteria and viruses and standard antigens. The use of this material for reference purposes facilitates the introduction of uniform methods and procedures in the institutions and thus the compilation of comparable information. In 1964, 509 consignments of material were sent to 17 countries (Table 21).

Food, Drug, and Biological Products Control

Food and drug control by the Ministries of Health, in addition to protecting the consumer and securing pure and nutritious foods and high-quality drugs, has a direct bearing on the economic integration of the countries of the Hemisphere. In the Central American Common Market countries, for example, foodstuffs constitute more than 50 percent of the total products exchanged. One of the principal problems confronting the Common Market stems from the fact that the health authorities can not certify the quality of those products for domestic consumption and export because of the lack of minimum health standards governing the production, manufacture, and control of food products.

With a view to collaborating in solving this problem a PAHO consultant made a detailed study of the establishment of standards, existing legislation, analytical laboratories, and food industries in the countries of Central America and Panamá. The ensuing recommendations were submitted to the IX Meeting of Ministries of Public Health of Central America and Panamá, held in July in Managua, Nicaragua. At that meeting, standards on 80 food products, which had been prepared by the consultant and the Adolfo Lutz Institute of São Paulo, Brazil, were discussed and approved.

The standards approved dealt with methods of microscopic analysis, methods of microbiological food analysis, sampling, as well as the following foodstuffs: spices and condiments, fruit marmalades and jellies, processed meat products, vegetable oils, sugars, starches, coffee, processed milk products, fats, cocoa and chocolate. The standards were prepared in accordance with the international regulations established by the WHO/FAO Committee of the Codex Alimentarius, as well as the regulations of the Pan American Commission on Technical Standards, the International Standardization Organiza-

TABLE 21. CONSIGNMENTS OF REAGENTS AND OTHER BIOLOGICAL PRODUCTS MADE BY PASB TO NATIONAL LABORATORIES IN THE AMERICAS, 1964

Country	Number of consignments					Total
	Bacteria	Virus	Antigens	Antisera	Other products	
Argentina.....	18	11	6	6	38	79
Bolivia.....	—	—	—	—	2	2
Brasil.....	120	9	14	9	36	188
Canada.....	—	—	—	—	1	1
Chile.....	4	—	3	—	7	14
Colombia.....	3	3	1	1	3	11
Costa Rica.....	—	5	2	5	4	16
Cuba.....	5	3	3	2	9	22
Ecuador.....	—	—	—	—	1	1
Guatemala.....	1	—	11	12	1	25
Haiti.....	—	—	—	—	2	2
Jamaica.....	—	—	—	—	2	2
México.....	10	2	12	23	5	52
Perú.....	3	—	—	4	6	13
United States of America.....	4	2	—	1	51	58
Uruguay.....	2	2	1	—	2	7
Venezuela.....	4	4	1	—	7	16
Total.....	174	41	54	63	177	509

— None.

tion, and other organizations and international codes. The standards are also in accordance with the Central American Standard Tariff Nomenclature (NAUCA), whose Coding Manual contains those relating to Central American consumer products and thus facilitates trade between the countries.

It was decided at the meeting that the laboratories of the National University of Panamá would act as reference laboratories for drugs, cosmetics, chemical products, alcohols, and insecticides for the countries of Central America and Panamá, and that INCAP laboratories would serve as reference laboratories for the quality control of foodstuffs and food supplements whose sale is unrestricted in the countries of the Isthmus. The Organization was made responsible for the coordination of these reference laboratories with the health services of each country.

The Organization was also asked to study how the Ministries of Health could best establish specific services for the registration, control, and inspection of drugs and foodstuffs with a view to putting into practice the health standards approved; and also to continue work on standards for other food products. In response to this recommendation the Organization made a grant to the Adolfo

Lutz Institute for the preparation of a further 300 food standards.

A meeting of the directors of the food control laboratories of Guatemala, El Salvador, Nicaragua, and Panamá was held from 10 to 15 May in Guatemala City and attended by representatives of the Central American Institute of Investments and Industrial Technology (ICA-ITI) and staff members of INCAP and the Organization. The purpose of the meeting was to evaluate food and drug programs and the food analysis methods used in laboratories in those countries. The same meeting also revised the minimum health requirements prepared by the Organization, and a draft set of basic regulations governing procedures for the analysis and evaluation of drugs and foodstuffs in the area was drawn up.

The Pharmacy, Drugs, and Foodstuffs Section of the Department of Public Health of Panamá appointed 8 new inspectors (pharmacists, bromatologists, chemists, and veterinarians). They will be responsible for the inspection and control of the production, processing, and sale of food and drugs in the country; this is the first time such inspectors have been appointed in the countries of Zone III.

In Venezuela a broad study was made of the food, drugs, and biological products control service. The re-

port submitted to the Governments stressed such fundamental points as the establishment of a special department for the registration and control of food and drugs and personnel training needs.

In implementation of Resolution WHA16/36 (of the XVI World Health Assembly) on the Clinical and Pharmacological Evaluation of Drugs, all the countries of the Hemisphere were provided with information on preventive measures to be taken in using certain dangerous or potentially dangerous products. In addition, through various projects in which the Organization is participating, Brazil, Guatemala, Panamá, and Venezuela were provided with international standards and media for the control and analysis of drugs and foodstuffs.

HEALTH EDUCATION

The post of Regional Adviser remained vacant, due to unavoidable circumstances, and therefore the activities of the Organization in this field were rather limited. Efforts were initiated to improve the situation as soon as possible.

In the Central American Isthmus, Honduras, the only country which had been lacking a Health Education Department, established it in August 1964.

Three health-education advisers worked during 1964 as part of the teams of international personnel assigned to malaria eradication programs in Central America and the Caribbean Area. One adviser was assigned throughout the year to assist in the development of the general health services of the Dominican Republic.

The Organization recruited and assigned to Costa Rica, at the request of the Government, a consultant to collaborate with national authorities in the analysis of the main problems affecting the health education program of the Ministry of Health and in a reformulation of the program, as well as in the training of public health workers of various levels in health education methods and media. The consultant remained in the country for 8 months. The structure and administrative procedures of the Health Education Department were revised, and a program for the training of 9 health educators was initiated. Seminars for school teachers and nursing personnel were organized and the participation of the Department in the training of public health workers was intensified.

At CREFAL (Community Development Training Center) in Pátzcuaro, Michoacán, México, the assistance of

the Organization was represented during the first semester by the services provided by personnel of the Zone II Office and by the medical adviser assigned to the country's State Health Services project. During the second semester a medical officer was assigned on a full-time basis to the Center. The regular course of the Center was conducted between March and November and was attended by 63 students from South, Central, and North America and by 1 student from Switzerland. A special seminar on community development took place with the participation of all students enrolled. A 3-month course for CREFAL alumni of the 1951-1960 decade was begun on 3 November with 20 students from 14 Latin American countries.

HEALTH STATISTICS

The Regional Advisory Committee on Health Statistics held its third meeting in Washington, D.C., from 8 to 12 June. The principal areas of discussion were (1) hospital statistics and (2) indices of evaluation, or measurements of progress in health. The latter subject was added to the agenda of the meeting to implement the Resolution of the 1963 Meeting of the Inter-American Economic and Social Council, which requested the Organization to appoint an advisory committee to draw up a system to measure health progress within the general aims of the Charter of Punta del Este. Both subjects were thoroughly analyzed, on the bases of the undoubtedly great significance that reliable hospital statistics have both for the administration of hospitals and national health planning and the fact that the measurement of accomplishments in health programs requires a system of indices to show the progress made.

In the field of hospital statistics the Committee prepared recommendations for the development of medical records and reports in the individual hospital, on statistics relating to hospitals and patients, on manuals on hospital statistics, on indices for evaluation of hospital programs, and on education and training of statistical personnel.

The Committee also formulated recommendations for the development of indices to show accomplishments of health project activities, for the improvement of the basic statistical data through training of statistical personnel and creation of registration areas, for the establishment of properly selected study or experimental areas within countries, and for research programs to study the

effect of specific health activities on the improvement of the health level of populations.

The Committee discussed the role of the Organization in other statistical areas, including the 1965 Revision of the International Classification of Diseases, civil registration, education and training for statistical personnel in the health field, and research. The report of the Committee was published in both English and Spanish (*PAHO Scientific Publication 103*).

The Bureau was one of the cosponsoring agencies of the Second Inter-American Seminar on Civil Registration, organized by the United Nations through its Statistical Office, the Bureau of Technical Assistance Operations, the Economic Commission for Latin America, and the Latin American Demographic Center. The Seminar was held from 30 November to 11 December, in Lima, Perú. Because of the need for complete and accurate birth and death records in health programs and the important role of health services, the Organization provided for the attendance of 8 participants from health services of countries in the Americas as well as of several of its own staff members. The Seminar prepared recommendations on basic principles of a model service of civil registration and on a regional program for the improvement of civil registration in the period 1965-1969.

The Organization continued the collection, analysis, and publication of vital and health statistics; provisional figures for cases of quarantinable diseases reported in 1964 are shown in Table 22.

For the first time the Organization was able to

TABLE 22. REPORTED CASES OF QUARANTINABLE DISEASES IN THE AMERICAS, 1964^a

Country	Jungle yellow fever	Small-pox	Plague	Louse-borne typhus
Argentina.....	—	12 ^b	—	—
Bolivia.....	13	4	49	64
Brazil.....	13	2,030 ^c	285	—
Chile.....	—	—	—	4
Colombia.....	10	21	—	1
Ecuador.....	—	—	195	82
México.....	—	—	—	77
Perú.....	59	454	125	40
United States of America.....	—	—	^d	—
Uruguay.....	—	3 ^e	—	—
Venezuela.....	2	—	—	—
Total.....	97	2,996	654	268

— None.

^a Based on official information to Health Services; data received at PASB through 30 July 1965.

^b Includes 10 imported cases.

^c Incomplete data—limited to 19 States and 1 territory.

^d Rodent plague reported.

^e Imported.

have a statistical adviser in each of its 6 Zones. Efforts continued to be directed to introducing methods of improving vital and health statistics records in the countries in order to strengthen the factual basis for the health planning process, as well as for the operation and evaluation of health programs. One approach was through the promotion of the establishment of demonstration



The Regional Advisory Committee on Health Statistics held its third meeting in June 1964.

areas where accurate and reliable statistical data can be developed, analyzed, and applied.

Mention of the outstanding events in the field of statistics in the countries follows:

Colombia and Guatemala joined the other 19 countries in the Americas that have taken population censuses in the years between 1960 and 1964. Bolivia, Cuba, and Haiti, as well as Surinam, continued without recent censuses and made no plans to that end.

The importance of reliable census data cannot be overestimated. Adjustments based on study of completeness of enumeration were being made in several countries. Chile, for example, made recent adjustments in its annual estimates, based on a study of completeness in the census enumeration.

In México it has been estimated that children under 5 years of age were underenumerated by approximately 14 percent. Such underenumerations significantly affect mortality and natality rates as well as other health indicators.

The countries' efforts to improve their statistics services were evident in the establishment of biostatistics sections and registration areas where data of good quality are developed and used, in the introduction of new forms of birth or death certificates complying with international recommendations, in the coordination of functions of national agencies, in surveys of completeness of registration, in the preparation of more extensive and useful tabulations, and in the publication of national data.

Health Services

In Argentina the biostatistics sections in the Provincial Health Services of both Mendoza and Tucumán were strengthened by training auxiliary personnel in short courses. Data were being collected on notifiable disease and hospital resources—personnel, functions, equipment, and costs—with respect to both availability and needs for national planning.

Colombia created a Biostatistics Section under the Division of Auxiliary Technical Services of the Ministry of Public Health, and established areas in Fusagasugá and Rionegro where methodology of registration, research, teaching, and measurement activities will be developed for demonstration purposes.

Family records were being established and steps were being taken to improve birth and death registration at the 2 general hospitals and 3 private clinics in the registration area selected in the Province of San Cristó-

bal, Dominican Republic. Auxiliary personnel were being prepared in one of the two general hospitals and in the San Cristóbal health center.

In Honduras a Division of Biostatistics, with a section for mechanical tabulation, was established in the Ministry of Public Health and Social Welfare. The Division handles statistics regarding hospitals, communicable diseases, and the services of health centers.

Experimental areas were set up in Perú to study methods of measuring the health status of the population, the effects of health services, their costs, etc., as the basis for national health planning.

Vital Statistics

Argentina began using in the Federal District and in the Provinces of La Pampa, Mendoza, and Tucumán a medical certificate of death patterned after the certificate already in use in the Provinces of Buenos Aires and San Juan.

The field survey in Brazil to establish a registration area with an adequate degree of completeness of death registration was completed in the State of Bahia and was underway in Sergipe, thus completing the establishment of the registration area in 8 States of the Northeast. In addition, a State Committee on Vital and Health Statistics was formed in Mato Grosso, and the State Board of Statistics approved a resolution specifying the Committee's objectives and functions. A new model of a death certificate complying with WHO recommendations was approved for use in the State. The Serviço de Estatística Demográfica Moral e Política of the Ministry of Justice and Interior published, for the first time for Brazil, data on civil registration for 1959, 1960, and 1961. The data cover most of the *cartórios* (precincts) of civil registration.

The Dominican Republic published data for the first two quarters of 1963 and 1964, which allows comparison of data for 2 consecutive years. An area of registration was established in the Province of San Cristóbal, encompassing 5 municipios and 4 districts with a population of 257,800. Forms were introduced for birth registration and steps were taken to improve death certificates in hospitals and health centers.

A study of the completeness of birth and death registration at Lawrence Tavern, Jamaica, was underway as part of a survey of child health and growth being carried out by the Faculty of Medicine of the University of the West Indies.

In México the publication program for vital statistics was expanded to provide information on local health conditions in addition to the overall national data. Information on population, births, and deaths classified by age and cause were being prepared at year's end; tabulations of data follow List A (for States) and List B (for municipios) of the *International Classification of Diseases*. Data for 4 States were published in 1964.

The Ministry of Public Health and Social Welfare of Perú published the data on births, deaths, and fetal deaths for 1962 (*Nacimientos, Defunciones y Defunciones Fetales, 1962*). The Ministry and the National Statistical Office reached an agreement by which, beginning in 1965, the former will publish information on deaths and fetal deaths (certified and noncertified) and the latter will process and publish statistics on births. The necessary forms were prepared in 1964.

Morbidity Statistics

A national plan was developed in Argentina to obtain, at the provincial level, morbidity statistics from hospital discharges; the data will also serve for local and national uses. The statistics include the daily census of patients, beds, characteristics of discharged patients, and summaries of outpatient services and of both general and special services. The national Ministry of Social Welfare and Public Health provided the technical collaboration for the program and organized local training courses. Plans were made to establish a tabulation center in the Province of Tucumán, where the system was first introduced.

In Brazil new forms for notifiable diseases were prepared in the State of Mato Grosso.

The National Committee on Vital and Health Statistics of Colombia developed criteria and definitions for hospital statistics and for the reporting of notifiable diseases and established procedures for the notification and verification of quarantinable diseases.

The Dominican Republic developed new forms for registering cases of selected diseases and immunization and regularly published notifiable disease data.

A pilot survey of morbidity and mortality was carried out in 6 general hospitals in Cornwall County, Jamaica, for the Montego Bay Hospital Planning Report. Records were designed for small hospitals in other Eastern Caribbean Islands.

Chile, Paraguay, and Perú published reports on notifiable diseases for 1963.

Other Activities

With the collaboration of the Latin American Center for Classification of Diseases (Caracas, Venezuela) contributions were made to plans for the forthcoming Revision of the International Classification of Diseases, as well as to publications for improving the application of the present Classification in both Spanish- and Portuguese-speaking countries. The Center, which receives a grant from the Organization, concentrated efforts on the training of Latin American health officials on the International Classification of Diseases and the preparation of teaching materials for the application of both the Classification and the Adaptation for Indexing of Hospital Diagnoses.

The Organization also continued assisting in the preparation and training of professional, intermediate-level, and auxiliary statistical personnel to assist the countries to strengthen and expand their health services (*see* Statistics, Chapter III, Education and Training).

Research was continued on the Inter-American Investigation of Mortality, and planning was either initiated or continued for regional studies on congenital malformations, demography, and Chagas' disease (*see* Chapter V, Research).

Among the training material translated and adapted to Spanish for use in hospitals were *Instrucción sistematizada en el uso de la Adaptación de la Clasificación Internacional de Enfermedades* and *Manual de Codificación para Instrucción de la Clasificación de Enfermedades Adaptada*. *Reported Cases of Notifiable Diseases in the Americas, 1962*, published in Spanish and English, contained revised annual data for that year, as received from the national health authorities of the Americas. Included in this publication were tabulations of reported cases and rates for 40 notifiable diseases, by country or other areas, together with distributions of selected diseases by month, age, and major political divisions. The introduction to this publication also treats of infectious hepatitis, measles, poliomyelitis, syphilis, and tetanus. Data for the 1963 report in this series were obtained through the annual questionnaire, distributed in August 1964. The annual questionnaire also requested data on causes of mortality by age, on vaccinations, and on health resources and manpower. Data from the annual questionnaires for 1961 and 1962 as well as data obtained for the *Supplement to the Second Report on the World Health Situation, 1961-1962*² were used for the publi-

² Part I, Country Reviews: MHO/PA/29a.64/Rev. 1, 278 pp.; and Part II, Education and Training of Health Services Personnel: MHO/PA/29b.64/Rev. 1, 28 pp. and annexes.

cation *Health Conditions in the Americas, 1961-1962*, prepared for the XV Meeting of the PAHO Directing Council. The chapters on population and vital and hospital statistics (the most extensive of the report) stressed indices—on population structure, vital statistics, and health resources—useful for measuring the health status of the population and the accomplishments of health programs. Statistical questionnaires in use in the Americas by the Organization, together with a statement of their purpose and instructions for their completion, were incorporated into a *Guide for the Reporting of Statistical Information in the Health Field*, to be distributed to the national health authorities and to the Bureau Representatives responsible for the transmittal of these questionnaires and for effecting the necessary coordination with health authorities in the countries. (See also Special Publications, Chapter VI.)

Summaries of the status of the *Aedes aegypti* eradication program continued to appear periodically in both the *Weekly Epidemiological Report* and the *Boletín de la Oficina Sanitaria Panamericana*. The quarterly *Health Statistics* was discontinued, with the final issue for 1963 released in late 1964, and many of the tables previously published in the quarterly periodical were transferred to the *Weekly Epidemiological Report*. (See also Periodical Publications, Chapter VI.)

ADMINISTRATIVE METHODS AND PRACTICES

Advisers continued to be stationed in Zones I, III, IV, and VI to collaborate with the Ministries of Health in the improvement of their administrative structures and practices.

In Zone I a preliminary survey of the organization and administration of the department of health in St. Lucia was undertaken, the procurement organization of the Health Ministry of Barbados was reviewed, and a brief preliminary survey of the administrative methods of the Ministry of Health and Social Welfare of Venezuela was carried out. Towards the end of the year, discussions were underway with the objective of undertaking a definitive study of the organization and administration of the Ministry of Health and Housing of Trinidad and Tobago and of the corresponding ministries of Antigua and St. Lucia, in collaboration with the United Nations Division of Public Administration.

The leading general activity in Zone III was the planning and holding of the Fourth Seminar on Organization and Administration of public Health Services (Antigua, Guatemala, 18-23 May) under joint sponsorship of PAHO/WHO and the UN, and following up on the recommendations. One result of this meeting was the issuance of a handbook on personnel management distributed to the Health Ministries of the Hemisphere. Another result was the planning of a training program for 30 administrative officers of the Health Ministries of the Central American countries and of Panamá. Other work in this Zone included a survey of Guatemala's Biological Laboratory, a review of El Salvador's Ministry of Public Health and Social Welfare's progress in program-budget work, and discussions with the other Health Ministries in the Zone concerning better administrative practices.

The adviser assigned to Zone IV surveyed, made recommendations, and assisted in introducing improved administrative practices and procedures in the Ministry of Public Health and Social Welfare of Perú. The work involved structural reorganization and institution of program-budgeting as well as new systems for accounting, personnel management, and supply and procurement. Assistance was also provided in developing training programs on administrative practices for Ministry personnel.

Assistance in the development of training programs for Health Ministry personnel was also provided in the countries of Zone VI, and a number of persons were trained in the theory and practice of public administration. Services were also rendered to Argentina, Chile, Paraguay, and Uruguay in the review of budget, personnel, records, and transport management and in the administration of several operating programs, especially leprosy and water supplies.

Also regarding water supply programs, as well as malaria eradication activities, advisory services were provided to Health Ministries throughout the Hemisphere. As an integral part of these activities the administrative processes of the ministries were studied and assistance was given in the development of new practices, procedures, and programs for the training of administrative personnel.

Ten fellowships were awarded to administrative personnel of the Health Ministries of Argentina (2), Barbados, Bolivia, Colombia, Jamaica, Paraguay (2), Uruguay, and Venezuela. More than 150 persons either received inservice training or else attended courses in which PAHO/WHO advisers assisted.

HEALTH LEGISLATION

The Organization continued to encourage countries to revise and modernize their health legislation, despite the fact that, as reported last year, limited funds were available. Local officials were encouraged to undertake legal studies; and direct assistance in the revision of health legislation was provided in Brazil, Honduras, Jamaica, and Trinidad and Tobago.

With a view to the revision of the health legislation and the framing of a Health Code for the State of Mato Grosso, Brazil, it was recommended that existing legislation be studied and that the code be prepared according to existing federal legislation. In addition, local officials were provided with the legislation in force in other countries in Latin America.

The Organization continued to cooperate with the Government of Honduras in drafting a Health Code for the country. A first draft was submitted to the appropriate authorities and will be examined and discussed by the national institutions concerned; it will then be put into final form. The Ministry of Public Health and Social Welfare was advised to include in the code provisions dealing with: the control of zoonoses, in agreement with the Ministry of National Resources; certain aspects of compensation for occupational diseases; preventive measures to avoid congenital defects that may be caused by the use of certain drugs; the participation of the Health Service in specific activities connected with the control of venereal diseases; the supply of potable water to rural areas, in agreement with the Autonomous Water Supply and Sewage Disposal Service (SANAA); the legal authority of the Ministry for developing public sources of water; and its own participation in sewage disposal systems in communities with a population of up to 1,000 inhabitants.

At the beginning of the year a special consultant was assigned to the Ministry of Health of Jamaica to revise the greater part of the country's health legislation, an undertaking that will be completed in 1965.

At the request of the Ministry of Health and Housing of Trinidad and Tobago, 2 consultants studied with the local authorities the modernization of international quarantine procedures. In that connection legislation was reviewed and official ports and airports were inspected. Specific suggestions were submitted for a reorganization of the quarantine services in accordance with international regulations.

EVALUATION

A Working Party met in June as part of the Regional Advisory Committee on Health Statistics to recommend a system of measurement units, or indices, that would make it possible to measure progress in health activities. The meeting was held in implementation of a recommendation of the Inter-American Economic and Social Council (Second Annual Meeting, São Paulo, Brazil, November 1963).

After a detailed examination of the matter, the Working Party, which was composed of distinguished public health specialists from several Latin American countries and the United States of America, came to the conclusion that two types of evaluation should be distinguished: the first measures the success of health programs through the changes produced in the level of health; the second measures changes in the numbers of health activities carried out and to the persons served.

The Working Party called attention to the fact that changes in the level of health are not solely the result of given health activities; other components of the level of living may also affect simultaneously the level of health of a population. It also pointed out that the effects of health programs on the level of health of a population usually require a long period of time to become evident and therefore cannot be used in short-term evaluation.

It was the opinion of the Advisory Committee that the above-stated circumstances justified the use of the measurement of the activities carried out, provided the methods used in the program were technically correct and conducive to the fulfillment of its objectives.

The system of evaluation of projects in which the Organization provides the Governments with assistance, introduced in 1963, is based on a comparison of the activities carried out as against those that were programmed. It does not pretend to measure the social and economic impact of the programs, a phase still under study for determining the most suitable methods.

The evaluation of projects continued to advance satisfactorily during 1964. The system is based on the expression of the general goals of each project in the form of annual targets and a subsequent comparison of what was accomplished during the year with the targets. According to the Advisory Committee, a goal in this case is the numerical expression of health activities planned for a specified number of persons in a community in a defined period of time.

II. HEALTH PROMOTION: SPECIFIC PROGRAMS

Nearly all the countries in which projects were underway were provided with information on the methods to be applied in evaluating and reporting on health services programs (as was done in 1963), including the concurrent evaluation of educational program activities. Furthermore, evaluation was extended from country programs to inter-country and inter-Zone programs.

The evaluation begun in 1963 in Honduras and Panamá was expanded in 1964 to include the programs of Costa Rica, Jamaica, México, Nicaragua, Trinidad and Tobago, Perú, Venezuela, and the territories of the

Caribbean Area, as well as certain individual programs in other countries of the Americas. This process, which was developing rapidly, made it possible to obtain objective data on the results of a growing number of projects and more exact information about the proportion of the population served; the process also facilitates the planning of what remains to be done in future years. The objective information obtained through this evaluation procedure is reflected in the descriptions of the work done in each project contained in Chapter VIII of this Report.

B. SPECIFIC PROGRAMS

MEDICAL CARE AND REHABILITATION

Medical Care

The statements already made about the need to establish in each country projects for both strengthening the agencies entrusted with the health of the nation and developing a network of polyvalent services, capable of guaranteeing greater coverage of the population concerned, hold especially true for medical care.

Since including such activities in its programs, the Organization has been recommending that medical care be included in the formulation of national or local health plans. The health administrator must concern himself with this basic service and promote it in orderly fashion, expanding the scope of his regular functions. This will bring about a better utilization of resources, through the technical integration of the preventive and curative activities and the administrative coordination of all the institutions that operate in the field of health.

In meetings of officials of 2 of the Bureau Zones medical care was considered as a sphere in which the health administrator would find it possible to expand his activities within a broader framework. The final recommendations formulated on this subject were contained in a document that was subsequently distributed in Spanish and English.

In its activities the Organization has been supporting the need for a better utilization of the human, material, and financial resources available in each country. This doctrine has special importance in the problems related to medical care because of the important bearing of the

latter on health budgets. In this regard, the contribution of social security agencies, with special reference to sickness insurance, should also be considered. The Organization has sought to find the way for a better coordination between the Health Ministries and the frequently autonomous or autarkic social security institutions in general, and those of maternity and sickness insurance in particular.

To that end, the Organization continued to develop activities in coordination with the Social Security Program of the Organization of American States. Thus it was possible to renew joint advisory services (OAS/PAHO) to the Government of El Salvador. The Organization also translated into Spanish a monograph, originally edited by the OAS, on medical care in 5 Latin American countries. The monograph, which contains important information on the medical services of those countries, including data on their social security institutions and the current systems of coordination, was widely distributed in English and Spanish among the countries and national officials concerned.

The Organization was represented at the VII Conference of the Permanent Inter-American Council on Social Security, held in Asunción, Paraguay, in June, and at the XV Assembly of the International Social Security Association held in Washington, D. C., during September. In both meetings it had the opportunity to make an official plea for a better cooperation procedure directed, fundamentally, toward increased coverage in the care of needy population groups. At the second of these meetings a document prepared by WHO headquarters was presented.

At its 50th Meeting, the PAHO Executive Committee agreed to include in the agenda of the XV Meeting of the

Directing Council the topic "Study of the Relationship between Social Security Medical Programs and Those of Ministries of Health or Other Official Health Agencies." The working document prepared stimulated a lively discussion in the Meeting of the Directing Council. The Resolution approved at the latter meeting recommended to the Director that a Working Party be formed to prepare a report on ways to promote enhanced coordination between public health services and medical care programs provided by social security institutions or other agencies, and that the ensuing report be sent to the Governments. The Resolution also recommended the fostering of coordination between the international organizations concerned. The Organization worked closely with the Organization of American States with regard to implementing the Resolution.

Also approved at the same Meeting was Resolution XXV, which recommended that the Director, by means of an advisory committee, study the aspects of hospital planning and other services included in national health planning, and present at the 52nd Meeting of the Executive Committee and at the XVI Meeting of the Directing Council a report on the way in which the Bureau might participate more effectively in plans for the construction, assignment of staff, and operation of integrated hospitals and other similar health services to care for community needs in the various countries. The Resolution concerned, on the one hand, the planning process of the health sector and, on the other, in view of its regional character, the establishment within the PASB of a system by which Latin American countries could receive advisory services on the general programming of health services with regard to their number, characteristics, geographical distribution, type and quality of equipment, staff, and adequate training process.

During 1964 regular-staff specialists, as well as several short-term consultants contracted for the purpose, gave advisory services in 3 of the Zones and one of the countries. The service provided concerned the need to incorporate medical care planning into the general planning for the health sector; to regionalize the preventive and curative services in order to improve their organization and administration; and to train the staff urgently needed for these activities (*see* Chapter III).

The following are some of the medical care activities carried out in several countries of the Hemisphere.

In Central America, and specifically in El Salvador, Honduras, and Panamá, medical care was included (within the framework of the above-mentioned general norms) in the plans being carried out, and the traditionally separate public health and medical care services

were placed under the single authority of a General Directorate.

To improve the coordination between the services administered by the Ministry of Public Health and Social Welfare and those under the tutelage of the Salvadorean Institute of Social Security, the Organization of American States and the Pan American Health Organization agreed to designate a short-term medical consultant to advise both agencies on this work.

Medical care advisory services in the Caribbean Area took place principally in Jamaica and Barbados. In Jamaica studies were continued on the general situation of the country, its health needs and available resources, and a study was made of the incorporation of the new 500-bed hospital, at Montego Bay, into the system of health services. As part of the latter study, a survey was conducted in Cornwall County, which covers a third of the Island, to ascertain the county's health conditions and the special and general health services it may count on from the hospital. A short-term consultant visited the area several times to study the structural plans for the hospital and to plan its future organization.

Similar work was continued in connection with the new hospital in Barbados which, in addition to covering the usual health care needs, will also be used to provide practical experience for students of the University of the West Indies.

Medical care advisory services were continued in Argentina, and special mention should be made of those provided by the Organization in connection with construction of hospitals, as well as with remodeling and enlargement of existing ones. Also during 1964 the national survey of medical care establishments and resources was completed. Advisory services on medical care were provided for the general health programs of El Chaco, Mendoza, San Juan, and Tucumán, and for the Municipality of Buenos Aires.

The Government of Brazil was advised on draft legislation regarding the projected transfer of social security medical services to the Ministry of Health. The importance of this, both for the country and for medicosocial legislation and administration in Latin America, is obvious. The report on this study, including recommendations, was sent to the Government in December.

In Colombia the Organization participated in a preliminary study to improve the outpatient services of the Welfare Hospitals. It also participated, suggesting changes, in the revision of a ministerial resolution to establish norms to govern general hospitals and principles for their administration and operation. Finally, it took part in

meetings dedicated to defining concepts and planning forms for recording hospital statistics.

Much of the efforts in Perú were devoted to introducing concepts of technical integration and administrative coordination. Results were good at the higher levels, but less impressive at the local levels. There was also active participation to improve relations between ministerial services and social security institutions. Other activities dealt with the revision of plans for the construction and remodeling of hospitals.

Around mid-year the services of a specialized adviser were placed at the disposal of the Government of Uruguay, regarding a program that included the study of medical care in the country, recommendations to improve it, the placement of medical care in the general spectrum of health services, and fostering and collaborating in the development of personnel training programs. It is heartening to report that the work was intense and that, both at the ministerial and other levels, the ideas proposed found acceptance.

In reply to a request from the Ministry of Health of Venezuela, the Central University, and the Welfare Board of the Federal District an adviser from the Organization collaborated on the study and evaluation of the José María Vargas Hospital with regard to the possibilities of using it as a teaching hospital and in connection with the Integral Health Plan of the Northeast District of Caracas. The comprehensive report included concrete recommendations and construction details on a suggested 500-bed wing—for patients of all specialties—with laboratories, administrative services, and facilities for teaching and for research. The report also described a plan to coordinate the operation of the new building with the operation of future additions to the hospital. In connection with the above-mentioned study, an integral health plan was programmed for the northeastern section of the Federal District. Other recommendations dealt with a revision of the plan of studies on hospital administration developed by the School of Public Health of the Central University of Caracas; the creation of a Commission of Hospital Planning in the Ministry of Health; and the completion and organization of the Hospital of Acarigua.

Rehabilitation

Although still on a modest scale, because of insufficient specialized personnel, the Organization continued to provide advisory service to countries interested in the field of rehabilitation. In the majority of the countries,

most rehabilitation activities are under the tutelage of private or philanthropic institutions. The Organization continued to recommend that these activities, in the normative sphere at least, be coordinated by the Ministries of Health, through interministerial and institutional committees, for a better utilization of resources and to eliminate the dispersion of efforts and initiatives. This idea was accepted in Bolivia and Perú and seemed to have a good chance of being implemented in Chile.

The Organization continued its efforts, as in the case of medical care, for rehabilitation services to be included as a basic and routine service of national health programs. Toward this goal, the Regional Adviser visited Argentina, Bolivia, Brazil, Paraguay, Perú, Uruguay, and Venezuela, and in each of these countries advised the organizations interested in the subject.

In Chile, headquarters of the Regional Adviser, the principal activity was concentrated on the operation of a pilot center for physical, psychosocial, and vocational rehabilitation of adults. During the year, the center treated 734 new cases, each receiving the corresponding physical rehabilitation. In addition, 176 cases received social rehabilitation treatment in 1,266 interviews. The Department of Prostheses produced 106 rehabilitation devices. The Department of Occupational Therapy, inaugurated in February, treated 49 cases.

These activities brought about close contacts with the Technical Cooperation Service, a semiprivate organization in the U.S.A. This Service assigned an adviser to the pilot center in 1964, and at the end of the year planned to provide technicians for the individual training of the handicapped. The Service has also expressed interest in organizing a prevocational workshop in the Center.

Similar contacts were established with the Ministry of Labor of Chile, some private insurance agencies, and the pertinent section of the National Health Service to propose legislation that would assure both greater possibilities of employment for the handicapped and utilization of their work potential.

The consultant in rehabilitation assigned to Venezuela in 1963 submitted a report with recommendations in connection with the recently established rehabilitation institute and branch services in hospitals and health centers.

MATERNAL AND CHILD HEALTH

Mothers and children are the principal beneficiaries of the health services delivered to the population by the

General Health Services projects operating under agreements between the Governments of the Americas and the Organization. In 1964 emphasis continued to be placed upon the integration of preventive and curative services into comprehensive systems of pediatric and obstetric care. These systems of care were developing different levels of technical activity and consultation which extend out from the base medical center of the peripheral service posts, and different levels of simplified care and screening which channel in from the peripheral posts to the base medical center.

Technically, emphasis continued to be placed upon simplification of routines and selection of high risks for more intensive supervision and care. In maternity care this involves maximum use of nonmedical personnel, ranging from the trained professional midwife or nurse-midwife to the indigenous birth attendant, all functioning within a network of supervision. In pediatric services this emphasis involves a focus upon the synergistic syndromes of diarrhea and malnutrition and the application of specific case-finding mechanisms supplemented by followup diagnosis and the application of rehydration and nutritional rehabilitation measures using the simplest possible methods. Educational counseling of individuals and groups acts as a preventive chain which runs through hospital wards, outpatient departments, health centers, and homes rather than being limited to well-baby clinics.

The translation of these concepts into practice was spreading slowly through the Americas. Three countries reorganized programmed activities during 1964. The rural health pilot area organized in 1963 in Penonomé, Panamá, to demonstrate how services may be improved without increasing resources, continued to make progress. New systems of pediatric care focussing heavily upon nutrition and diarrheal diseases were introduced and their functioning was supervised by staff from the Children's Hospital of Panamá City. The training of indigenous birth attendants was intensified, simplified data-collection systems put in operation, and vital data collection strengthened. Great progress was made in reaching all areas of the community with maximum citizen participation and involvement in health service operations. An increasing number of technical personnel from within the country and from other countries made observation and study visits to the Penonomé pilot area to obtain new orientation in this type of program.

The 6 articles embodying ideas for the Formulation of a Plan for the Control of Gastrointestinal Diseases, prepared for the 1963 Technical Discussions of the PAHO Directing Council, were printed in the *Boletín*

de la Oficina Sanitaria Panamericana and in *PAHO Scientific Publication* 100; both Spanish and English versions were widely distributed throughout the Hemisphere. Other articles on diarrheal diseases and control programs were published in the *WHO Chronicle* and the *USPHS Public Health Reports*. An article on "Maternal and Child Health Problems" was prepared and published in the *Annals of the American Academy of Political and Social Science*; and the Regional Adviser on maternal and child health also made contributions on world child health services during the discussions on International Child Health, subject of the 47th Ross Conference on Pediatric Research, later published in the report of the conference.

In collaboration with the Inter-American Children's Institute, work was begun on a manual of methods for the study and interpretation of child growth and development data. Work was also begun on the translation into Spanish and adaptation to Latin America of the 1962 publication *Child Health in the Tropics*, which will provide an excellent short text for nurses and auxiliaries.

See also Maternal and Child Health, Chapters III, Education and Training, and V, Research.

NUTRITION

The interest of the Member Governments in the role of nutrition in public health continued to increase, as represented by greater demands for advisory services both at the central level in the countries and at the project level. To meet the requests, the Organization continued to have nutrition advisers permanently stationed in 5 of the 6 Zones of the Region.

In an attempt to extend the field of activity of the PAHO public health service advisers who were working at the country level, and at the same time improve the supervision of national nutrition programs, a Seminar on Nutrition in National Health Planning was conducted at the Institute of Nutrition of Central America and Panamá, Guatemala, from 21 September to 10 October. The first of such seminars, it was attended by 8 of the PAHO Country Representatives and dealt with recent advances in the field of nutrition and the need to integrate nutrition work into local health services.

A short-term consultant made a survey of biomedical publications in Latin America that could be suitably used on an international scale.

II. HEALTH PROMOTION: SPECIFIC PROGRAMS

In late 1963 a short-term consultant was designated to determine the current status of nutrition activities in the English, French, and Dutch territories of the Caribbean Area. This was a joint FAO/WHO assignment to judge the need for establishing an area nutrition center. It was envisaged that this center would be responsible for the coordination of existing applied nutrition activities in the area, the training of personnel, and the development of applied research. The consultant's report, which included a specific proposal for the establishment of a center, was circulated to the interested Member Governments in order to poll their wishes regarding implementation.

Applied Nutrition Programs

The Organization recruited a permanent adviser to undertake a complete review of the activities related to health in the 20 applied nutrition programs in which it collaborates with FAO and UNICEF in 18 countries of the Americas. On the basis of the consultant's review, guides to assist countries in the evaluation of the effectiveness of their programs will be established, and, if necessary, a reorientation of the mode of operation will be undertaken, at least in the health field. The adviser visited 6 countries to obtain information on the applied nutrition projects, in order to prepare a paper for the joint FAO/WHO technical meeting on this subject, scheduled for Rome in January 1965.

Institute of Nutrition of Central America and Panamá

INCAP maintained a suitable balance in its program of work in order that the member countries could avail themselves of its services to the best advantage for their respective nutrition programs. The Institute's program includes advisory services to the countries on applied nutrition programs and cooperation with the governmental agencies responsible for them; research related to nutrition; and education and training of personnel, both professional and auxiliary.

Services to Member Countries

Coordinated applied nutrition programs. Assistance continued to be provided to international and gov-

ernmental agencies participating in coordinated applied nutrition programs. The 1964 activities included services to 359 schools, 70 health centers, and 51 agricultural extension agencies in the area of Central America and Panamá.

INCAP continued to stimulate the organizations participating in the programs to include planned activities into their field of action. To this end, it sought the generalized inclusion of coordinated nutrition programs into the services provided for the entire country and not only in the pilot areas in which there were programs in operation.

Special stimulus was given to the incorporation of the subject of Nutrition in the curricula of elementary and secondary schools. Progress in this regard was achieved in Costa Rica and El Salvador, countries where schools will soon begin to use the materials which INCAP has designed especially for the purpose and where reference material for teachers will be readily available.

Emphasis was also placed on the integration of minimum nutrition activities needed for health services, and INCAP staff participated in preparing the pertinent national plans.

The First Seminar on Applied Nutrition was held for a group of PAHO/WHO staff members stationed in 8 Latin American countries. The Seminar took place at INCAP headquarters, under the auspices of the Organization, with the participation of Regional and Zone advisers. A similar meeting for staff stationed in the remaining countries was planned for 1965.

At the request of INCAP, FAO appointed a liaison officer to facilitate the preparation of food balance sheets for the 6 countries of the Central American Isthmus. The data will be placed at the disposal of the Governments in 1965, to assist them in formulating a policy of agricultural production which will take into account the nutrition needs of the population.

Nutrition recovery services. Although INCAP's primary objective is to prevent malnutrition, the Institute is concerned with the suitable care of malnourished children, especially those of preschool age. The Institute therefore promoted the establishment of suitable centers within the health services in order to give those children the care they require.

Special progress in this regard was made by 2 countries. In Costa Rica, a nutrition recovery center was established close to San José for inpatient treatment of children suffering from third-degree malnutrition. At the end of the year, plans were underway for establishing day-care centers, in other parts of the country, for children with second-degree malnutrition. In Guatemala the first

Nutrition Education and Recovery Service was established as part of a health center located near the Capital. The Service provides children suffering from second-degree malnutrition with day care, and at the same time gives nutrition education to the mothers. In both institutions the daily cost per patient is far lower than the cost of hospitalization in the area.

Prevention of endemic goiter. A survey was carried out in that part of the population of Guatemala in which a previous investigation had been made in connection with a salt iodization program begun in 1960. The survey revealed that the prevalence of endemic goiter, which had been 37 percent before the program was begun and 14 percent in 1962, had been reduced to 7 percent in 1964. It may therefore be said that endemic goiter is no longer a public health problem in the country.

Commercial distribution of vegetable mixtures. INCAPARINA production by authorized firms in Colombia, Guatemala, and México reached 2 million pounds, or a 320 percent increase over the quantity produced the previous year. The production of México was used for acceptability tests before initiating the commercial distribution of the product—acceptability was good.

The experience obtained in Colombia and Guatemala would seem to ensure the program's effectiveness both as to acceptability of the product and to promotion and distribution procedures. Negotiations regarding acceptance and distribution in other countries were at various stages of development. In Panamá and Venezuela, where firms have been authorized by INCAP to begin production, acceptability tests were being started; in Brazil and Perú negotiations for production permits to competent manufacturers made progress; and the possibility of granting similar authorizations was under consideration with regard to the other countries of the Central American Common Market and for Chile and Ecuador as well.

Nutrition education. The preparation of basic reference material for personnel working in national health, agriculture, and teaching institutions was continued. During the year, 12 new pamphlets were prepared, and 63,920 copies of these and of other pamphlets prepared in previous years were distributed. Books including some basic notions on nutrition were also prepared for use in several grade-levels in elementary schools.

INCAP took part, together with national and international staff, in the training of local personnel in countries where coordinated applied nutrition programs were being conducted. It cooperated in the training of 683 persons and, although most of them were elementary school teachers, the group also included nurses, home

economists, agricultural extension workers, and other persons actively participating in the nutrition programs.

Research

Studies were continued on the possibilities of using cotton seed for human consumption or animal feed. It was possible to establish which factors in the oil-extracting process determine the nutritional value and content of the toxic pigment, called gossypol, in flour ground from industrially prepared cotton-seed cakes. This information, the importance of which was recognized at several international meetings both in the United States of America



This child has just left one of the nutrition-recovery centers supervised by INCAP in Guatemala, where she received *Incaparina*, the food supplement formulated to fight malnutrition.

and Japan, began to be applied to advantage by manufacturers of INCAPARINA.

Work also continued in the development of formulas for protein-rich vegetable mixtures which may be better suited to the raw materials available in other areas and more readily acceptable to the local population. In this respect it was possible to develop and evaluate mixtures that may prove useful and practical in Chile and Perú; this work was carried out in collaboration with interested industries and individuals in those countries.

Much progress was also made in a study of the nutritional value of native pasture, hay, and other agricultural products for possible use as animal feed. The information obtained was set up in a table of food values for use by the animal-breeding industry.

Studies on diarrheal diseases in children as related to nutrition began to yield highly interesting information. The findings are a contribution towards a better understanding of the epidemiology of diarrheal diseases in rural populations and provide a basis for formulating preventive measures. Preliminary analysis of the data collected during the period gave rise to 3 articles on the subject, which were published in the *Boletín de la Oficina Sanitaria Panamericana* (54:415-446, 1964). The studies were continued under a new approach, in an effort to clarify many of the as yet unresolved aspects of the problem. As part of the effort a longitudinal study was begun to determine at which moment the virus, the enteropathogenic bacteria, or the parasite begins to colonize the intestine of the child, the subsequent evolution of the infection, and its relation to the clinical status of the child. Although these studies were still in the initial phase, they had already yielded useful information, such as the presence of *Endamoeba histolytica* in children's feces a few days after birth, or of *Shigella* at a few weeks of age, without any clinical manifestation. It was also confirmed that almost all the children under study began to excrete the virus of poliomyelitis a few weeks after birth, again without obvious symptoms. This research has made it possible to outline with some precision the pathology of children who live in an environment proper to rural communities, as well as to identify the organisms responsible for the infectious processes, especially the diarrheal ones.

Important strides were made in protein-calorie malnutrition studies, which led to a better understanding of defective intestinal absorption. By means of absorption tests—using oleic acid and triolein with I_{131} tracer, as well as several forms of Vitamin A, xylose, and dextrose—the cases studied showed not only marked fat-absorption defects, but also abnormalities in sugar absorption.

Defective fat absorption arises in the early stages of malnutrition and persists for several weeks after treatment, even though the other criteria may lead to the consideration that the child has recovered. The main deficiency seems to reside in the intestinal wall proper rather than in the mechanism of digestion. This information is of interest for the adequate care of malnourished children and for the prevention of any possible complications.

Systematic hematological studies were also begun in an effort to clarify the etiology of the anemias observed in protein-calorie malnutrition.

Research conducted to find practical and effective methods of evaluating the nutritional status of population groups, with particular regard to the detection of protein-deficiency in cases that show no clinical evidence, made it possible to confirm the diagnostic value and to standardize the method of the urea nitrogen/urinary creatinin relationship, as well as the interrelation of certain free plasma amino acids. The latter makes it possible to differentiate the newborn of mothers from high or low socioeconomic strata, even though there may be no appreciable clinical differences between the two groups of children.

The collection of aorta and coronary artery specimens was completed as a part of the international study on atherosclerosis, in which 20 laboratories from various parts of the world are participating under the joint coordination of INCAP and the University of Louisiana, U.S.A. During the 4 years of this part of the study 22,620 specimens were collected. Analytical studies on the pathological information provided by the data and the correlation of variables observed in the course of the investigation were begun, in order to establish the factors associated with atherosclerosis and its complications.

Training

The special nutrition training programs carried out during the year included a course of nutrition in public health for physicians and other professional staff; a course in applied nutrition for Latin American dietitians and courses for supervisors of home economics and supervisors of other nutrition-teaching school programs; training on the design, testing, and evaluation of teaching aids; training in carrying out dietary surveys; and special programs in nutrition and related sciences for recent graduates from universities or technical schools in the area (Table 23).

TABLE 23. COUNTRY OF ORIGIN AND TYPE OF STUDY OF ATTENDANTS AT INCAP TRAINING PROGRAMS, 1964

Country	Type of training					Total
	Special programs			Nutrition in public health	Applied nutrition for Latin American dietitians	
	Applied nutrition	Laboratory	Clinical nutrition			
Argentina.....	—	—	—	1	2	3
Brazil.....	—	—	—	1	3	4
Ceylon.....	—	—	—	1	—	1
Chile.....	—	—	—	—	2	2
Colombia.....	1	—	1	8	2	12
Costa Rica.....	1	—	—	—	1	2
Dominican Republic.....	1	—	—	—	—	1
El Salvador.....	7	1	1	—	—	9
France.....	1	—	—	—	—	1
Guatemala.....	—	12	4	1	—	17
Haiti.....	—	—	—	1	—	1
India.....	1	—	—	—	—	1
México.....	—	—	—	1	—	1
Nicaragua.....	5	—	—	—	—	5
Paraguay.....	—	—	—	—	1	1
Perú.....	—	—	—	2	—	2
Sweden.....	—	—	—	1	—	1
Switzerland.....	—	—	—	1	—	1
Trinidad and Tobago.....	—	—	—	1	—	1
United States of America ^a	5	2	6	2	—	15
Uruguay.....	—	—	—	—	1	1
Venezuela.....	—	1	—	2	—	3
Total.....	22	16	12	23	12	85

— None.

^a Includes Puerto Rico.

Publications

A total of 68 scientific articles were prepared: 25 were published in Spanish and 30 in English; the other 13 articles were in press, in one or the other language, at the end of the year.

The quarterly *INCAP informa* . . . continued to be published and distributed regularly to some 1,000 persons, organizations, and institutions throughout the Hemisphere and in other parts of the world. A brief pamphlet on INCAPARINA for the medical profession was also published and distributed.

MENTAL HEALTH

Although there is a good theoretical understanding of the mental health problem in the countries of the

Hemisphere, in 1964 there were still some countries without national mental health programs and others which did have them but accorded them only secondary importance.

Some of these programs place the greatest emphasis on hospital care, which results in limiting administrative activities to hospital construction and maintenance. Although there is an unquestionable shortage of hospital beds for mental patients in the Hemisphere, there is also a need for such other services as psychiatric wards in the general hospitals, day hospitals, convalescent homes, outpatient clinics, dispensaries, and others. These facilities not only provide mental patients with the humane treatment they deserve but also accelerate their early rehabilitation, because the provision of a range of community services helps to prevent the adverse psychological and social and economic consequences which prolonged hospitalization in an isolated environment produces in an individual and in his family.

II. HEALTH PROMOTION: SPECIFIC PROGRAMS

There is also a shortage of trained professional personnel qualified to operate this type of program.

The program of the Organization, therefore, continued to be aimed at changing the traditional attitude of health administrators towards mental health activities.

Since the two Latin American Seminars on Mental Health held in 1962 and 1963, there has been a slow but constant growth of understanding, on the part of health administrators, of the importance of mental health in the public health activities.

The Organization, through its advisory services to the Governments, made recommendations on national mental health programs, emphasizing community services.

A 2-year project to investigate the interactions between members of the families of schizophrenic patients was begun in Argentina in cooperation with the Foundations' Fund for Research in Psychiatry, of New Haven, Connecticut, U.S.A.

The Mental Health Information Center on Latin America continued to distribute information to medical libraries, governmental mental health agencies, and professionals in this field. The documentation distributed included selected bibliographies of Latin American literature on psychiatry and mental health, lists of psychiatric institutions and mental health organizations, and lists of professional personnel engaged in this field of endeavor.

Questionnaires were sent out requesting data for the preparation of two directories in Latin America—one on psychiatrists and the other on psychiatric institutions; the latter will include details on psychiatric care and other facilities available in those institutions. Work was also continued on the bibliography of books and articles published during the period 1960-1962.

DENTAL HEALTH

Activities related to projects on fluoridation of the public water supply in Latin America were continued. In particular, by means of 3 short-term consultants, the Organization cooperated with the Inter-American Association of Sanitary Engineering in the planning of several activities on fluoridation developed in Bogotá, Colombia. Furthermore, at year's end a survey was begun on the status of water fluoridation in Latin American countries.

The Organization gave technical advisory services to the Government of Colombia in connection with the research being carried out by the University of Antio-

quia, with the economic aid of the National Institutes of Health of the United States of America, on the possibility of using common salt as a new vehicle for fluorine in the prevention of dental caries. During 1964 the laboratories for the examinations required by the study were completed, the first samples of fluorized salt for distribution to the population were received, and all the medical and dental studies that would serve as the basis for the annual evaluation of the experiment were completed. The Organization also advised the Government on the inclusion of aspects of dentistry in the Study of Health Problems, Manpower Resources, and Medical Teaching currently in progress in the country.

The other activities of the Organization in the field of public health dentistry will be found in the corresponding section of Chapter III, Education and Training.

RADIATION AND ISOTOPES

The use of radiation and isotopes in medicine—both clinically and for research—as well as in industry demands adequate understanding of both the potential benefits and potential health hazards associated with these tools. Foreseeing that the use of nuclear energy as a source of power will continue to increase and spread—therefore increasing the need for understanding and for practicing protective measures—the Organization continued to develop its comprehensive program designed to: (a) stimulate national health services to establish radiation protection services and adopt international standards, procedures, and regulations in the use of X-rays and radioisotopes and for the disposal of radioactive wastes; (b) promote the teaching of basic health physics, radiobiology, and radiation protection techniques in professional schools; (c) organize courses to train professional personnel in the medical uses of radioisotopes and paraprofessional personnel for the newly established radiation protection health services; and (d) encourage research in application of radiation which may have medical, public health, or veterinary significance.

The program to stimulate the establishment of radiation protection services in the Health Ministries of the countries of the Americas and the training of inspectors to carry out the work required was improved by the recruitment of a radiation physicist in the latter part of 1964. Lima, Perú, was selected as the base of operations from which the physicist will carry out the work.

Under the collaborative program undertaken in 1962

by the Organization and the United States Public Health Service, in 1964 supplies continued to be provided to the national health services of Chile, Jamaica, Perú, Trinidad and Tobago and Venezuela to determine the amounts of radionuclides present in air and milk and thereby assess the possible public health hazard, if any, to the population. Equipment was provided to Argentina for the establishment of a sampling station in Buenos Aires, raising to 6 the surveillance stations in Latin America.

The above-mentioned stations, manned by local personnel, collect air and milk samples and forward them through the Organization to USPHS laboratories for analysis—air samples are analyzed in Rockville, Maryland, and milk samples in Montgomery, Alabama. The first 5 stations were functioning with regard to air-sample collection, but only 3 of the surveillance stations were also forwarding milk samples. After the analyses are carried out the results are turned over to the Organization, which also provides administrative and reporting service to the stations.

During the year it became necessary to prepare revised instructions and new reporting forms to be used by the stations. The USPHS forms were translated into Spanish and printed by the Organization, then given to the USPHS for inclusion with the supplies to be sent to the stations.

The continued cooperation of the USPHS was encouraged so that the surveillance program for radionuclides in air and milk may be gradually extended each year. Furthermore, as there is a limit to the number of samples that can be analyzed by the USPHS, efforts were initiated to arrange for assistance from the Department of National Health and Welfare of Canada.

At the request of the Government of Venezuela the Organization obtained the services of a consultant, from the Division of Isotopes Development of the U. S. Atomic Energy Commission, to look into the possibilities of developing in that country food preservation processes through irradiation. Some basic studies along these lines had already been carried out by a Venezuelan PAHO-trained radiation physicist using the 500-Curie Cobalt-60 sealed source which had been provided earlier by the Organization to the Venezuelan Institute of Scientific Research for use in the biological studies on *Rhodnius prolixus*.

The editing of the USPHS teaching manual *Basic Radiological Health* (translated into Spanish in 1963) was completed in 1964. It is to be printed by the USPHS.

To implement further the Organization's program regarding health aspects of the use of nuclear energy, fellowships continued to be provided in a number of

areas (see Radiation Protection, Chapter III, Education and Training). Investigations were continued on Manganese Poisoning, on High Natural Background Radiation Areas, and on the Biology and Ecology of *Rhodnius prolixus*. A research project on Large Animals at High Altitude was prepared (see Chapter V, Research).

OCCUPATIONAL HEALTH

The Regional Adviser in occupational health gave advisory services in Argentina to the Environmental Engineering Research Center which has a working relationship with the School of Sanitary Engineering at the University of Buenos Aires. As a result of this visit, it was recommended that a plan for the study of air pollution in Buenos Aires, developed by the Director of the Center, should be put into effect at once. It was also recommended that a preliminary survey of a representative sample of industries located in Metropolitan Buenos Aires be conducted.

The Laboratory equipment for work in air pollution at São Paulo, Brazil, was received and installed, and operations were scheduled to start in early 1965. The Organization will assist in this program with the assignment of an engineer, specialized in air pollution, to collaborate with officials in charge in Metropolitan São Paulo.

The Regional Adviser also visited Bogotá, Colombia, to brief and help the short-term consultant appointed to assist in evaluating the industrial hygiene program of the Ministry of Public Health of that country.

In Venezuela the Regional Adviser reviewed the occupational health program of the Ministry of Health and Social Welfare. Although the program showed progressive improvement in its work and a very healthy growth in technically trained personnel and laboratory and field equipment, it was found that the occupational health services were being extended throughout the country at the expense of the central office. One fundamental recommendation bore upon the need to maintain a strong central service to uphold and assist the local services. Obviously, expansion of the services should be done slowly and carefully, since one of the major problems will be the provision of adequately trained and experienced personnel for both the central office and the branches.

The First Latin American Seminar in Occupational Health sponsored by the Organization was held in São Paulo, Brazil, from 21 to 26 March. The objectives of the Seminar were to determine the magnitude of the

II. HEALTH PROMOTION: SPECIFIC PROGRAMS

problem in Latin America in all its aspects; to standardize methods of study in order to be able to make comparative evaluations of the problem; and to make a thorough analysis of the activities and resources in occupational health in each country and make specific recommendations which could be utilized by the Governments, industry, and labor. Each one of the 19 participants from 8 countries was given the task of preparing working papers, on one or more of the subjects, strictly following an outline carefully prepared by the Planning Committee which met in 1963.

The Seminar discussed several subjects and made specific recommendations. In particular, the problems related to the impact of social security laws and compensations for unhealthy environments were analyzed and the participants concluded that the compensations are not beneficial to the worker since they indirectly retard the adoption of measures to eliminate the hazards or reduce them as much as possible. The Seminar recommended the elimination of any type of bonuses or reduction in hours of labor as methods of compensation for working in unhealthy environments. It emphasized the need to update the current legislation on this subject, replacing it as soon as possible with legislation that strives to eliminate occupational hazards.

Institute of Occupational Health and Air Pollution Research

A temporary building to house the Institute of Occupational Health and Air Pollution Research in Santiago, Chile, was acquired on 1 March. Part of the equipment that had been ordered arrived and was installed during the year. The Radiological Protection Laboratory began operations on 1 August with a film-badge dosimetry service to control the exposure of certain workers in hospitals and clinics who handle radioactive materials. The Industrial Hygiene Chemistry Laboratory, which had been functioning for many years at the School of Public Health, was completely transferred to the Institute during October. The Institute was officially inaugurated on 29 October, and at year's end had a staff of 8 full-time and 7 part-time professionals, 5 technicians, and 10 full-time nonprofessional employees.

Three Chilean professionals from the Institute were sent abroad for studies, two of whom completed their observation tour in the United States of America and Europe and returned by the end of the year: one is a physician specializing in physiology and the other is an engineer who is the Assistant Director of the Institute.

The third, a chemical engineer, went to the United States on a 12-month fellowship.

The Institute conducted 6 training courses during the year. The first was a 3-week advanced course in radiological health for public health administrators from Brazil, Costa Rica, México, Nicaragua, Perú, and Venezuela. A 20-hour course in occupational health for physicians was conducted at the School of Public Health as part of the year's academic course for graduate students. In addition, a 15-hour course was presented to 40 sanitation inspectors and a 30-hour course on environmental toxicology was held for undergraduates at the School of Chemistry of Chile's Catholic University.

The Institute and the United States Public Health Service continued their cooperative study of radioactive fallout in Chile. Air particulates were collected continuously at the rate of about 1,400 cubic meters a day, and the filters were forwarded to Washington for analysis by USPHS laboratories.

An investigation on the prevalence of mercurialism among 122 technicians in 30 clinical laboratories of the National Health Service of Chile was carried out. The results of this study were presented at the Fourth Inter-American Conference on Toxicology and Occupational Medicine, held from 24 to 27 August at Miami, Florida, U.S.A., and will be published in the Transactions of the Conference. The investigation revealed that the technicians concerned had been exposed to inadequate working conditions and were careless about safety measures. The more significant findings were those of a clinical character.

Other research activities of the Institute included mass surveys of pneumoconiosis with a mobile X-ray and laboratory unit at small mines and a study of agricultural damage caused by sulphur dioxide discharges from a copper smelter. In addition, the Institute collaborated in a study of a Wilson's disease-like syndrome in connection with manganese poisoning (*see* Chapter V, Research.)

At year's end the temporary building housing the Institute was still in the process of renovation so as to house the laboratories of Air Pollution Research, Biochemistry, Physiology, and Ventilation.

The University of Chile negotiated a loan of \$1,250,000 from the Inter-American Development Bank to complete the construction and equipment of the School of Public Health as a wing of the School of Medicine at Santiago. The Institute of Occupational Health and Air Pollution will be allotted approximately 2,000 square meters of space in the new building, which will be ready for occupancy within 3 years.

III. EDUCATION AND TRAINING

This Chapter includes both project and other education and training activities, such as the training of professional and auxiliary personnel conducted as part of general and specific health projects and the fellowships granted or administered by the Organization.

The educational activities conducted by the Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center will be found in Chapter I.A, *see under* Zoonoses. For corresponding activities by the Institute of Nutrition of Central America and Panamá, *see under* Nutrition; and for those of the Institute of Occupational Health and Air Pollution, *see under* Occupational Health, both in Chapter II.B.

PROFESSIONAL AND AUXILIARY PERSONNEL

Schools of Public Health

Advisory services were continued, upon request, to schools of public health in the Hemisphere.

A special consultant was appointed to visit the countries of Central America in order to ascertain whether a school of public health should be established for the area and if such an undertaking was feasible, and to recommend any department of preventive medicine of the present medical schools that could be the basis for starting such an institution. This study was made at the request of the Central American Council of Higher Education, in its quest for improved coordination and avoidance of duplication of the educational institutions of the region. After discussing the matter with the Ministers of Health and the deans of medical, dental, nursing, and veterinary schools of the countries concerned, the consultant concluded that the time had not yet come for establishing a full-fledged school of public health to serve the Central American countries and suggested that, in the meantime, the teach-

ing of public health be improved and intensified in the already established schools. The consultant's report was duly transmitted to the above-mentioned Council.

Another consultant participated in discussions with the pertinent teaching staff of the schools of public health in Argentina, Colombia, Venezuela, and São Paulo, Brazil, regarding the content of the current courses in medical care and hospital administration that are part of the program leading to the degree of Master in Public Health. It was agreed that, in their teaching, the schools should stress the concept of integrated curative and preventive medicine and approach the subject of medical care as one of the basic health services.

A study group composed of the directors of Schools of Public Health of Argentina, Brazil, Chile, Colombia, Puerto Rico, Perú, Venezuela, and the Director General of Education of the Ministry of Health and Welfare of México met in Buenos Aires, Argentina, from 9 to 13 November to discuss minimum standards for a system of accreditation that might be developed in the future for schools of public health in Latin America. Included was the setting up of standards for awarding degrees and diplomas in public health and patterns of organization and administration of the schools. The report was distributed to the schools and Governments concerned.

Medical Education

Thirty-seven medical schools in 17 countries of the Hemisphere were provided with advisory services, teaching materials, and/or text and reference books. The advisory services were provided through 13 specialists in medical education, short-term consultants, and permanent staff members of the Organization.

The areas in which advisory services were provided and the number of schools that received them were as follows: medical school organization and administration, 12 schools; teaching of preventive medicine, 3 schools;

teaching of basic sciences, 1 school; and teaching of clinical sciences, 3 schools.

Cooperation in organizing courses on medical pedagogy for their faculties was provided to the School of Medicine of the University of Minas Gerais, Belo Horizonte, Brazil; to the School of Medicine of the University of Valle, Cali, Colombia; and to the School of Medicine of the University of Chile. The courses were attended not only by teachers of the schools where the courses were held but also by teachers from 8 other medical schools in the Hemisphere who were interested in receiving this training for the purpose of organizing similar courses in the schools of their countries.

Cooperation was given in organizing 2 national seminars on medical education, one in Perú and the other in Venezuela. In preparation for these seminars, 4 short-term consultants visited the 5 medical schools of Perú and the 6 schools of Venezuela, and discussed with university officials and teaching staff the general subjects of medical education applicable to the respective school. The Organization provided staff to cooperate in the preparation and holding of these seminars and printed material on subjects bearing on medical teaching was distributed to the participants.

The Organization continued its cooperation with the participating institutions of the Medical Education Information Center by facilitating secretarial services. In addition, the annual meeting of the Center was organized, the Directory of Schools of Medicine in Latin America was brought up to date, and reports summarizing the medical education activities of participating institutions in the Hemisphere were prepared.

Cooperation was given in planning the III World Conference on Medical Education, scheduled to be held in New Delhi, India, in 1966, and a financial contribution was made as well for its organization.

A meeting of experts in teaching preventive medicine was held for the purpose of considering the advisability of making a study on the teaching of this subject in Latin America and evaluating the influence of the recommendations made by the seminars on the teaching of preventive medicine sponsored by the Organization in 1955 and 1956.

With financial assistance from the Agency for International Development, of the United States of America, studies were begun in 1964 on the feasibility of establishing 3 centers in Latin America for the training of researchers in the following fields: population dynamics, including medical demography and the biology of reproduction; epidemiology; and preventive medicine. Preliminary discussions were held with the administrative

authorities, researchers, and faculties of the Schools of Medicine and Public Health of the University of Chile; of the Universities of São Paulo and Ribeirão Preto, of Brazil; and of the School of Medicine of the Central University of Venezuela, in Caracas. At the end of the year, the resources of these institutions were being considered for possible participation in this project.

The Organization was represented at the IV Conference of Schools of Medicine of Latin America, organized by the Brazilian Association of Medical Schools and held in Poços de Caldas, Brazil, from 15 to 23 August. At a round-table meeting organized during the Conference, joint PAHO/WHO and USPHS plans for a cooperative program to provide audiovisual teaching aids to medical schools in Latin America were discussed.

Also during the Conference an Administrative Committee of the Pan American Federation of Associations of Medical Schools was established; the Organization will assist the Committee in its activities.

Nursing

The provision of advisory services to 15 countries of the Americas was continued through projects at three levels of nursing education: training of auxiliaries, basic nursing training, and advanced nursing education programs.

The training of auxiliary nursing personnel has been a main consideration in every health service project in which the Organization has collaborated, as the shortage of professionals made it imperative to employ auxiliaries. In 1964 all the countries of Latin America were training nursing auxiliaries for the health services. In addition, in Argentina, Brazil and Guatemala, courses were set up for preparing instructors of auxiliaries, thus accelerating the rate of training. In Chile, 3,345 auxiliaries have been trained during the last 7 years in courses varying from 6 to 9 months, with the numbers trained increasing progressively from 120 in the first year of the program to 921 in 1964.

Among the major factors hindering the training of nursing auxiliaries are the limitation of funds and the lack of nurses with adequate preparation for teaching this personnel.

Auxiliaries are extensively used in South America for nursing care (Table 24). The fact that more than 80,000 untrained auxiliaries (about 75 percent of the known total) were working in the health services in 10 countries is proof that the provision of training at this level is a necessity.

TABLE 24. NUMBERS AND RATIOS OF NURSING PERSONNEL^a IN THE HEALTH SERVICES OF THE COUNTRIES OF SOUTH AMERICA

Country	Year of information	Estimated population	Nurses		Auxiliaries			
			Number	Per 10,000 population	Number	Per 10,000 population	Trained	Untrained
Argentina.....	1964	22,024,000	22,903 ^b	10.4	7,429	3.4	478	6,951
Bolivia.....	1962	3,549,000	411	1.2	571	1.6	288	283
Brazil.....	1963	76,409,000	6,684	0.9	55,664	7.3	8,400	47,264 ^c
Chile.....	1963	8,222,000	1,656	2.0	8,828	10.7	3,593	5,235
Colombia.....	1963	15,098,000	1,000	0.7	10,600	7.0	2,600	8,000
Ecuador.....	1964	4,877,000	312	0.6	1,794	3.7	393	1,401
Paraguay.....	1958	1,687,000	100	0.6	1,098	6.5	282	816
Perú.....	1964	11,357,000	3,440	3.0	8,347	7.3	2,035	6,312
Uruguay.....	1964	2,996,000	496	1.7	3,756	12.5	3,496	260
Venezuela.....	1963	8,144,000	3,498	4.3	12,088	14.8	5,816	6,272
Total.....		154,363,000	40,500	2.6	110,175	7.1	27,381	82,794

^a Estimated data obtained, through Nursing Services, official agencies of each country.

^b 196 university nurses; 2,134 nurses by virtue of a 1944 Decree granting title to auxiliaries who had 10 years of hospital experience; 20,573 nurse graduates of diploma school (not affiliated with a university).

^c 4,120 passed certain tests; 7,438 have limited training that prepared them for certain specific functions.

A new attempt to overcome the lack of prepared instructors was initiated in 1964 when 23 nurses from 10 countries of South America were brought together in a seminar in Colombia to study the possibility of using programed instruction—a modern method of autoinstruction—in the training of instructors. It was the consensus of this group that selected nursing subjects could be treated in individual booklets of programed instruction for use in Latin America. The booklets would have to be prepared by expert instructors in each subject, thus contributing to the improvement of content and to the achievement of minimum standards in all countries. In the present situation of instructor shortages, at least two other advantages would be gained: (a) many graduate nurses with experience in the services would be able to teach nursing auxiliaries, without a great deal of additional preparation; and (b) since individual teachers would not have to prepare their own syllabuses and lesson plans, they would be able to devote more time to orientation of the students' practical experience.

A Regional project was set up to continue disseminating information on programed instruction; to prepare selected nurses in the methods of programing; to write the programed instruction booklets on selected subjects; and to test the worth of the booklets in the training of auxiliary nursing personnel. Should the new approach be found suitable, the program should lead to a rapid advance in the training of auxiliaries, not only in nursing but in other fields as well.

In the area of basic nursing education the 1964 outstanding accomplishments included, on the one hand, the planning and execution of a survey of schools of nursing in the English-speaking areas of the Caribbean, and on the other, the successful termination of nursing projects in Bolivia and Guatemala.

The Caribbean Area nursing survey encompassed 23 schools of nursing. Each school was visited by a team composed of a PAHO adviser and a representative of a school of nursing from a neighboring English-speaking country or territory. At year's end their reports were being studied individually by the members of a Board of Review composed of 10 nursing leaders from the area, representing Antigua, the Bahamas, Barbados, British Guiana, British Honduras, Grenada, Jamaica, St. Kitts, and Trinidad and Tobago. Plans were made for a 2-week seminar scheduled for 1965 at which the Board of Review will give its final group-decision on the evaluation of each school. In the second week of the seminar the group, together with members from other professions such as medicine, education, and administration, will make recommendations for future developments of nursing education in the area.

Direct advisory assistance to the National School of Nursing in Bolivia and in Guatemala was terminated in May and July respectively. Underlying the termination of the projects in those countries was the expectation that national nurses, a large proportion of whom were well



As part of her advanced studies, this graduate nurse teaches expectant mothers about child health care.

prepared for their functions, will successfully assume full responsibility for the education program.

The Guatemala project, which was in effect for 10 years, included programs to provide basic nursing education; advanced nursing education; and training of nursing auxiliaries (Table 25).

The results obtained in Bolivia were not as striking, but one important outcome was the increase in prestige of nursing as a profession, as evidenced by the large numbers of young women who complete secondary education and choose nursing as a career. Another movement which augurs well for the future of nursing in Bolivia is the plan for incorporating the School of Nursing into the University, since the School's educational standards are presently as high as those of other schools in that establishment. If carried through, this plan would ensure for the School, through the support of a high national educational institution, a desirable stability lacking at present.

In 1964 the majority of the countries in Latin America had at least one school of nursing organized along modern lines with a minimum entrance requirement of 9 years of general education. The Directory of Schools of Nursing in Latin America was revised to reflect this fact. After the conclusion of the survey of the schools of nursing in the English-speaking areas of the Caribbean all schools which meet the same standards will be added to this Directory.

Other projects in basic nursing education—in Argentina, Cuba, the Dominican Republic, and Ecuador—progressed satisfactorily. Special emphasis was being given in Cuba to strengthening the nursing services where students obtain their clinical experience.

The third aspect of the nursing education programs is the preparation of competent faculty for schools of nursing and of instructors to train auxiliaries, as well as the preparation of supervisors and administrators for the

TABLE 25. NURSING PERSONNEL WORKING IN GUATEMALA, 1954 AND 1964

Type of personnel	1954		1964	
Nurses:				
Graduate.....	267		660	
With advanced preparation.....	10		70	
Total.....		277		730
Nursing auxiliaries:				
Trained.....	—		1,377	
Untrained.....	1,059		803	
Total.....		1,059		2,180
Total nursing personnel.....		1,336		2,910

— None.

nursing services in each country. This entails the establishment of courses in advanced nursing education, of the type previously carried out in Guatemala and other countries, with the collaboration of the Organization. In 1964 collaboration was given to Brazil, Ecuador, Perú, and Venezuela in this type of courses. Nurses who were employed in the various health services or engaged in nursing education in these countries have attended the courses which will prepare them for the functions they had been carrying out empirically. This is a slow process, in comparison with the need, but during 1964 approximately 100 nurses from the above-mentioned 4 countries received the needed preparation.

In Bolivia and Ecuador, surveys of nursing resources and needs were completed. The report on the Bolivian survey was under preparation, and that on the Ecuadorean survey of 1963 was published in early 1964. The report on Ecuador revealed that for a population of 4,500,000 there existed 274 nurses in the health services of the country, 313 trained auxiliaries, and 1,401 nursing auxiliaries without formal preparation.

Through the above projects, progress in nursing education at one or all levels has been attained in practically every country in the Americas. Further progress awaits the decision by nursing and other health authorities as to what specific functions each type of nursing personnel should be prepared to fill.

Environmental Sanitation

Several factors have contributed to a delayed development of sanitary engineering education and research in

Latin American universities and to a failure to fully utilize the professional services of sanitary engineers in the governmental agencies concerned with problems of environmental control for the protection and improvement of the health of the people. Some of these factors are being recognized and the information necessary for corrective action is being developed. In the past, concepts of preventive medicine, involving studies of the relationship of man's physical environment to the state of his health, did not receive the emphasis necessary to create an appreciation of the needs in engineering services, which are an essential part of an effective public health program.

The above-stated situation was recognized by those responsible for establishing the 10-year objectives of the Alliance for Progress in the Charter of Punta del Este and emphasis was given to the development of public water supply, sanitary drainage, and other environment-modifying programs. Not only are sanitary engineers needed in health agencies to develop and direct technical programs, but their services are of equal or even greater importance to the several agencies and authorities concerned with the development of the public works necessary for the improvement of environmental sanitation conditions.

The number of fully qualified engineers required to provide technical services for the estimated 206 million people of Middle and South America has been estimated from a starting minimal figure of 4 engineers for each million inhabitants, or 824, as compared to a United States average of 30 per million, in which case 6,180 would be needed. These figures, however, are only of academic interest because the educational resources of the countries of Middle and South America are not now adequate to supply even the minimal estimate of need.

Studies have been made of the physical and staff resources of typical educational institutions concerned with engineering education to determine how students in civil engineering might be given a basic academic preparation in sanitary engineering as an integral part of their undergraduate preparation. The lack of laboratory facilities and staff to provide the biological and chemical science preparation required in this special field and the cost of providing these essential facilities will be a barrier to the introduction of sanitary engineering instruction in many of the smaller institutions.

One of the most promising solutions to the problem of the high academic cost of providing sanitary science laboratories and laboratory instruction is the developing concept of establishing in educational institutions sanitary engineering research and service laboratories, to be op-

III. EDUCATION AND TRAINING

erated for and in cooperation with governmental agencies in need of the services that such a facility can provide. Through interagency agreements, plans have been made to enable Ministries of Health and of Public Works to use the full-time services of a sanitary engineering laboratory, not only staffed and equipped for educational purposes, but also available for research studies and laboratory service work. In furthering this approach, the Organization obtained financial assistance from the United Nations Special Fund and began developing programs that will provide these teaching, service, and research laboratories, with supporting full-time staffs in 4 Universities in Venezuela and in the State of Guanabara, Brazil.

In Venezuela the universities involved are the Central University and the Andrés Bello Catholic University, in Caracas; the University of Zulia, in Maracaibo; and the Los Andes University, in Mérida. The plan of operations, for which the supporting agreement was signed by the Government, the UNSF, and the Organization, with the latter as Executing Agency, specifies that the Special Fund will contribute \$736,400 and the Government \$936,275 for a 4-year program. The Government's contribution will cover the provision of laboratory space

and regular staff, and the UN Special Fund will provide laboratory equipment, fellowships, and visiting professors.

The 4 universities will provide basic courses in sanitary engineering for all civil engineering undergraduate students, to include: hydrology; hydraulics; sanitary science, with laboratory work in bacteriology and chemistry; and water supply and sewerage. Special assistance will be given to Central University in developing a graduate program in sanitary engineering with emphasis on research in sanitary chemistry and biology, radioactivity, air and water pollution, and other problems of environmental health. According to estimates, approximately 500 students will annually receive training under this program. Provision also has been made for inservice-training programs which will utilize the several sanitary science laboratories and the technical staff of the universities to give specialized instruction to employees of the Ministries of Health and of Public Works.

The UN Special Fund also agreed to collaborate in the establishing of the Institute of Sanitary Engineering of SURSAN (Superintendency of Urban Development and Sanitation), a corporate unit of the Ministry of Public Works of Brazil. The Special Fund allocation for a 4-year development period is \$467,700, with a Govern-

TABLE 26. SHORT COURSES RELATED TO THE WATER SUPPLY PROGRAM, BY COUNTRY OF ORIGIN, NUMBER OF STUDENTS, AND HOST COUNTRY, 1964

Country of origin of students	Host country									Total
	México (June)	México (October)	Costa Rica (November)	Panamá (November)	Perú (November)	Colombia (December)	Brazil (December)	México (December)	Chile (December)	
Argentina.....	—	—	—	—	—	—	2	—	4	6
Bolivia.....	—	—	—	—	2	2	—	—	—	4
Brazil.....	—	—	—	—	—	—	47	—	—	47
Chile.....	—	—	—	—	—	—	—	—	22	22
Colombia.....	—	—	—	—	4	15	4	—	—	23
Costa Rica.....	—	—	13	—	2	2	—	—	—	17
Dominican Republic.....	1	—	—	—	1	1	1	1	—	5
Ecuador.....	—	—	—	—	1	1	1	—	—	3
El Salvador.....	—	—	—	—	1	—	1	—	—	2
Guatemala.....	—	—	—	—	—	1	—	—	—	1
Haiti.....	1	—	—	—	—	—	—	—	—	1
México.....	10	31	—	—	—	1	—	13	—	55
Nicaragua.....	—	—	—	—	2	1	2	1	1	7
Panamá.....	—	—	—	10	—	—	—	—	—	10
Paraguay.....	—	—	—	—	—	—	1	—	—	1
Perú.....	—	—	—	—	16	—	—	—	—	16
Total.....	12	31	13	10	29	24	59	15	27	220

— None.

ment contribution of \$1,247,870. The Institute will occupy 3,000 square meters of floor space in the University of Guanabara building. This project intends to combine the existing and separate laboratories of water supply and sewage into a facility that will be equipped, not only for service and research, but also for academic and special inservice training.

Using UNESCO as the Executing Agency, the UNSF was assisting in a major expansion and development of the College of Engineering of the National University of Colombia, at Bogotá. Although much of this project is concerned with the development of programs in electrical, mechanical, and chemical engineering, the civil engineering program was being strengthened in its sanitary engineering option. The assistance of the Organization was requested in connection with staffing and other matters having to do with the sanitary engineering portion of this project.

The Organization also assisted Argentina and Costa Rica in developing project proposals for submittal to the UNSF. One of the proposals, jointly sponsored by the Ministry of Public Health, the Costa Rican Institute of Electricity, the National Service of Water and Sewerage, and the National University, envisages the establishing of a Water Resources Institute. The other proposal plans for a graduate program in sanitary engineering to be established in the School of Engineering of the University of Buenos Aires, in Argentina.

Also worth reporting is the fact that the Ministry of Public Works and the University of Chile began a study on the possibility of establishing an Institute of Sanitary Engineering in Santiago. The facilities of this Institute would provide the necessary laboratory services for the Sanitary Engineering Department of the Ministry as well as a teaching and research center in sanitary engineering for the University.

In addition, preliminary studies on the possibility of establishing sanitary engineering institutes—that would bring together the service and research needs of the Ministries of Public Health and Public Works with University staff and facility requirements for the teaching of sanitary engineering, either as an undergraduate specialization in civil engineering or as a graduate program—were undertaken in Brazil, Guatemala, México, Panamá, and Trinidad.

Several short courses on the planning of water supplies in Latin America were conducted under a project financed by the Program of Technical Cooperation of the Organization of American States. The basic objective of this program was to stimulate the inclusion of these short

TABLE 27. AUXILIARY PERSONNEL TRAINED IN ENVIRONMENTAL SANITATION, 1964

Country	Personnel trained	Number of students
Argentina (Tucumán) . . .	Sanitation inspectors	30
Argentina (San Juan) . . .	Sanitation inspectors	40
Argentina (Mendoza) . . .	Sanitation inspectors	16
Colombia	Sanitation inspectors	236
Colombia (Medellín)	Supervisors	32
Costa Rica	Water treatment plant operators	16
Ecuador	Sanitation inspectors	20
Jamaica	Chief sanitation inspectors . . .	30
México	Technicians	20
México	Community development technicians	20
Nicaragua	Sanitation inspectors	18
Perú (Junín)	Sanitation inspectors	7
Perú (Lima)	Sanitation inspectors	17
Total		502

courses into the regular education and training programs of the national universities.

The funds available were used specifically—to stimulate local activities by awarding grants to professors of the courses; for publishing course manuals; for books; and for a certain amount of essential equipment for teaching the courses. The nine 1964 courses were held in Brazil, Chile, Colombia, Costa Rica, México (3), Panamá, and Perú (Table 26). Of the 220 students—from 16 countries of the Americas—187 were professionals and 33 were nonprofessionals. A total of 110 professors and local and international consultants and coordinators taught 700 class hours. (A tenth course was left pending, to be held in Brazil in early 1965.)

A handbook on water pumps was revised, and 10 manuals on the subjects taught in the 1964 courses were mimeographed. A technical manual on plastic pipework was in print at the end of the year. In addition to the above-mentioned courses, other training courses were held for auxiliary personnel, especially sanitation inspectors. All together, some 500 sanitation auxiliaries were trained in courses of varying duration, carried out in several countries (Table 27). The majority of these courses were held as part of the general health service programs in which the Organization participates.

All were local courses, with the exception of those of Costa Rica and Jamaica. The Costa Rican course was regional and was attended by 6 operators of water treat-

ment plants in the country and 10 other operators from El Salvador, Guatemala, Honduras, Nicaragua, and Panamá.

The Third Course for Chief Health Inspectors, conducted at Kingston, Jamaica, was attended by 30 health inspectors from the English-speaking countries and territories of the Caribbean Area. UNICEF provided material assistance for the course, as it did for the two previous courses held in the Area, and the Organization was responsible for planning, implementing, and evaluating the course.

Veterinary Medicine

The veterinarian's increasingly important role in the public health services calls for increasingly better professional education opportunities. In recent years, therefore, many schools of veterinary medicine in the Hemisphere have broadened their educational criteria and reoriented their academic objectives, in particular as regards the teaching of preventive medicine and public health. In 1964 the Organization continued to assist schools of veterinary medicine and pursued other efforts aimed at improving the training of veterinary health personnel.

A course on the epidemiology of rabies was held during April and May at the School of Veterinary Medicine and Zootechnics of the National University of México. The course was attended by Government officials and by professors of the various schools of the university. The Organization provided a consultant and Headquarters technical staff, as well as films, biological reagents, and other teaching material on rabies.

The First Seminar on Veterinary Public Health for the Countries of Central America and Panamá was held, under the auspices of the Organization, in Panamá City from 9 to 12 August. The Seminar was attended by 28 physicians and veterinarians from Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panamá, as well as by technical staff and advisers of PAHO, of FAO, and of the Veterinary Corps of the United States Army. The main topics of the discussions were the use of veterinarians in public health programs, notification of diseases, and the planning of health activities.

A meeting of the Permanent Committee for the Teaching of Preventive Medicine and Public Health in Schools of Veterinary Medicine in the Americas was convened by the Organization, at Chapel Hill, North Carolina, U.S.A., from 19 to 21 October. The purposes of this Committee, appointed to implement a recommendation of the Second Seminar on the Teaching of Public Health and Preventive

Medicine in Schools of Veterinary Medicine in the Americas (México, D.F., 1963), are to cooperate with the Organization in evaluating the progress achieved by the schools since the seminars in Kansas City, Missouri, in 1959 and in México in 1963; to help the schools to put into practice the recommendations of those meetings; and to plan future meetings of this kind.

This first meeting of the Committee was attended by 2 professors, from the Schools of Veterinary Medicine in São Paulo, Brazil, and Santiago, Chile; by professors from the School of Public Health of the University of North Carolina; and by PAHO consultants and technical staff. The Committee reviewed the progress made by schools since 1959; the needs and future prospects of veterinary public health in Latin America; the preventive medicine and public health syllabi of some of the schools of veterinary medicine in the Hemisphere and the possibility of establishing systems of course evaluation and accreditation. The professors from Brazil and Chile submitted the syllabi used at their respective schools, for the purpose of informing the Committee on their schools' approach in the teaching of preventive medicine and public health. The Committee stressed the importance of having each country examine its own problems, which implies a clear definition of the objectives of teaching those subjects and of the tools needed to achieve the objectives; suggested that an association of teachers of those subjects at schools of veterinary medicine in the Americas be established, as a starting point for unifying the teaching of preventive medicine and public health and for generally improving the teaching of veterinary medicine; and discussed some basic principles of evaluation and their application in the field of education.

After studying the available information on the teaching of preventive medicine and public health in schools of veterinary medicine in Latin America, the Committee recommended that the Organization expand its collection of syllabi, with a view to providing the schools with a comparative study of the type of professional training provided in each country.

The Committee drew up a set of minimum standards for teaching public health and preventive medicine at schools of veterinary medicine.

It was the expressed opinion of the Committee that the two previous Seminars had had a decided influence in the progress achieved by the schools.

The Veterinary Public Health Adviser of Zone V Office assisted the schools of veterinary medicine of Rio Grande do Sul, Rio de Janeiro, and São Paulo, Brazil, to prepare the teaching programs for their courses in epidemiology and public health.

The Organization provided the Department of Microbiology of the School of Veterinary Medicine and Zootechnics of the University of San Carlos, in Guatemala, with advisory services. The special consultant provided assisted in the preparation of syllabi and in the research being conducted there and, at the request of the Rector of the University, also evaluated the curriculum, installations, and administrative services of the School. The Veterinary Public Health Adviser of Zone III Office assisted in the teaching and extension program of the School.

Fellowships were awarded to professors of schools of veterinary medicine in Brazil, Chile, Guatemala, and México to enable them to study subjects relating to their specialties in Brazil; in Chile; at the Pan American Zoonoses Center, in Argentina; and at the Communicable Disease Center of the United States Public Health Service in Atlanta, Georgia.

The Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center provided schools of veterinary medicine in Ecuador, Guatemala, and México with reagents and biologicals, as well as with technical publications relating to the zoonoses and food hygiene. The Organization reproduced and sent to all the schools of veterinary medicine in the Hemisphere both the set of minimum standards for the teaching of public health and preventive medicine prepared by the above-mentioned Permanent Committee and the final report of the second *Seminar on the Teaching of Public Health and Preventive Medicine in Schools of Veterinary Medicine.*¹

Dentistry

The Second Latin American Seminar on the Teaching of Dentistry was held from 18 to 24 October in México, D.F., with the participation of representatives of 21 schools of dentistry of Costa Rica, Cuba, the Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, México, Nicaragua, and Puerto Rico. Seventy-eight representatives of other countries of the Hemisphere attended as observers.

In preparation for the Seminar, 2 consultants visited each school of dentistry in Middle America, where they gave technical advisory services, observed the general operation of schools, and promoted the preparation of technical papers for the meeting. The Organization will use the reports submitted by the consultants as a basis

for the future orientation of dental activities in the Americas.

The agenda of the Seminar included the analysis of pre-dental education, adequate installations for dental schools, the departmentalization of dental schools, the correlation of basic and clinical sciences, and the teaching of aspects of preventive and social dentistry. At the end of the year a publication describing the activities of the Seminar was in preparation.

An intensive course on the teaching of dentistry for Latin American educators was attended by representatives of all the countries of Latin America. The course, conducted in México, D.F., from 25 to 31 October, was sponsored by the Latin American Association of Dental Schools and had the collaboration and advisory services of the Organization and the W. K. Kellogg Foundation.

The Organization signed an agreement with the University of São Paulo, Brazil, in cooperation with the W. K. Kellogg Foundation and the United States Public Health Service, for the establishment of an International Training Center in Epidemiology and Research in the field of Dentistry. The main objective is to train dentists from the Latin American countries to collaborate more effectively with their Governments in the solution of dental health problems. A fellowship was awarded to a professor of hygiene and public health of São Paulo, Brazil, to study certain specific aspects of dentistry in the United States of America in order to prepare programs of instruction for the future activities of the Center.

Technical advisory services were given to the Pilot Department of Preventive and Social Medicine for Latin America, of the University of Antioquia, Colombia, to bring about better integration between the subjects concerned with social aspects, public health, and sanitary dentistry and the other courses in the curriculum of the Dental School. Two consultants served in the Department.

Advisory services were also provided for the establishment of Departments of Preventive and Social Dentistry in the Schools of Dentistry of Aracatuba, Brazil; the University of Cartagena, Colombia; the University of El Salvador; the University of Nuevo León, in Monterrey, México, the University of Ica, Perú; and the Central University of Venezuela.

Two consultants collaborated with the Dental Federation of Central America and Panamá in carrying out a round-table meeting on the teaching of dentistry and dental health, held in Guatemala from 7 to 12 September.

The Government of Panamá was also advised on matters related to the installations of the School of Dentistry being built in that country.

With regard to the training of auxiliary personnel,

¹ PAHO Scientific Publication 96.

assistance was provided to the School of Dentistry of the University of Antioquia, Colombia, in the planning of regular courses for dental hygienists and assistants. The curricula were outlined in collaboration with university officials, with a view to introduce the courses in 1965.

Health Statistics

The need for trained statistical personnel for Health Services and their dependencies—at national, regional, and local levels—became more acute by the demand for statistical information brought about by the health planning initiated in most of the Member Countries. The different types of training required ranged, from professional preparation for professors in medical and public

health schools and for research statisticians and chiefs of statistical services in national or State health departments, to short courses of a few weeks or months for auxiliary clerical personnel who keep records in hospitals and health centers.

In 1964 the Organization, through its statistical advisers and consultants, participated in the planning and teaching of a good number of courses in the statistical field. Statistics was also included in the study curriculum for other groups of health personnel.

Nine professionals from 6 countries in the Americas and 1 from Spain completed a 15-month course with specialization in biostatistics at the School of Public Health in Chile (Table 28). In addition, 3 statisticians from Latin America received fellowships from the Or-



A class in statistics at the School of Public Health of the University of Antioquia, in Medellín, Colombia.

TABLE 28. STATISTICIANS TRAINED IN SCHOOLS OF PUBLIC HEALTH BY COUNTRY OF ORIGIN, 1964

Country	Buenos Aires, Argentina (9-month course)	Santiago, Chile		Medellín, Colombia (7-month course)	Lima, Perú (6-month course)	Total
		Professionals (9-month course)*	Technicians (7-month course)			
Argentina.....	31	2	3	—	—	36
Bolivia.....	—	—	1	1	—	2
Brazil.....	—	—	2	—	—	2
Chile.....	—	3	19	—	—	22
Colombia.....	—	—	2	29	—	31
Costa Rica.....	—	—	2	—	—	2
Cuba.....	—	—	2	—	—	2
Dominican Republic.....	—	1	—	—	—	1
Ecuador.....	—	1	—	2	—	3
El Salvador.....	—	—	1	—	—	1
Guatemala.....	—	—	1	—	—	1
Honduras.....	—	—	1	—	—	1
Panamá.....	—	—	1	—	—	1
Perú.....	—	—	—	—	19	19
Spain.....	—	1	—	—	—	1
Uruguay.....	—	1	—	—	—	1
Venezuela.....	—	1	—	—	—	1
Total.....	31	10	35	32	19	127

— None.

* Specialization in biostatistics in 15-month public health course.

ganization for graduate academic studies in statistics in the United States of America.

Intermediate-level courses lasting from 6 to 9 months trained 117 persons, from 13 countries, for positions in local or regional health services and for medical record departments in hospitals. The courses were conducted in the schools of public health of Argentina, Chile, and Colombia, where similar instruction had been offered in previous years, and for the first time in Perú, at the new school of public health.

Short courses were provided for special groups in several countries. In Uruguay a 4-week course on statistical design in medical research was conducted for 22 students—members of the School of Medicine of the University of the Republic, of the staff of the Ministry of Public Health, and of several Institutes. A 2-week course on stochastic processes applied to medicine was taught at the School of Medicine of the University of São Paulo at Ribeirão Preto, Brazil. Five seminars on experimental statistics were held in Jamaica at the Faculty of Medicine of the West Indies for professors who were engaged in research. Statistical staff from Paraguay's health centers received 2 weeks of training on a new system for recording and reporting notifiable diseases.

The Ministry of Health and Social Welfare of Venezuela again sponsored its annual 10-month course for medical records librarians; and the Bureau had several documents printed and distributed to facilitate the training of such personnel (*see* Special Publications, Chapter VI).

Short courses on selected subject matter bearing on health statistics were also taught for auxiliary-level personnel, worthy of mention being 12 one-week courses conducted for 127 auxiliaries in hospitals in Buenos Aires, Argentina, on topics such as inpatient statistics, medical terminology, classification of diseases, uses of forms, and filing. Special emphasis was placed on the plans for short courses for the auxiliary personnel needed in large numbers in the Americas.

The Latin American Center for Classification of Diseases conducted 5 courses—one each in Argentina, Chile, Colombia, Costa Rica, and Brazil—and trained 182 students (Table 29). In the first three countries the instruction was provided for statisticians of the intermediate level who attended courses in vital and health statistics, conducted in public health schools. The course in Costa Rica was organized by the Ministry of Public Health and the students were from the health services of the Ministry and of the national Social Security. The course in Brazil

TABLE 29. COUNTRY OF ORIGIN AND NUMBER OF STUDENTS TRAINED IN 5 COURSES CONDUCTED BY THE LATIN AMERICAN CENTER FOR CLASSIFICATION OF DISEASES, 1964

Country of origin	Location and dates of course					Total
	Buenos Aires, Argentina 13-30 July	São Paulo, Brazil 16-30 July	Santiago, Chile 3-14 August	Medellín, Colombia 16-28 November	San José, Costa Rica 3-15 December	
Argentina.....	36	—	3	—	—	39
Bolivia.....	—	—	1	1	—	2
Brazil.....	—	49	2	—	—	51
Chile.....	—	—	19	—	—	19
Colombia.....	—	—	2	33	—	35
Costa Rica.....	—	—	2	—	26	28
Cuba.....	—	—	2	—	—	2
Ecuador.....	—	—	—	2	—	2
El Salvador.....	—	—	1	—	—	1
Guatemala.....	—	—	1	—	—	1
Honduras.....	—	—	1	—	—	1
Panamá.....	—	—	1	—	—	1
Total.....	36	49	35	36	26	182

— None.

was held at the School of Hygiene and Public Health of the University of São Paulo. The first course of its kind offered in the country, it was attended by 49 students who were staff members of health services, hospitals, medical schools, and special institutes of 12 States. Half of the students were physicians.

Malaria

The Malaria Eradication Training Center in Kingston, Jamaica, was closed in early 1964, after the needs for English-speaking malariologists in the Hemisphere were already attended to. The malaria eradication training activities, however, were continued in Brazil and Venezuela. The 21st International Course on Malaria and Environmental Sanitation (formerly Malaria and Metaxenous Diseases) was given in Maracay, Venezuela, and the Faculty of Hygiene and Public Health of the University of São Paulo, Brazil, offered the 9th Malaria Eradication Course and the 11th Course in Medical Entomology with emphasis on malaria. Two PAHO fellows and 5 other foreign students with fellowships given by the Government of Venezuela and transportation paid by PAHO were trained, together with 25 Venezuelans, in Maracay; 11 Brazilians attended the Malaria Eradication Course in Brazil and 1 PAHO fellow and a number of Brazilian

students were trained in the Medical Entomology Course in São Paulo.

Under the WHO project of Exchange of Scientific Workers, 3 awards were granted for malaria studies being carried on in several countries of the world (see Inter-Regional-18).

Tuberculosis

The need for training personnel for the tuberculosis control programs continued to be of concern both to the countries and to the Organization. Fellowships for advanced studies were awarded during the year and numerous local training courses were organized.

A short course on epidemiology and administration of tuberculosis control programs, held at the National Tuberculosis Control Center of Argentina, in Recreo, Province of Santa Fe, was attended by 8 local physicians and 2 from abroad. Intensive training was given also to 14 assistant health visitors.

In all countries in which tuberculosis activities were recently begun, the consultants of the Organization continued to organize short training courses for auxiliary nursing personnel. This type of training was given in Costa Rica, the Dominican Republic, El Salvador, and Nicaragua.

Also during the year, consideration was given to the standardization of these training activities, under a plan of work covering the various types of health workers engaged in tuberculosis control programs.

Leprosy

Work went forward on the organization of a course on the prevention of deformities and physical rehabilitation of leprosy cases, with the emphasis on the use of non-surgical methods. The course will be held from May to July 1965 under the sponsorship of the Government of Venezuela and of PAHO/WHO and with the assistance of the American Leprosy Mission, the Institute of Physical Medicine and Rehabilitation of New York University, the World Rehabilitation Fund, Inc., and the International Society for Rehabilitation of the Disabled. The preparations for this first course included a complete educational program, plans for discussions and demonstrations, arrangements for training instructors, and administrative and financial matters.

Training and educational activities were undertaken, to a greater or a lesser extent, in most of the countries in which leprosy control programs were in operation. In the Central American countries and in Panamá, training of this kind was provided for 281 physicians, 176 medical students, 202 students attending nursing-auxiliary courses, and 18 social-service students (Table 30).

In a course conducted at the Dermatological Center of Bogotá, Colombia, 4 health auxiliaries and 2 medical general practitioners received special training in leprosy. The Center was reorganized both as a national training

center for personnel engaged in leprosy control and as a leprosy research center.

In Ecuador special importance has been attached to the training of medical and paramedical personnel in connection with the leprosy control program. Two physicians and 3 secretaries completed training courses in 1964, and 16 health auxiliaries were still receiving training at the end of the year. Besides these, the director of the national program completed a course in public health, at the School of Hygiene and Public Health of the University of São Paulo, Brazil, with the aid of a fellowship from the Organization; another physician was awarded a 3-month fellowship to study the histopathology of leprosy.

In México the action taken in this field included 3 courses. One of these was held at Morelia, Michoacán, with financial assistance from UNICEF, and was attended by 10 State medical officers in charge of health centers. Another was held at Guadalajara for the directors of the health and welfare centers of the State of Jalisco; and the third was conducted at Celaya for physicians of the States of Aguascalientes, Guanajuato, Querétaro, and Zacatecas.

In Paraguay, where the activities of the leprosy control program were being gradually taken over by the health centers, further efforts were also made to give specialized training to medical general practitioners, nurses, and nursing auxiliaries for their roles in this program.

Venereal Diseases

The Organization assisted the Government of Chile by awarding fellowships to medical staff and health educators for training in the planning and conduct of organized venereal disease control programs. In addition, 2 consecutive courses on new diagnostic laboratory methods for venereal diseases were planned for physicians, in cooperation with the Communicable Disease Center of the United States Public Health Service.

Preparations were well advanced for a Pan American Seminar on Venereal Diseases to be held in 1965 under the auspices of the Organization and in cooperation with the United States Public Health Service. The following 4 topics will be discussed: importance and principal epidemiological characteristics of venereal diseases in the Americas; new laboratory methods for diagnosing venereal diseases; venereal disease control, with special emphasis on case-finding; and health education and personnel training.

TABLE 30. PERSONNEL TRAINED FOR LEPROSY CONTROL PROGRAMS IN THE COUNTRIES OF CENTRAL AMERICA AND PANAMÁ, 1964

Country of origin	Physicians	Medical students	Student nursing auxiliaries	Social service students
Costa Rica.....	35	12	18	—
El Salvador.....	65	—	—	—
Guatemala.....	56	40	124	—
Honduras.....	21	26	24	—
Nicaragua.....	54	42	36	18
Panamá.....	50	56	—	—
Total.....	281	176	202	18

— None.

Zoonoses

Through the fellowships program of the Organization, specialization opportunities continued to be provided to veterinarians of the Hemisphere in diagnosis, research, and education and training related to zoonoses. The Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center have become important factors in this activity.

With the assistance of the Pan American Zoonoses Center and the United States Public Health Service, training in laboratory techniques for the diagnosis of rabies was provided to personnel of most of the countries of the Hemisphere.

One short-term consultant and 2 advisers in veterinary public health were assigned by the Organization to assist the School of Veterinary Medicine and Zootechnics of the National University of México in the planning of a course on the epidemiology of rabies, which was held in México City, during April and May, and was attended by officials from State and Federal public health and agricultural agencies.

A course on techniques for diagnosing rabies with fluorescent antibodies was conducted in January, in Phoenix, Arizona, U.S.A. This course, a joint undertaking by the Organization and the Public Health Department of the State of Arizona, was attended by 11 laboratory technicians of the Border health services of both México and the United States.

General Health Services

The training activities that are part of the projects for strengthening general health services were continued by means of courses of various types, designed to meet the needs of each of those services. In general, however, they were either for the postbasic teaching of professionals or for the training of auxiliary personnel. Worthy of mention were 10 orientation courses in public health for medical practitioners, held in 7 countries, attended by 148 professionals; 11 courses in public health nursing, conducted in 8 countries, attended by 161 nurses; 12 courses in administration and supervision of nursing services, developed in 8 countries, attended by 153 nurses holding administrative posts; 3 postgraduate courses in maternity nursing, carried out in 3 countries, for 54 students; 76 courses held in 16 countries to train 2,374 nursing auxiliaries; 24 courses conducted in 20 countries to train sanitation auxiliary personnel, attended by 577 stu-

dents; 6 courses for statisticians, in which 120 students from 6 countries were trained; 4 courses in hospital administration, attended by 53 students from 4 countries; 6 courses, in as many countries, for 120 technicians and laboratory assistants; 12 short introductory courses to nutrition, held in 3 countries, for 376 school teachers and assistant nutrition educators; and 8 courses for health educators and health-educator assistants, carried out in 3 countries and attended by 88 students. In all, 143 courses were conducted, and through them, 4,124 health workers were trained.

There was an increase in the number of professional and auxiliary health workers sent abroad for training; the details of this training are given in the section on Fellowships, in this same chapter.

Public Health Laboratories

The increasing attention the countries are giving to public health laboratory programs is making more evident the insufficiency of trained personnel. In order to correct this situation and to meet future needs, the Organization provided the countries with fellowships for the training of scientific personnel abroad and with technical advice for the development of national and regional training courses.

The Oswaldo Cruz Institute, in Rio de Janeiro, Brazil, continued training local personnel as a first step to initiating programs in the field of respiratory viruses.

Initial steps were taken in Costa Rica to establish a School for Laboratory Technicians for the countries of Central America.

The Government of Jamaica, with assistance from the Organization, initiated a series of laboratory technician courses for the Caribbean Area. The Department of Pathology of the School of Medicine of the University of the West Indies is serving as the training center and providing advisory and supervisory services. Thought was being given to the preparation of a manual to encourage uniform techniques and procedures in the Area.

In México the training of personnel in research on the ecology of arboviruses continued; this program is being carried out by Cornell University and coordinated by the Organization.

In connection with programs for the control of food and drugs the Organization awarded 3 fellowships to chemists from laboratories in Panamá, to enable them to pursue specialized studies in methods of analysis in Brazil and the United States of America. A fellowship was also awarded to the Deputy Director of the Pharmacy, Drugs, and Foodstuffs Section of the Department of Public Health

of Panamá, to study the registration, filing, and licensing systems used in the Food and Drug Control Department of the Canadian Public Health Service.

Medical Care and Rehabilitation

The School of Public Health of the University of Buenos Aires, in Argentina, developed with the active participation of the Organization a new, intensive, 4-month course in hospital administration. This full-day course (6 hours per day) of 540 academic hours included visits to institutions and practice administration. Subjects related to public health accounted for 20 percent of the course program, and hospital administration absorbed the remaining 80 percent. From 50 candidates, 32 students were selected, 20 of whom were hospital directors or chiefs of service; 30 completed the course satisfactorily. Subsequently, a complementary 3-month course on supervised practice was held.

The public health course at the University of Buenos Aires, which had a registration of 35 students, provided class sessions in hospital organization and administration. The municipality of San Isidro held an orientation course on hospital administration in which some of the students from the intensive course served as instructors.

The Course in Hospital Administration of the School of Public Health of Medellín, Colombia, implemented some of the suggestions formulated by the Organization. Concrete expression of this was the elaboration of a preliminary program of orientation on hospital administration for the next postgraduate course on public health to be offered by the school.

In El Salvador training in regular courses was provided for 120 hospital nursing auxiliaries and 14 X-ray technicians; and inservice training in puericulture and nutrition was given to 44 graduate nurses. The II Inter-American Course on Hospital Administration lasted 6 weeks.

In Panamá the training of national personnel by courses within the country or fellowships abroad continued on a regular basis. One architect was trained abroad in hospital architecture. Within the country, 150 nursing auxiliaries received inservice training, as did 8 clinical assistants of the Santo Tomás Hospital; 35 nursing auxiliaries were trained in regular courses.

In Uruguay the Ministry of Public Health and the University of the Republic had under consideration an agreement for the development of a course on hospital administration.

In Venezuela efforts were made to organize a health region in which academic teaching activities might find an adequately organized and administered service for the practical training of medical care personnel, an undertaking that the Organization had encouraged.

With regard to the education and training of rehabilitation personnel the following activities may be cited.

In Brazil training programs in occupational therapy, physiotherapy, prostheses, and nursing were in operation. The first of these activities functioned with the active intervention of the Organization and as part of a rehabilitation program, and the others were part of national training programs that resulted from previous promotion developed by the Organization.

The same can be said of Chile, where the Organization participated actively in training programs in occupational therapy, physiotherapy, and prostheses and orthoses, that were part of the activities of the Pilot Center for Rehabilitation.

Courses were planned for 1965 on prostheses for Argentina, orthoses for Brazil, specialized nursing for Chile, and physiotherapy and leprosy rehabilitation for Venezuela.

Maternal and Child Health

Two courses in clinical and social pediatrics for teachers of pediatrics, clinicians, and administrators of child health services were organized, financed, and carried out in Santiago, Chile, with assistance from the Organization. One was a 12-week course held from April to June for 2 national physicians and 10 from other countries. The other was a 4-week course, attended by 23 national physicians and 26 from other Latin American countries, held in cooperation with the International Children's Center of Paris and the Inter-American Children's Institute of Montevideo.

In Recife, Brazil, refresher, orientation, or practical training in pediatrics and child health were provided to 46 physicians, 8 nurses, 15 auxiliaries and 6 nonmedical nutritionists of the Northeast of the country.

The UNICEF Executive Board approved an allocation of funds for fellowship awards, which will make it possible to expand the program of social and clinical pediatric training in 1965. Plans were made to develop during that year a training center in the University of Antioquia, Medellín, Colombia, modeled on the lines of the Santiago, Chile, center.

The Regional Adviser in maternal and child health gave

consultant services to the School of Public Health of the Ministry of Public Health and Social Welfare of Perú.

A survey of schools of midwifery in South America was completed and at year's end the report was being prepared. Assistance was provided by the Regional Adviser in nursing midwifery to midwifery training institutions in Argentina, Paraguay, Perú, and Uruguay.

In addition, in Tucumán, Argentina, a short-term consultant organized and directed a 6-week orientation and training course in public health nursing and child health, attended by 81 graduate and 11 student midwives of the Province.

The University of the West Indies, collaborating with PAHO/WHO, initiated a training course for pediatric nurses and continued its efforts to organize teaching traveling seminars in the English-speaking islands of the Caribbean Area.

In Chile, 31 social workers received training in child-health care.

Nutrition

A course in nutrition education program planning was conducted at the School of Home Economics of the University of Puerto Rico from 3 February to 25 April in collaboration with FAO and UNICEF. This 3-month course was attended by 20 students from Colombia, Ecuador, Perú, Bolivia, and Paraguay. The students were project directors in the health, education, or agriculture aspects of applied nutrition programs, and the purpose of the course was to develop an interdisciplinary approach to the planning of nutrition education and applied nutrition programs.

Nutrition education for medical and paramedical personnel received increasing attention. Through the existing advisory services, information was collected regarding the current status of nutrition content in teaching curricula. A pilot seminar was planned for 1965 to analyze problems related to the teaching of nutrition in medical education and to formulate norms and guidelines for the integration of this field in respective curricula.

A review of existing publications carried out in 1964 revealed that there was no suitable Spanish text on human nutrition available to medical students in Latin America. To meet this requirement, the Organization began translating into Spanish a handbook on nutrition for specific use at the undergraduate level in medical and paramedical sciences.

The training activities of the Institute of Nutrition of

Central America and Panamá appear under Nutrition, in Chapter II, Promotion of Health.

Mental Health

The Organization facilitated the attendance of 20 participants and 3 teachers at an intensive training course in mental health held in Barbados from 26 April to 2 May, which was organized by the Caribbean Mental Health Federation and financed by the Foundation for International Medical Services, Inc.

Radiation Protection

To aid in fostering the use of radioisotopes in medicine for diagnosis, therapy, and research, 5 physicians—from Argentina, Colombia, El Salvador, México and Uruguay—were awarded fellowships to attend the third annual 7-month training course on this subject, conducted at Salvador Hospital in connection with the University of Chile in Santiago. All these fellows were trained in the general clinical use of radioisotopes; in addition, the fellows from Colombia and México received specialized training in cancerology, the fellow from Uruguay in urology, the one from Argentina in gastroenterology and endocrinology, and the one from El Salvador in the latter areas plus hematology.

A 3-month fellowship in organization of veterinary teaching related to radiobiology was granted to a Peruvian researcher who will be responsible for the neurological aspects of the proposed high-altitude radiation research project utilizing large animals; and 8-month and 9-month fellowships were respectively awarded to one Peruvian for studies in organization of medical education, with specialization in clinical radiodiagnosis, and to another for studies in radiation physics and protection. A Brazilian professional received a 4½-month award for studies in radiochemistry; and an Ecuadorean, a 2-month award for studies in radioisotope technology.

An international Course on Radiation for Public Health Administrators was conducted in Chile with the cooperation of national specialists in radiation protection, radiobiology, and radiation physics. This 3-week course was attended by fellows from the Health Ministries of Brazil, Costa Rica, Guatemala, México, Perú, and Venezuela.

The Organization assisted a medical school in México in the development of a course in basic radiation physics and radiobiology. Both advice and printed materials were provided.

Throughout the Hemisphere extensive use was being made of 3 films translated into Spanish and produced in that language by the Organization. These films, which illustrate the fundamentals of radiation physics, radiobiology, medical uses of ionizing radiation, and radiation protection, were being used as teaching media in medical schools as well as by hospitals and professional societies.

health, for participants in inservice training programs in Ministries of Health, and for members of the medical and paramedical professions in a number of countries.

Planning

Training in both national and international courses continued to be a major planning activity. By the end of the year, 116 national and international health officials had received training in health planning in international courses. The second international English-language course was held at the Johns Hopkins University, Baltimore, U.S.A., from April to June. Trainees included health personnel from United States and Latin American countries, and officials from PASB and WHO Headquarters and other Regions.

The third international Spanish-language course was held in conjunction with the Latin American Institute of Economic and Social Planning, in Santiago, Chile, from October to December. Trainees included 26 health officials from 14 Latin American countries and 8 staff members of the Organization. For the first time, in addition to medical personnel and statisticians, the course included engineers, a nurse, an economist, and professors of public health and preventive medicine.

Simultaneously with the international course and using virtually the same staff, a first national course in health planning was conducted at the School of Public Health of the University of Chile in Santiago for 30 Chilean health officials including physicians, hospital administrators and accountants, and members of other related professions.

The second national course in health planning in Venezuela was held from May to June, also with the participation of PASB planning advisers. Trainees included 12 medical officials, 15 sanitary engineers, 1 economist, 1 PASB staff member, and 1 social programmer from Venezuela's national planning unit.

The incorporation of professors of public health and preventive medicine in international health planning courses was the first step of a program which envisages making health planning part of the curriculum in public health administration wherever this subject is taught.

PASB staff members also gave a variety of lectures, conducted short courses, and led round-table discussions on health planning for students at schools of public

FELLOWSHIPS

There was heightened evidence of the yearly interest shown by the Governments to utilize the program of fellowships for the training and specialization abroad of teaching personnel and of technical and auxiliary staff of health services.

Although all the countries have been making continuous efforts to found additional national institutions and expand those long-established for the provision of basic and postgraduate education, international cooperation is still indispensable both to overcome the dearth of adequately trained personnel and to keep pace with the scientific and technological strides being made in medicine and related sciences.

The fellowship program, therefore, continued the tendency of the past few years, and the number of awards made in 1964 increased, reaching a total of 639, or 12 percent more than in 1963 (570 fellowships). The 1964 total represented 3,166 months of study, with an average of 5 months per fellowship. This average, barely higher than that of 1963, is indeed gratifying considering the large number of fellowships granted for special short-term courses. Furthermore, 40 extensions were granted in 1964, and these represented 94 months of study.

All the countries of the Hemisphere received fellowships in 1964 (Table 31). Long-term fellowships for academic studies (253) and fellowships for special short-term courses (258) accounted for the highest percentages, 39.6 percent and 40.4 percent respectively; fellowships for observation travel (128), usually reserved for high-level professional staff and for teachers, remained at the usual 20-percent level.

The classification of fellowships by course or specialty of study (Table 32) reflects, in general, the priorities established in the program of the Organization. The leading fields, according to fellowships awarded, were sanitation, 20 percent; medical education and related sciences, 18 percent; nursing, 14 percent; public health organization, 12 percent; and communicable diseases, 9 percent.

Comparison with 1963 points to significant 1964 shifts in emphasis consistent with the increase in the total number of fellowships and the amount of special short-term

III. EDUCATION AND TRAINING

TABLE 31. FELLOWSHIPS AWARDED IN THE AMERICAS, BY COUNTRY OF ORIGIN AND TYPE OF TRAINING, 1964

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
	Special	Academic			
Argentina.....	12	5	20	7	44
Bolivia.....	10	2	2	2	16
Brazil.....	35	4	11	11	61
Canada.....	—	—	5	2	7
Chile.....	4	—	7	16	27
Colombia.....	22	13	11	5	51
Costa Rica.....	6	5	8	—	19
Cuba.....	1	2	2	2	7
Dominican Republic.....	5	4	7	2	18
Ecuador.....	14	4	13	3	34
El Salvador.....	6	2	6	—	14
Guatemala.....	3	5	4	5	17
Haiti.....	1	1	—	—	2
Honduras.....	3	4	7	—	14
Jamaica.....	21	—	7	1	29
México.....	6	1	6	8	21
Nicaragua.....	9	3	7	2	21
Panamá.....	5	2	2	7	16
Paraguay.....	8	2	15	2	27
Perú.....	15	3	8	11	37
Trinidad and Tobago.....	1	—	2	3	6
United States of America.....	—	—	—	16	16
Uruguay.....	6	3	2	3	14
Venezuela.....	15	3	15	12	45
British Territories.....	48	—	16	4	68 ^a
Surinam and the Netherlands Antilles.....	2	—	2	4	8
Total.....	258	68	185	128	639

— None.

^a Of these, 6 awards were made to fellows from British Honduras.

courses sponsored by the Organization. Thus fellowships for studies in environmental sanitation rose from 114 to 129 (13 percent); those for nursing from 79 to 88 (11 percent); those for nutrition from 22 to 31 (41 percent); and those for health statistics from 24 to 44 (83 percent).

Although only 24 fellowships appear to have been granted in the field of maternal and child health, 20 others were awarded to professors in the same field; and therefore the total under this classification actually rose from 29 to 44 (52 percent). The awards made to professors were included in the medical education and related sciences classification.

There was no significant change in the number of awards for studies in public health administration. The reason for the relatively low percentage is that many of those awards are classified according to the respective specialty rather than by field of study. So, for example, if a fellow studied public health administration with emphasis on epidemiology, the award was included in the latter rather than the former classification.

Fellowships corresponding to medical education and related sciences rose from 67 to 117 (74 percent). The increase was more apparent than real, due in part to the grouping, for the first time under that category, of all

TABLE 32. FELLOWSHIPS AWARDED IN THE AMERICAS, BY FIELD OF STUDY AND COUNTRY OF ORIGIN, 1964

Field of study	Country of origin																			Total							
	Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Haiti	Honduras	Jamaica	Mexico	Nicaragua	Panama	Paraguay		Peru	Trinidad and Tobago	United States of America	Uruguay	Venezuela	British Territories	Surinam and the Netherlands Antilles
Health organization	5	2	5	—	1	4	2	2	3	5	5	—	—	1	—	3	2	1	9	2	1	—	1	3	1	—	—
Public health administration.....	2	—	—	—	1	1	—	—	—	2	—	—	—	1	2	—	—	—	1	3	1	—	—	—	—	—	—
Hospital and medical administration.....	1	—	1	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	1	1	—	—	—	—	—	—	—
Other.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sanitation	—	—	—	—	—	—	—	—	1	—	2	1	—	2	19	—	2	2	—	—	2	—	—	—	—	—	—
Sanitary inspection.....	3	4	2	—	1	9	2	—	7	3	2	1	1	2	—	3	8	3	—	—	7	1	—	13	2	—	
Sanitary engineering.....	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	2	—	—	
Other.....	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nursing	3	—	4	2	1	—	1	2	3	1	—	1	—	—	—	1	2	—	1	—	—	—	2	—	1	—	
Nursing education.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Public health nursing.....	1	1	1	—	—	1	—	—	4	4	—	2	—	1	—	—	2	—	2	—	—	—	—	1	35	—	
Nursing services.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	8	—	
Maternal and child health.....	—	1	2	—	2	2	—	—	1	2	—	—	—	—	—	—	—	—	4	2	—	—	3	—	—	—	
Other health services	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Mental health.....	4	—	1	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Health education.....	—	—	1	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	
Occupational health.....	—	—	—	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nutrition.....	—	3	1	1	—	9	—	—	—	5	—	—	—	—	—	1	—	1	4	2	—	—	—	2	—	—	
Health statistics.....	3	2	22	—	—	2	2	2	1	2	2	2	—	—	—	—	—	—	1	1	—	—	—	—	—	—	
Dental care.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Rehabilitation.....	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Control of pharmaceutical preparations.....	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	5	—	—	—	—	—	—	—	—	
Communicable diseases	1	—	1	—	—	2	1	—	—	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Malaria.....	1	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	2	—	—	—	—	—	—	—	—	—	
Tuberculosis.....	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	
Rabies.....	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Foot-and-mouth disease.....	2	—	2	—	2	4	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	2	2	—	—	
Leprosy.....	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	
Other communicable diseases.....	2	—	1	1	1	—	—	—	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Laboratory services.....	—	—	—	—	—	—	—	—	—	1	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Veterinary public health.....	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Medical education and related sciences.....	12	2	17	1	9	12	2	1	1	4	1	2	—	—	4	6	2	1	1	1	9	—	13	1	—	—	
Clinical medicine.....	—	—	1	—	1	—	1	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	
Total.....	44	16	61	7	27	51	19	7	18	34	14	17	2	14	29	21	21	16	27	37	6	16	14	45	68	8	639

— None.

* 28 Fellowships were awarded to professors of Schools of Public Health; 89 were awarded to Professors of Schools of Medicine.

TABLE 33. FELLOWSHIPS AWARDED IN THE AMERICAS TO PROFESSORS OF SCHOOLS OF PUBLIC HEALTH AND SCHOOLS OF MEDICINE,
BY FIELD OF STUDY AND COUNTRY OF ORIGIN, 1964

Field of study	Country of origin																	Total						
	Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Haiti	Mexico	Nicaragua	Panama	Paraguay		Peru	United States of America	Uruguay	Venezuela	Surinam and the Netherlands Antilles	
Organization of public health teaching																								
Dental health			1			1												1						
Health education																					1			
Hospital administration	1																							
Laboratory services						1																		
Maternal and child health																					1			
Nursing					1																			
Occupational health																								
Public health administration	1			1																				
Sanitary engineering	1																							
Statistics	2																							
Tuberculosis			2														1							
Organization of medical education																								
Anesthesiology	1					2																		
Cancer					1																			
Environmental sanitation																								
Internal medicine	1				1																			
Communicable diseases		1								1														
Maternal and child health	3	1	2			2				2		1				1		1	1		1			
Microbiology																								
Nutrition			1			2																		
Obstetrics and gynecology					1					1														
Parasitology			2		1																			
Pathology													1											
Physiology									1															
Preventive medicine					3									1										
Psychiatry																								
Radiology	1					1																		
Rehabilitation			1		1																			
Statistics	1		4																					
Surgery																								
Pedagogic methods in medical education	1		3			3	2	1																
Total	12	2	17	1	9	12	2	1	1	4	1	2	4	6	2	1	1	9	13	1	15	1		117

TABLE 34. FELLOWSHIPS AWARDED IN THE AMERICAS, BY COUNTRY OF ORIGIN AND BY COUNTRY OR REGION OF STUDY, 1964

Country of origin	Countries of study in the Region of the Americas																	Other Regions of study						
	Argentina	Brazil	Canada	Chile	Colombia	Costa Rica	El Salvador	Guatemala	Jamaica	México	Panamá	Paraguay	Perú	Trinidad and Tobago	United States of America	Uruguay	Venezuela	British Territories	Africa	Eastern Mediterranean	Europe	Southeast Asia	Western Pacific	
Argentina	14	98	11	146	63	15	5	20	54	54	4	1	29	2	131*	2	30	32	1	6	66	4	4	4
Bolivia	1	1		6	3								3		3		1				5	1	1	1
Brazil	1	25	1	11	6	2	1	3	3	1					13		4				4	1	1	1
Canada																						2		
Chile																						11	1	
Colombia	2	11	1	13		1		7	8	1			5		8		1				7			
Costa Rica				5	3			2	4				2		1	2					2			
Cuba				4					2				1								1			
Dominican Republic		4		4	3				7				1				1							
Ecuador		5		12	3				3				1		9		2				1			
El Salvador		2		6	1	2			1		2		1		1		1							
Guatemala		2		6	2	1			3	2			1		2		1							
Haiti								1	1															
Honduras		2		3	2	2		1	2						1									
Jamaica		2	2	9	7	1		1	20						4						1			
México	2	4	1	9	3	2		1					3		5		2				3			
Nicaragua		2		3	3	2		1				1	2		4		2				3			
Panamá		3	3	4	1	2									2						1			
Paraguay		3	5	11	3								2		5		4							
Perú	1	10	1	10	8		1	1		6			2		14		4				3			
Trinidad and Tobago			1	2	1	1			1				2		3		1		1	3	12	1	2	
United States of America	3	3		7	2	1							1		1		1		1	3	1	1		
Uruguay		6		13	6		2	2		2			1	1	19						7			
Venezuela			1		1	1									3		3	32			1			
British Territories														1										
Surinam and the Netherlands Antilles		1							4					1	3		3							
Total visits	14	98	11	146	63	15	5	20	54	54	4	1	29	2	131*	2	30	32	1	6	66	4	4	4

— None.
* 52 studied in Puerto Rico.

III. EDUCATION AND TRAINING

the fellowships granted to professors of schools of public health and of schools of medicine, in order to ascertain the faculty-training cooperation being furnished to those institutions (Table 33). Of those fellowships, 24 percent were awarded to professors in schools of public health and 76 percent went to medical school professors. Among the latter, 21, or 24 percent, were awarded for courses on pedagogic methods in medical education.

Fellowships were also awarded to 25 nursing school professors and to 3 from schools of veterinary medicine (Table 32).

The grouping by specialties of the fellows in Table 33 also provides an explanation for the apparent discrepancies between some classifications in Tables 32 and 35. Table 32 shows only 88 fellowships for nursing studies, 2 for dental care, and 76 for sanitary engineering; while, according to Table 35, 95 nurses, 5 dentists, and 87 engineers received fellowships. The same thing occurred with veterinarians, who in Table 35 appear with 28 fellowships but with only 7 in the respective field in Table 32 because the rest were included in the various specialties.

In keeping with the standard set years ago and as a result of the experience accumulated in this regard, efforts were made to send the fellows to countries whose language, health problems, and living conditions were similar to those of their own countries (Table 34). To that end, the Organization had the generous and valuable cooperation of the health authorities and teaching institutions in the countries. Sixty-one percent of all studies and observation visits were made in Latin American countries; 18 percent in Canada and the United States of America; 11 percent in Jamaica, Trinidad and Tobago, and the British Territories; and 10 percent in other WHO Regions. Of the latter, 81 percent were made in Europe and included the interregional courses organized by WHO headquarters.

TABLE 35. PROFESSION OR OCCUPATION OF FELLOWS, 1964

Profession or occupation	Number
Physician.....	253
Dentist.....	5
Engineer.....	87
Veterinarian.....	28
Nurse.....	95
Other professions.....	86
Sanitary inspector.....	37
Other nonprofessional occupations.....	48
Total.....	639

The profession or occupation of the fellows (Table 35) was closely related to the priorities and the nature of the programs being developed. Eighty-seven percent of the fellowships were granted to professionals and 13 percent to nonprofessionals. Predominating in the professional group were the awards to physicians, with 46 percent; followed by those to nurses, with 17 percent; and engineers, who had 16 percent. The increases in comparison with 1963 derived from the increase in the total number of fellowships. For the same reason the funds for financing the fellowship program rose from \$1,022,697 in 1963 to \$1,205,844 in 1964.

The programing for and supervision of fellows sent by WHO Regional Offices to study in the Americas proceeded in the usual manner. In 1964 the number of fellows (146) was almost equal to that of 1963 (144); Region of origin and other details are shown in Table 36. The highest percentages corresponded to fellows sent by the Regional Offices of Europe and the Western Pacific, 29 percent and 27 percent, respectively. The number of fellows from Africa was more than double (29) that of 1963 (14); but those from the Eastern Mediterranean (47 percent) diminished appreciably, from 30 to 16, and those from Southeast Asia (47 percent) even more, from 36 to 19.

Sixty-three percent of the fellows from other Regions took academic courses, an increase of 44 percent with regard to 1963. The increase was due to the fact that 23 fellows from Africa and 10 from the Western Pacific pursued that type of study, compared to 4 and 10, respectively, in 1963. On the other hand, as was to be expected, most of the fellows from Europe (74 percent) made observation visits. The studies and visits of the fellows from other Regions took place mostly in Canada and the United States of America.

The foregoing information and analysis relate only to the 639 fellowships awarded in 1964 and to the 146 fellows sent during the same period to the Region of the Americas by the other WHO Regional Offices. It should be added that 177 fellows began their studies in 1963 and completed them in 1964, which increased the total number of fellows who during the year studied under the Organization's technical and administrative supervision to 962. Of the aggregate total, 509 fellows studied in Latin American countries (53 percent), 385 in Canada and the United States of America (40 percent), and 68 in other Regions (7 percent).

All the fellows who studied in Canada and the United States of America, with few exceptions, stopped in Washington before proceeding to their respective place of study. At that time, Bureau staff briefed the fellows with regard

TABLE 36. FELLOWS FROM OTHER REGIONS WHO BEGAN STUDIES IN THE AMERICAS,
BY FIELD OF STUDY, TYPE OF AWARD, AND REGION OF ORIGIN, 1964

Field of study and type of award	Region of origin and number of fellows					Total
	Africa	Eastern Mediterranean	Europe	Southeast Asia	Western Pacific	
Public health administration						
Academic courses.....	6	2	—	1	1	10
Travel grants.....	—	—	4	—	1	5
Sanitation						
Academic courses.....	8	5	—	2	4	19
Travel grants.....	—	1	1	1	1	4
Nursing						
Academic courses.....	4	3	8	2	9	26
Travel grants.....	1	—	2	—	—	3
Maternal and child health						
Academic courses.....	1	1	—	1	1	4
Travel grants.....	1	—	—	—	1	2
Other health services						
Academic courses.....	4	1	2	6	9	22
Travel grants.....	1	—	4	1	4	10
Communicable diseases						
Academic courses.....	—	1	—	2	2	5
Travel grants.....	—	—	2	2	—	4
Medical education and related sciences						
Academic courses.....	—	1	1	1	3	6
Travel grants.....	2	1	13	—	3	19
Clinical medicine						
Travel grants.....	1	—	6	—	—	7
Total.....	29	16	43	19	39	146

— None.

to living conditions in the areas where they were to reside, any foreseeable problems that might possibly arise, and, especially, their program of study and the responsibilities they had contracted. Officials of the Organization also interviewed the fellows and the pertinent instructors at the place of study. Those interviews, which made it possible to establish personal relations with the fellows, have proved to be exceedingly useful in preventing and solving some of the problems common to a residence abroad.

The Organization continued to provide its technical advisory services and collaboration to the fellowships programs of the Organization of American States and the Government of Venezuela. For the OAS, 207 fellowship applications in the field of medicine and related sciences were reviewed, and several fellows were interviewed in their place of study. The number of fellows of the Gov-

ernment of Venezuela who were supervised increased from 44 (1963) to 61, or 39 percent. Most of these fellows were interviewed at their place of study (49 in the United States of America and 12 in Latin American countries), and reports were sent to the Government.

There was also a marked increase in the number of officials of the Organization who received technical advisory services in the preparation of their programs of study and observation visits. In 1963 such cooperation was provided to 25 officials; in 1964 the number rose to 60, an increase of 140 percent.

The preparation of the directory on utilization of services of former fellows, which covers the 1954-1963 decade, continued making progress and at the end of 1964 was complete except for the sections on Haiti and the British Territories.



IV. PLANNING

The National Health Planning concept as a systematic approach to be woven into established public health practice made considerable progress throughout the Hemisphere during 1964. It is now accepted that planning is a continuous process established within the permanent administrative structure and not simply a temporary activity involving the production of a national health plan.

During the year, particular attention was given to the administrative aspects of the implementation of health plans as well as to the need for improving the methods of diagnosis and plan formulation. Much thought was also given to analysis of the services which health planning units can provide in support of decision-making at the national level.

Increased mutual understanding was observed between the central development planning authorities in the various countries and the planning units within Ministries of Health.

Planning in health reached a stage of maturity in which it may be necessary to consider a period of consolidation during which intersectoral coordination will be strengthened and any residual misunderstandings concerning planning within the health sector can be finally dispelled.

Principal Developments of 1964

The year 1964 witnessed the beginning of a general shift in emphasis in health planning from preplanning studies and the formulation of the diagnosis of the health situation to the technical and administrative problems involved in the implementation and carrying out of health plans. The status of national health planning in the Americas at the end of the year was as follows: a national health planning unit was in operation in Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panamá, Paraguay, Perú, Uruguay, and Venezuela. A national health plan was in preparation, had been completed, or was under review in the same countries with the exception

of Brazil where, as well as in Jamaica and México, preplanning or pilot studies were underway.

As an increasing number of countries approached the stage of plan-implementation, preparations were completed for a meeting of national and international health planning experts to be held in Puerto Azul, Venezuela, in February 1965 for a general exchange of views on operational problems and their implications for future planning training and methodological research.

The coordination of health planning with general economic and social planning was strengthened as CIAP (the Inter-American Committee of the Alliance for Progress) began operations in 1964 and conducted a series of reviews of 2-year national investment programs for the public sector. Although the CIAP review tended to emphasize economic rather than social aspects of development, this was in part because social programs, and those of health in particular, represented a *leading* rather than a *lagging* sector. Health projects had been prepared on a sound technical basis. Investment plans were ready. It was natural for the Committee to concentrate on the slower progress of economic investment programs.

Utilization of Trainees

As of the end of 1964, one or more senior health officials in all Member Countries except Haiti and Trinidad and Tobago had been trained in international planning courses. The trainees from most of the countries were either chiefs of sectoral health planning units or senior officials in such units, and the trainees of many of the other countries were assigned to preparatory work for the establishment of health planning units. In a few cases the normal progress of careers in public service had led to the transfer of planning officials to higher posts where their planning training was effectively utilized.

The Organization's internal staff training goal for 1964 was to provide all PASB Country Representatives with planning training by the end of December, but because

of transfers, promotions, and re-entry into national services, at the end of the year only 14 Country Representatives in function had taken international planning courses.

The utilization of health planners in the Americas is summarized in Table 37.

Assistance to Governments

Assistance to Governments was provided by short-term consultants, Country Representatives with specialized training, Zone planning-advisers assigned to Zones IV and VI Offices, and Headquarters planning staff.

Assistance in Zone IV was concentrated in Colombia and Perú, where substantial methodological research in planning was begun under national auspices with PASB cooperation. Assistance in Zone VI was concentrated largely in Chile, both because this country is the seat of the Latin American Institute of Economic and Social Planning and of the Spanish-language international train-

ing courses, and because of the massive effort being undertaken for the formulation of a national health plan in 1965. Assistance in the remaining Zones was principally provided by Headquarters staff and short-term consultants. The following country developments are particularly worthy of note.

In Argentina—which shares with other large and decentralized-government countries the necessity for planning initially on an area rather than a central basis—effort was concentrated on development of the Province of Mendoza as a programming area. PASB staff also collaborated in planning research undertaken by the National Development Council, the Federal Investment Council, and the planning unit of the Ministry of Public Health and Social Welfare.

Efforts in Bolivia were concentrated on revising the 2-year (1964-1965) health plan in connection with the 2-year investment program of the public sector.

In Brazil planning activity at the central level was just beginning in 1964, and efforts of PASB were concentrated on consultant services to the States of the Northeast, where regional programs were being developed, and to the Department of Health of the State of São Paulo.

In Chile, where a planning unit already existed within the National Health Service, research and training for the formulation of a national health plan and for the creation of a health planning unit at the Ministerial level were undertaken.

Both at the Ministry of Public Health of Colombia and in the national economic and social planning unit, work was continued on the revision of the 10-year health plan formulated in 1961. The studies undertaken in connection with medical manpower research (*see* Health Manpower, Chapter V, Research) were being utilized for planning purposes as well.

In Costa Rica the diagnosis was completed in mid-1964, and 4-year and 10-year health plans were in process of elaboration with particular emphasis on investment and personnel requirements.

In El Salvador, with the assistance of Headquarters, Zone Office, and country-project planning advisers, a thorough review and evaluation of the first quarter of operation of health services under the national health plan was made in July. Actual experience of operating within the framework of a national plan led to a revision of targets in some cases, to an improvement of data in others, to efforts to increase administrative flexibility in order to cope with the requirements of the plan, and to an increased diffusion of information so as to strengthen operations at the periphery.

The diagnosis was also completed in Guatemala for 10

TABLE 37. UTILIZATION OF HEALTH PLANNERS TRAINED IN INTERNATIONAL PLANNING COURSES, DECEMBER 1964

Country	One or more senior officers	Graduates employed in national health planning unit	Graduates employed in other functions in health services
Argentina.....	x	x	x
Bolivia.....	x	x	...
Brazil.....	x	x	x
Chile.....	x	x	x
Colombia.....	x	x	x
Costa Rica.....	x	x	x
Cuba.....	x	x	...
Dominican Republic....	x	x	x
Ecuador.....	x	—	x
El Salvador.....	x	x	x
Guatemala.....	x	x	x
Honduras.....	x	x	x
Jamaica.....	x	—	x
México.....	x	—	x
Nicaragua.....	x	x	x
Panamá.....	x	x	x
Paraguay.....	x	x	x
Perú.....	x	x	...
Uruguay.....	x	x	x
Venezuela.....	x	x	x
Number of countries....	20	17	17

— None.
... Data not available.

of the country's 14 programing areas, and a program budget was prepared.

In Honduras, although much of 1964 was devoted to collection of basic data, the diagnosis was completed and a preliminary plan drafted by the end of the year.

With the collaboration of PASB staff and short-term consultants a preliminary survey was completed in Jamaica, and at the end of the year preparations were underway for the establishment of a planning unit in the Ministry of Health.

In México, with the collaboration of Zone II and Headquarters staff, preplanning research was continued, with emphasis on the programing area of Tula, in the State of Hidalgo. It was anticipated that the planning unit in the Ministry of Health and Welfare would enter full operation in early 1965.

Nicaragua received assistance through Zone III Office staff and short-term consultants; the diagnosis was completed and drafting of the plan was begun.

The planning unit of the Health Ministry of Panamá was principally concerned with revision of planning targets for 1964 and with development of the health investment part of the 6-year rural development plan.

Research on programing areas continued in Perú, and considerable effort was concentrated on the health portion of the 1964-1965 investment plan for the public sector and on further development of the program budget.

Health planning activity was considerably augmented in Venezuela, the principal features being intensified research on programing areas and the holding of a second major national planning course.

Arrangements were completed for the assignment of a planning adviser for the Caribbean Area with headquarters in Trinidad in January 1965.

Collaboration in General Economic and Social Planning

The coordination of health planning with general economic and social planning in Latin America has been a continuing preoccupation of PASB.

Headquarters maintained close relations with AID, OAS, CIAP, IADB, and the IBRD. Relations with these agencies were also strengthened in the field, as were relations with the tripartite programing missions of the OAS/IADB/ECLA. In Santiago, Chile, close relations were maintained with ECLA, and the Latin American Institute of Economic and Social Planning continued to cosponsor with PASB an annual 3-month course in health planning (see Planning, Chapter III, Education and Training). The Bureau provided technical secretariat as well as liaison services at the Third Annual Meetings of the Inter-American Economic and Social Council at the Expert and Ministerial Levels (Lima, Perú, 1964) and also participated in the consideration by the CIAP of the countries' 2-year investment programs for the public sector.

The Organization collaborated actively with the IADB in the fields of water supply and housing and provided consultant and liaison services in this connection.

In the field of health economics a revised statement of research policy was issued in 1964 with emphasis on

TABLE 38. ESTIMATES OF CENTRAL GOVERNMENT EXPENDITURES ON HEALTH IN 1962

Relative expenditure compared to total Government expenditures			Absolute expenditure, based on tax receipts		
10 percent or more	5-10 percent	Less than 5 percent	\$5.00 or more per capita	\$1.00-\$5.00 per capita	Less than \$1.00 per capita
El Salvador Haiti Panamá	Brazil Chile Colombia Cuba Dominican Republic Ecuador Guatemala México Nicaragua Perú Uruguay Venezuela	Argentina Bolivia Costa Rica Honduras Paraguay	Panamá Uruguay Venezuela	Argentina Brazil Chile Colombia Costa Rica Dominican Republic Ecuador El Salvador Guatemala México Nicaragua Perú	Bolivia Haiti Honduras Paraguay

Source: Computed by PAHO from data published in the 1962 and 1963 *Annual Reports of the Social Progress Trust Fund*, Inter-American Development Bank, and supplementary information.

IV. PLANNING

small-scale studies at the local level to measure the relationships between health and productivity in Latin America. Arrangements were completed for a colloquium of economists scheduled to be held in Washington in 1965 to consider the role of health in general economic theory and in theories of development in particular. Consultant services were provided to countries in connection with the financing of rural water supply programs, and participation in the WHO study of the costs and sources of finance of health services continued.

One of the central problems remained the collection of

accurate data on the amounts actually spent by Governments for health and the refinement of estimates of health expenditure in the private sector. The rough classification shown in Table 38, based on published data, is admittedly inadequate, because estimates of Government expenditure, tax receipts, and health expenditure vary in different sources and the classification of countries is known to be subject to error. The Table, therefore, is presented purely for illustrative purposes. Plans were made for increasing in 1965 the attention given to economic statistics of importance to health.

V. RESEARCH

The biomedical research program of the Organization continued to accelerate and expand in a number of directions, including some new dimensions which were recommended for development by the Advisory Committee on Medical Research at its Third Meeting, held from 15 to 19 June. The Committee reviewed in detail the salient aspects of the Organization's research program, again emphasizing that both fundamental and applied research are integral parts of the process directed toward the acquisition of new knowledge.

A Special Session on Environmental Determinants of Community Well-Being was held on the third day of the Committee meeting. This session explored the subject of the environment and its effects on human health with special emphasis on the problems created by the mass migration of man towards the city. The discussion focused on issues posed by the development of shanty towns, on the difficulties of achieving even minimal living standards for their inhabitants, and on the problems of adapting man from a rural to an urban environment or perhaps of adapting that environment to communities of rural origin.

The objective of the expanded research program continued to be to stimulate research in fields related to the Organization's program. The research program encompasses the following broad fields: biomedical laboratory and field research; scientific communication; expansion of institutional resources for research and research training; and studies of manpower needs of health personnel, including bioscientists, at all levels.

The salient aspects of the Bureau's activities in connection with its research program follow.

Communicable Diseases

In malaria, research on the resistance of mosquitoes to insecticides and of malarial parasites to drugs is being conducted in collaboration with several Governments of Latin America.

The PAHO Insecticide Testing Team continued its work in El Salvador. Using the PAHO Model Excito-Repellency Test Box, the "neutralizing" effect of 13 residual insecticides were tested against the marked excito-repellent effect of DDT upon some strains of *Anopheles albimanus*—4 insecticides showed promise. A new model of this box, smaller and more readily transportable in difficult field situations, was developed.

Of the 4 insecticides approved by WHO in 1963 for study, work was continued on 2—OMS-33 (Bayer 39007) and OMS-43 (Folithion R). For as long as a year in some instances, bio-assays with DDT-resistant *A. albimanus* were continued weekly on residues of the insecticides on experimental patches of wall surfaces in inhabited houses. The results were good on wood, but poor on mud surfaces.



A member of the Insecticide Testing Team using the PAHO Model Excito-Repellency Test Box in connection with the malaria eradication program of El Salvador.

Bio-assays were also carried out with 7 of the 8 new insecticides approved by WHO in 1964 for preliminary field testing by the Team, testing the residues on patches of mud and plywood surfaces in experimental test huts.

The research at the Strain Screening Center for Drug-Resistant Plasmodia included thorough study of other possible antimalarial drugs against chloroquine-resistant strains of *Plasmodium falciparum*. Strains from various sources differed in their susceptibility to the other useful drugs. The only single drug effective against all the strains was quinine, which required a minimum of 10 days at 2 gm per day to assure a cure. A combination of pyrimethamine plus sulfadiazine proved highly effective even against strains that were resistant to pyrimethamine, and an intensive study on 26 cases was begun to determine the optimum dosage of the combination. Four-day trials were very effective when long-acting sulfa was used, but, in spite of a reduction in the total dose of pyrimethamine, 5 cases showed leucopenia and thrombocytopenia and 2 showed anemia, typical of pyrimethamine toxicity. These reactions, apparently related to dietary deficiencies and easily reversible by administering folic acid, must be taken into account should the drug combination be used among poorly nourished persons.

New methods of operating programs of mass distribution of drugs were tried in El Salvador and evaluated. Based on this work a Manual of Operations was prepared and scheduled for publication.

In preparation for the mass program of drug distribution planned in Haiti the combined chloroquine and pyrimethamine tablet was subjected to a field trial to test its acceptability and effectiveness. A 90 percent acceptance was obtained in the 3rd, 4th, and 5th cycles, and a reduction in slide positivity—from 15 percent to 1 percent—was obtained in 4 cycles. At the same time, the possibility of pyrimethamine resistance in the country was studied. The study showed initial susceptibility and a ready tendency for resistance to develop when pyrimethamine was used alone. In view of this, plans were included in the program to observe whether the combination with chloroquine will prevent establishment of resistance, as well as the therapeutic effectiveness of the combination.

Several applied-research programs were underway. Among them, a Pilot Plan of Integrated Attack was initiated in Oaxaca, México, in September, under a letter agreement between the Government of México and the Organization. The World Health Organization also made available \$150,000 per year for 1965 and 1966 in support of other aspects of research applied to the problem of halting transmission in the problem areas of México, and in

late 1964 studies were initiated to formulate the necessary plans.

During the Special Session on Tuberculosis held during the second meeting of the PAHO/ACMR, the Committee recognized that the major questions in tuberculosis research are not of a kind that can be settled definitely in the laboratory. They require, instead, large-scale field studies with appropriate laboratory support. For the purpose of exploring and discussing the feasibility of such studies a meeting was held in Caracas, following the Regional Seminar on Tuberculosis which took place in Maracay, Venezuela. This group recommended certain general guidelines for making tuberculosis research projects more effective and useful; it also studied the feasibility of the projects submitted and their interest to the countries.

Description of chronic effects of Chagas' disease varies in the different areas where the disease is endemic in the Americas. In some of those areas the high prevalence of infection is believed to be correlated with high death rates from heart disease or with sudden death in young adults; in others, excessively high death rates from heart disease are not reported despite high rates of infection. The existence of other chronic effects such as megacolon and megacystitis is associated with Chagas' infection in some areas but not in others. To learn more about the etiology involved comparative longitudinal studies in several areas of the Americas with reportedly differing rates of infection and disease seemed to be indicated. A cardiologist and a pathologist were sent in 1964 to several areas in South America to study and assess methods of diagnosis in current use and to plan recommendations to be made to the Advisory Committee on Medical Research on the methodology and the scope of future epidemiological studies.

A site visit by PAHO consultants to active plague foci in Perú was made in June to study the feasibility for a research project in the epidemiology and ecology of plague in that country. A detailed proposal was developed which involves, in addition to PAHO, the participation of Peruvian scientific personnel and the Walter Reed Army Institute of Research of the United States of America.

In view of reports on the possibility of a livestock-tick cycle in epidemic typhus, the Organization, with the collaboration of Peruvian epidemiologists and 2 consultants from the Rocky Mountain Laboratory, USPHS, made an assessment of the involvement of domestic animals in human rickettsioses in Perú. These studies might bring about a profound change in the present concept of the epidemiology of this disease.

Sanitary Engineering

Efforts toward the development of sanitary engineering facilities concerned with environmental problems of basic and applied research resulted in the establishment of research and training facilities in Venezuela and Argentina, and studies were advanced to establish them in Brazil. These facilities are intended to combine in each country the functions of sanitary engineering education and training, environmental health research, and sanitary laboratory service for national agencies concerned with such problems.

Demographic Studies

The health research and training aspects of the growth of human populations was discussed by the ACMR. After deliberating on the subject, the Committee pointed out the desirability of carrying out studies of high quality on human reproduction, hereditary and environmental factors in sterility, live births, abortions, fetal and maternal deaths, and on family size and constitution in relation to socioeconomic factors in urban and rural communities. The Committee also stressed the need for training in epidemiology and demography in relation to socioeconomic development in schools of medicine and public health as well as for improved methodology in the analysis of demographic data.

Furthermore, the PAHO Directing Council, at its XV Meeting (XVI Meeting of WHO Regional Committee), taking cognizance of the importance of the problems involved and, "Believing that national development planning for health is an integral part of overall national development, that the health and well-being of populations and of individuals are essential to progress generally, and that studies on population dynamics are necessary elements in the process of planning for health progress," *resolved* "To recommend that the Organization undertake studies on population dynamics and population growth, including medical demography, epidemiology, and human reproduction as related to socioeconomic development, and with the participation, when necessary, of schools of medicine and public health and other research centers in such studies as may be immediately related to the improvement of health in the various countries."¹

Planning conferences to explore resources and design collaborative research projects on an intercountry basis were scheduled for early 1965.

The Directing Council also *resolved* "To urge that the individual Governments, insofar as their resources permit, consider the possibility of establishing a permanent national fund for research on public health problems, assigning it the technical and administrative autonomy necessary for accomplishing its purposes."²

Draft projects were then designed and were being studied for feasibility. The proposals include an epidemiological longitudinal study of natality in small population groups with varying environmental conditions; research on pregnancy, natality, and mortality in several urban areas; and operational demographic research in areas with limited facilities. Also under consideration was the establishment of research training centers in which training would be provided for physicians on medical school faculties to prepare them to teach medical demography.

Maternal and Child Health

Planning was continued for the implementation of studies on Congenital Malformations in the Americas. Small group meetings were held in January and May to develop coordinated community-centered research, both in the United States of America and in Latin American countries. The Organization provided interested investigators in Venezuela with a short-term consultant to aid in developing a plan for a study in Caracas. A draft of a PAHO/WHO manual of standard definitions, procedures, and classifications was prepared for use in comparative studies. This manual was scheduled for review by a working group in January 1965. Efforts were initiated to coordinate research planning in this field with research undertaken by the Dental Health Center of the United States Public Health Service.

Following the recommendations of the PAHO Scientific Group on Research in Protein-Calorie Malnutrition, which met in Bogotá in March, the Pan American Sanitary Bureau organized and held in late December a meeting of 17 selected research investigators of the Americas representing fields of pediatric nutrition, growth and development, psychiatry and neurology, epidemiology and statistics, psychology and the behavioral sciences. The National Institute of Child Health and Human Development, of the United States National Institutes of Health, and the Association for the Aid of Crippled Children collaborated in the planning and contributed financial assistance for holding the meeting. The group discussed the problems and relationships between malnutrition and mental development.

¹ Resolution XXXI, *PAHO Official Document* 58: 83-84.

² *Ibidem.*

A questionnaire survey of midwifery resources utilization and training in the countries of the Americas was prepared and distributed to PAHO/WHO field staff. At year's end the returns had begun to come in but the quantity was as yet too small to undertake their analysis.

The Regional Adviser in maternal and child health gave consultant service to research projects underway or planned by the Institute of Nutrition of Central America and Panamá, the U.S. National Institute of Child Health and Human Development, and the School of Public Health of the University of Puerto Rico.

Nutrition

The nutrition research program continued to observe the priorities established by the PAHO Advisory Group on Nutrition that met in Washington in 1962. In 1964 the PAHO Scientific Group on Research in Protein-Calorie Malnutrition met in Bogotá, Colombia, from 16 to 20 March, with financial assistance from the Williams Waterman Fund and the participation of research workers from Bolivia, Brazil, Chile, Colombia, Ecuador, Guatemala, Jamaica, México, Perú, the United States of America, and Venezuela. The Group reviewed the status of nutrition research in the Americas and established guidelines for standardizing the methods used. The Group also defined future areas of priority for research and made recommendations for the implementation of several specific studies.

Two short-term consultants, in the fields of endemic goiter and nutritional anemias, were assigned to visit Latin American countries to determine the status of research projects involved in the corresponding inter-American collaborative studies organized under the auspices of PAHO.

Two reference laboratories were established with financial assistance from the Williams Waterman Fund. One of these, established in Santiago, Chile, will engage in research related to endemic goiter and will be responsible for verifying all methods and determinations of I_{127} made in relation to the PAHO coordinated research program in this field. The laboratory will also serve to train technicians in the standardized methodology that is to be used by collaborating laboratories. The other laboratory, located in Caracas, Venezuela, will serve as reference and training center for research workers engaged in the collaborative study on nutritional anemias. This laboratory will be responsible for establishing methods and making determinations of total serum iron, iron binding capacity, vitamin B_{12} , and folic acid.

Research on the pathogenesis and prevention of nutritional anemia was continued in Trinidad.

The PAHO coordinated research program on genetic and dietary factors in endemic goiter was being conducted with the participation of investigators in Brazil, Chile, Colombia, Ecuador, México and Venezuela. A second meeting of the collaborating laboratories was planned for October 1965 in México in connection with the VI Pan American Congress of Endocrinology.

Dental Health

With the collaboration of the W. K. Kellogg Foundation and the Division of Dental Public Health and Resources of the USPHS, an International Center for Dental Epidemiology and Research was established in São Paulo, Brazil, primarily to train personnel and to study the prevalence of oral disease in Latin America by age, sex, race, and other variables related to its etiology, prevention, and control.

Occupational Health

In September the United States Public Health Service approved a second year's grant for research study on a metabolic disorder caused by manganese poisoning. By means of this research program, neutron activation analysis is being employed to determine levels of manganese in human tissues and body fluids in order to relate the levels with several stages of toxicity and thus elucidate the mechanisms by which chronic industrial inhalation of manganese ores induces a schizophrenia-like syndrome followed either by Parkinsonism or a Wilson's disease-like syndrome. The clinical investigations of this research continued to be carried on at the School of Medicine of the Catholic University of Chile, and the neutron activation analyses at the Medical Research Department of the Brookhaven National Laboratory, in Long Island, N.Y., U.S.A.

Radiation

The U.S. Atomic Energy Commission continued to provide financial support to the Biophysics Institute of the University of Brazil and to the Institute of Physics of the Pontifical Catholic University, of the same country, to carry on the Biological and Physical Studies (begun

in 1963) in the High Natural Background Radiation Areas in the country. The program continued to be coordinated by means of semiannual visits of a PAHO-sponsored consultant, obtained from the Industrial Hygiene Division of the School of Medicine of New York University. One interesting observation that came out of the investigations in 1964 is the fact that cytogenetic studies of blood cells of residents in the areas under study showed an excessive number of chromosomal aberrations. Much work will be required both to verify the abnormalities as well as to determine the extent and delineate the types of the aberrations.

Further preliminary steps were taken in an effort to implement a study on the effects of irradiation in large animals at high altitudes. This study, to be carried out in the high Andes of Perú, has a two-fold purpose: (a) to determine whether hypoxia exerts a protective influence by reducing the number of aplastic anemia cases that can be anticipated following the irradiation of burros with an LD 50/30 dose of gamma radiation, in which context the mechanisms concerned with the development of aplastic anemia will also be studied and related, if possible, to leukemia development in human beings; and (b) to determine whether the burro does develop a C.N.S. (central nervous system) syndrome following an LD 50/30 or smaller dose of radiation—and if so, to attempt to study the actual mechanisms which make the burro this sensitive as well as the pathological effects. Some researchers believe that the effect on the C.N.S. may be caused not by the radiation but rather by latent equine viruses activated as a result of the irradiation. This aspect is also scheduled for investigation.

The U.S. Atomic Energy Commission has indicated much interest in providing partial or total financial support for this program. Consequently, through the Organization's initiative, a full-scale meeting was held in late November between United States and Peruvian investigators with representatives of AEC and PASB to develop the first stages of the research protocol for submission to the AEC in 1965.

The funds for the first year of an investigation of the Biology and Ecology of *Rhodnius prolixus* were provided in June by the National Institutes of Health of the United States of America. Considerable progress was made, especially with reference to various environmental factors. Temperature effects with reference to egg eclosion, number of eggs per female, and longevity were studied—the highest biotic potential being found at 29°C. Crowding was found to have an adverse effect on feeding and on oviposition. Tests carried out at the Venezuelan Institute of Scientific Research, and at the Atomic Energy of Canada

Limited, at Chalk River, proved that ionizing radiation at exposures from 8,000 to 20,000 r interfered seriously with the mating behavior of the male, and that significant lethality occurred in eggs from females mated to males treated at 5,000 r. Movement studies by means of radioisotope tagging indicated that this vector of Chagas' disease is not entirely intradomiciliary in its habits.

Inter-American Investigation of Mortality

The Inter-American Investigation of Mortality completed the third year of operations. By the end of 1964 the collection of data for the scheduled 2-year period in each city had been completed for 8 of the 12 cities included in the Investigation and was nearing completion in the other 4 cities (Table 39). Material corresponding to the first year for 11 cities had been processed and tabulated. Preliminary analysis was underway, in preparation for a conference of principal collaborators scheduled for February 1965 at which the results would be reviewed.

A paper describing the development and methodology of the study was prepared for publication in English in the series *Public Health Papers*, of the World Health Organization, and in Spanish in the January 1965 issue of the *Boletín de la Oficina Sanitaria Panamericana*. Some preliminary findings from 4 cities were reported in a paper presented at the 92nd Annual Meeting of the Amer-

TABLE 39. INTER-AMERICAN INVESTIGATION OF MORTALITY: NUMBER OF COMPLETED QUESTIONNAIRES RECEIVED AND PERCENTAGE OF ESTIMATED TOTAL FOR 2 YEARS

31 December 1964

City	Completed questionnaires	Percentage of estimated total
Bogotá (Colombia).....	4,263	100
Bristol* (England).....	3,960	93
Cali (Colombia).....	3,930	100
Caracas (Venezuela).....	3,120	100
Guatemala (Guatemala).....	3,313	96
La Plata (Argentina).....	3,660	100
Lima (Perú).....	4,597	100
México (México).....	4,188	82
Ribeirão Preto (Brazil).....	1,084	100
San Francisco (California, U.S.A.)...	3,131	84
Santiago (Chile).....	4,362	100
São Paulo (Brazil).....	4,530	100

* Included for comparison purposes.

ican Public Health Association. A paper was also prepared for the World Population Conference, planned by the United Nations to be held in Belgrade, Yugoslavia, in 1965. This last paper was based on the findings of the data processed for the first year of the study in 8 cities (Figure 5). The analysis revealed:

- (1) The high death rates from tuberculosis, particularly in males, in some of the cities.
- (2) The importance of Chagas' disease as a cause of death in Ribeirão Preto, Brazil.
- (3) The greater range of variation in cancer mortality among males than among females.
- (4) The marked differences among cities in death rates of males from lung cancer and in the death rates of females from cancer of the uterine cervix.
- (5) The marked variation in mortality of males from arteriosclerotic and degenerative heart disease which does not exist in the death rates of females from this cause.
- (6) The high mortality of males from bronchitis in Bristol (included for comparison purposes), which, with one exception, exceeds the total rates from all respiratory diseases in the other cities.
- (7) The tremendous range in mortality from cirrhosis of the liver in both sexes. In Santiago the death rate of males from this cause is greater than that from all forms of cancer.
- (8) The variation in mortality from external causes, and particularly among males, from motor vehicle accidents.

Human Genetics

The Organization participated with the Department of Human Genetics of the School of Medicine of the University of Michigan, U.S.A., in a pilot multidisciplinary study of primitive population groups in Central Brazil. The accelerated rate at which such populations are disappearing, culturally, if not physically, makes these studies of importance in gaining insight into human evolutionary processes and in contributing to the understanding of patterns of diseases that are more prevalent in other parts of the world.

Scientific Communications

The Organization's program on research communications encompasses projects for the founding and improvement of regional biomedical journals and for the estab-

lishment of a regional library of medicine. Journals in the fields of nutrition, physiology, microbiology, parasitology, pathology, neurology, and tropical medicine were evaluated for future identification as regional publications. Important steps were taken towards the establishment of a regional library of medicine which will serve the information needs of the Latin American scientific community.

Institutional Resources for Research and Research Training

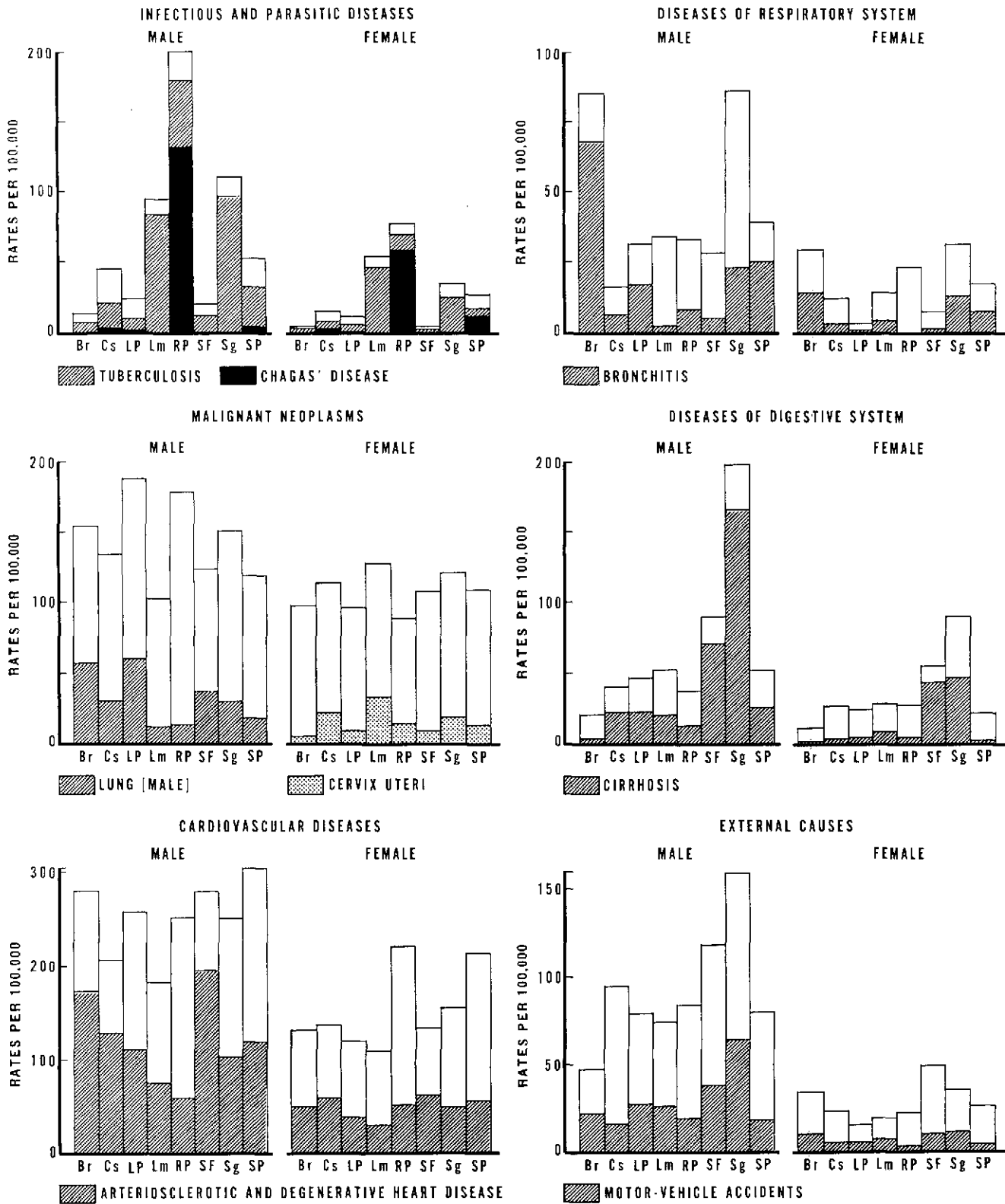
In regard to the PAHO institutional development program, feasibility and planning studies of regional resources for the organization of faculty research-training centers were initiated, with the cooperation and support of the U.S. Agency for International Development and several foundations.

Prospects are encouraging that several Latin American centers will be organized, beginning in 1965, emphasizing research training—in the medical demography of population dynamics, community health, and preventive medicine; in microbiology, including virology, parasitology, and medical entomology; in pathology, stressing the dynamics of disease processes; and in physiological sciences.

The objective of the program is to provide Latin America with faculty fellowship grants for the advanced training of physicians who will strengthen faculties of schools of medicine and public health which lack specialized manpower resources for teaching and research in these important basic disciplines. (Thirty new medical schools have been opened in Latin America since 1955, bringing the total to 110).

Health Manpower

A collaborative study of health manpower and medical education was started in Colombia in August, after a year of policy and operational planning studies. Participating agencies are the Ministry of Health, the Colombian Association of Schools of Medicine, the Milbank Memorial Fund, and the Pan American Health Organization. The study is a research approach to the measurement of health manpower requirements of Colombia considering both quality and quantity in the context of socioeconomic change and development, health conditions, and health care programs. This pilot study focuses attention on the integral nature of manpower training and health



Br.-BRISTOL Cs.-CARACAS LP.-LA PLATA Lm.-LIMA RP.-RIBEIRÃO PRETO SF.-SAN FRANCISCO Sg.-SANTIAGO SP.-SÃO PAULO

FIG. 5. AGE-ADJUSTED DEATH RATES PER 100,000 FOR MALES AND FEMALES 15-74 YEARS OF AGE FOR 6 CAUSE GROUPS IN 8 CITIES, FROM THE FIRST YEAR OF THE INTER-AMERICAN INVESTIGATION OF MORTALITY.

V. RESEARCH

progress programs in relation to community and overall national development. This study, to be completed in 1966, has already aroused much interest in other countries as to the methods employed and the results to be achieved. A Pan American seminar will be scheduled to satisfy this demand.

Other

It is also worth reporting that a panel of experts was organized to make a 10-country comparative study of

national policy and decision-making and financing of biomedical research, as suggested by the ACMR. This study is to be completed in early 1965.

Active programs of research and research training were being expanded at the Pan American Zoonoses Center and the Pan American Foot-and-Mouth Disease Center (*see under* Zoonoses, Chapter I.A, Eradication or Control of Diseases) as well as at the Institute of Nutrition of Central America and Panamá (*see under* Nutrition, Chapter II.B, Specific Programs).

VI. PUBLICATIONS AND INFORMATION

SPECIAL PUBLICATIONS

The publications program of the Pan American Sanitary Bureau has grown in volume and scope in the past several years and has become a key adjunct to international health work in the Hemisphere, especially in connection with education and training programs and field activities. The program is designed to meet the special needs of this Region and to complement, without duplicating, the WHO publications distributed in the Americas.

Through its program of Special Publications—which comprises the 3 series *Official Documents of PAHO*, *Scientific Publications*, and *Miscellaneous Publications*—the Bureau has made available to public health services and health workers throughout the Americas an increasingly broad selection of current technical literature. In 1964 the program reached a total of 49 publications, with some 5,000 pages and 117,000 copies printed (Tables 40 and 41).

The material to be published—other than the Official Documents—is selected primarily to fill the need in Latin America for technical handbooks and guides, disseminate information on results of field projects, seminars, and other technical meetings of PAHO/WHO, and promote understanding of the Organization's goals and role in the general process of development. The emphasis has been on literature that will stimulate the practical application of modern advances in public health. In addition to

original material in both Spanish and English, a series of technical texts are carefully selected each year for translation into Spanish or Portuguese to respond to specific needs in Latin America in the fields of communicable diseases, environmental sanitation, public health administration, planning and research.

In the Official Documents series, the proceedings and recommendations of the historic meeting of the *Task Force on Health at the Ministerial Level* were published in English (Official Document 51), the Spanish edition having previously been issued. Other Official Documents published in English and Spanish were the 1963 *Report of the Director*, the *Proposed Program and Budget Estimates, 1965-1966*, the *Financial Report of the Director and Report of the External Auditor* for 1963, and the proceedings of the XIV Meeting of the PAHO Directing Council (Official Document 54). The resolutions of the 50th Meeting of the Executive Committee (Official Document 57) and the Final Report of the XV Meeting of the Directing Council (Official Document 58) were published in special bilingual editions.

Original publications in 1964 included the reports and working papers of a number of important Organization-sponsored seminars, including the *Travelling Seminar on Organization and Administration of Schools of Public Health* (Scientific Publication 94), the *Seminar on the Teaching of Preventive Medicine and Public Health in Schools of Veterinary Medicine* (Scientific Publication 96), and the *Segundo seminario latinoamericano de salud mental* (Scientific Publication 99).

In the volume *Seminario sobre diseño de abastecimientos de agua* (Scientific Publication 95), a series of basic technical papers were compiled on diverse aspects of the design of water supply systems.

The working papers and report of the Technical Discussions held at the XIV Meeting of the Directing Council were published under the title *Control of Gastrointestinal Diseases*, with separate editions in English and Spanish, for wide distribution in the Americas.

The second edition in Portuguese of the *Manual de*

TABLE 40. SUMMARY BREAKDOWN OF SPECIAL PUBLICATIONS, 1964

Series	Number	Pages	Pressrun
Official Documents	13	2,364	14,100
Scientific Publications	30	2,305	75,500
Miscellaneous Publications	6	303	27,200
Total	49	4,972	116,800

TABLE 41. SPECIAL PUBLICATIONS, 1964

Serial No.	Title	Pages	Pressrun
<i>Official Documents</i>			
51	Task Force on Health at the Ministerial Level, Final Report and Addresses	168	1,000
52	Proposed Program and Budget Estimates, 1965-1966	250	400
52	Proyectos de Programa y Presupuesto, 1965-1966	250	400
53	Financial Report of the Director and Report of the External Auditor, 1 January-31 December 1963	250	400
53	Informe Financiero del Director e Informe del Auditor Externo, 1 enero-31 diciembre 1963	82	300
54	Proceedings, XIV Meeting of the Directing Council, Vol. I	192	1,100
54	Actas, XIV Reunión del Consejo Directivo, Vol. I	213	1,000
55	Proceedings, XIV Meeting of the Directing Council, Vol. II	229	1,000
55	Actas, XIV Reunión del Consejo Directivo, Vol. II	243	1,000
56	Report of the Director, 1963	255	2,000
56	Informe del Director, 1963	246	2,000
57	Comité Ejecutivo 50a Reunión, Resoluciones—Executive Committee 50th Meeting (Bilingual edition)	47	2,000
58	Informe Final, XV Reunión del Consejo Directivo—Final Report, XV Meeting of the Directing Council (Bilingual edition)	107	1,600
<i>Scientific Publications</i>			
52	Clasificación Internacional de Enfermedades, adaptada para índice de diagnósticos de Hospitales y clasificación de operaciones (3rd printing)	312	3,000
61	Moscas de importancia para la salud y su control (2nd printing)	47	3,000
69	Introducción al estudio de los artrópodos de importancia en salud pública (2nd printing)	35	3,000
72	Liderato y la Comunidad (2nd printing)	28	2,000
87	Manual de Diagnóstico Microscópico da Malária (2nd edition, Portuguese)	123	2,500
88	Estudios sobre educación sanitaria (2nd printing)	42	2,000
89	El control de ratas y ratones domésticos	29	5,000
93	Informe Dawson sobre el futuro de los servicios médicos y afines, 1920	43	1,000
94	Travelling Seminar on Organization and Administration of Schools of Public Health	89	2,000
95	Seminario sobre diseño de abastecimientos de agua	218	2,000
96	Seminar on the Teaching of Public Health and Preventive Medicine in Schools of Veterinary Medicine	99	2,000
96	Seminario sobre la enseñanza de medicina preventiva y salud pública en las escuelas de medicina veterinaria	101	2,000
97	Normas para el diagnóstico y clasificación de la tuberculosis	88	3,000
98	Guide for the Training of Nursing Auxiliaries in Latin America	38	1,000
98	Guía para el adiestramiento de auxiliares de enfermería en la América Latina	42	3,000
99	Segundo seminario latinoamericano de salud mental	72	2,000
100	Control of Gastrointestinal Diseases (Technical Discussions, XIV Meeting of the Directing Council)	81	1,000
100	Control de las infecciones entéricas (Discusiones Técnicas, XIV Reunión del Consejo Directivo)	87	5,000
101	Instrucción sistematizada en el uso de la adaptación de la Clasificación Internacional de Enfermedades	112	2,000
102	Reported Cases of Notifiable Diseases in the Americas, 1962	59	1,000
102	Casos notificados de enfermedades de declaración obligatoria en las Américas, 1962	59	2,000
103	Regional Advisory Committee on Health Statistics, Third Report	37	1,000
103	Comité Regional Asesor sobre Estadísticas de Salud, Tercer Informe	38	3,000
104	Health Conditions in the Americas, 1961-1962	85	2,000
104	Las condiciones de salud en las Américas, 1961-1962	87	2,000
105	Epidemiología y control de las enfermedades transmitidas por vectores	35	3,000
106	Pulgas de importancia en salud pública y su control (Guías de adiestramiento)	28	3,000
107	Mosquitos de importancia en salud pública	43	4,000
108	Insecticidas para el control de insectos de importancia en salud pública	44	3,000
110	Guía para la organización de un departamento de registros hospitalarios	104	5,000

TABLE 41. SPECIAL PUBLICATIONS, 1964—Continued

Serial No.	Title	Pages	Pressrun
<i>Miscellaneous Publications</i>			
76	New Dimensions in Health	41	5,000
76	Nuevas Dimensiones en Salud Pública	43	2,000
77	PAHO: What It Is, What It Does, How It Works (1964 edition)	28	10,000
77	La OPS: Su finalidad, sus actividades, su estructura (1964 edition)	28	10,000
78	Guide for the Reporting of Statistical Information in the Health Field	80	100
78	Guía para la preparación de los Informes de Estadísticas de Salud	83	100

Diagnóstico Microscópico da Malária (Scientific Publication 87) appeared during the year. The Spanish edition was also prepared and is scheduled for publication in early 1965.

In the field of nursing, the *Guide for the Training of Nursing Auxiliaries in Latin America* (Scientific Publication 98), prepared by the participants at the Seminar on the Training of Nursing Auxiliaries (Cuernavaca, México, December 1963) with a view to establishing minimum standards for this level of training, was published in English and Spanish.

Among the technical texts selected for translation into Spanish, for distribution to health workers in Latin America, was the basic handbook of the U.S. National Tuberculosis Association on *Diagnostic Standards and Classification of Tuberculosis*, which was published under the Spanish title *Normas para el diagnóstico y clasificación de la tuberculosis* (Scientific Publication 97). Another basic text was the *Guide to the Organization of a Hospital Medical Records Department*, of the American Association of Hospitals, published in Spanish under the title *Guía para la organización de un departamento de registros hospitalarios* (Scientific Publication 110).

The new series of simple training guides in environmental sanitation, translated and adapted from the original English texts of the U.S. Communicable Disease Center, for use by auxiliary workers in Latin America, now includes 9 titles. In addition to those previously published on control of lice and on waste disposal, second printings of the volumes *Moscas de importancia para la salud pública y su control* (Scientific Publication 61) and *Introducción al estudio de los artrópodos de importancia en salud pública* (Scientific Publication 69) were issued, and the following new volumes were published: *El control de ratas y ratones domésticos* (Scientific Publication 89), *Epidemiología y control de las enfermedades transmitidas por vectores* (Scientific Publication 105), *Pulgas de importancia en salud pública y su control* (Scientific

Publication 106), *Mosquitos de importancia en salud pública* (Scientific Publication 107), and *Insecticidas para el control de insectos de importancia en salud pública* (Scientific Publication 108).

A Spanish translation of *The Dawson Report on the Future Provision of Medical and Allied Services, 1920* was also published (Scientific Publication 93).

To meet the continuing demand for texts in the health education field, second printings were issued of the volumes *Estudios sobre educación sanitaria* (Scientific Publication 88) and *Liderato y la Comunidad* (Scientific Publication 72).

An important aspect of the program is the continuing series of publications on health statistics. In 1964 a major publication was the special report on *Health Conditions in the Americas, 1961-1962* (Scientific Publication 104), issued in English and Spanish for the XV Meeting of the PAHO Directing Council. The volume *Reported Cases of Notifiable Diseases in the Americas, 1962* (Scientific Publication 102), published in English and Spanish, contained revised annual data for that year, as received from the national health authorities of the Americas. The report of the *Regional Advisory Committee on Health Statistics* was issued as Scientific Publication 103.

Other publications included the training manual *Instrucción sistematizada en el uso de la adaptación de la Clasificación Internacional de Enfermedades* (Scientific Publication 101) and a third printing of *Clasificación Internacional de Enfermedades, adaptada para índice de diagnósticos de hospitales y clasificación de operaciones* (Scientific Publication 52). The latter has been widely distributed in Latin America.

Information pamphlets issued in 1964 included Spanish and English editions of *New Dimensions in Health* (Miscellaneous Publication 76); *PAHO: What It Is, What It Does, How It Works* (1964 edition, Miscellaneous Publication 77); and *Guide for the Reporting of Statistical*

Information in the Health Field (Miscellaneous Publication 78).

During the year, 280,051 publications were distributed, or 10,939 more than in the previous year. The total includes 44,570 publications received from WHO, the Organization of American States, and other agencies (Table 42).

PERIODICAL PUBLICATIONS

The *Boletín de la Oficina Sanitaria Panamericana* completed its 43rd year of publication. This journal is one of the Bureau's lasting achievements. The 1964 issues totaled 1,262 pages and included 85 original articles which accounted for more than 62 percent of the total. News items bearing on public health, medicine, and general information on related fields were included regularly. The pressrun increased to 11,000 copies per month.

Although the *Boletín* is primarily a Spanish-language journal, it occasionally includes original articles in English, Portuguese, and French. Two recent trends have been to increase the English-language material and to include English summaries of all articles published in the other 3 languages, the latter of which two trends was introduced with a view to facilitate the inclusion of this material in the English-language medical abstract journals. The special arrangements with the *Bulletin of the World Health Organization* to publish lead articles simultaneously in English in that periodical and in Spanish in the *Boletín* were maintained.

TABLE 42. PUBLICATIONS DISTRIBUTED, 1964

Type of publication	Number of copies distributed	Total
Official Documents (PAHO).....	9,770	
Scientific Publications (PAHO).....	67,334	
Miscellaneous Publications (PAHO)..	12,792	
<i>Boletín de la Oficina Sanitaria Panamericana</i>	117,654	
Reprint from the <i>Boletín</i>	9,267	
Other PAHO Publications.....	18,664	
Total PAHO publications.....		235,481
WHO Publications.....		30,447
Publications from other organizations.		14,123
Grand Total.....		280,051

The *Weekly Epidemiological Report* included, in addition to weekly information on the distribution of reported cases of the 6 quarantinable diseases both in the Americas and other parts of the world, tables showing reported cases of 8 communicable diseases, by countries in the Americas, and, at intervals, the status of reported cases of other selected notifiable diseases in the Region. Monthly distributions of certain diseases were also included. Epidemiological notes presented current information on epidemic outbreaks and summaries of the incidence of diseases of special interest in the Hemisphere. Botulism, dengue, infectious encephalitis, hemorrhagic fever, infectious hepatitis, influenza, meningococcal infections, poliomyelitis, and typhoid fever were among the diseases on which attention was focussed in 1964.

PUBLIC INFORMATION

Work in English and Portuguese-language services about equalled that of the previous year as to quantity. Although there was a decrease in volume in the Spanish-language service, this was compensated, at least in part, by the fact that news items on Bureau work appeared in more medical and trade magazines than ever before.

Mass-Media Coverage

Press

A total of 213 news releases was put out in English, Spanish, and Portuguese during the year—28 less than the combined total for the 3 languages the year before. The difference is accounted for solely in the Spanish-language service, since 91 releases in English and 50 in Portuguese were respectively issued in 1963 and 1964.

News releases on projects, on meetings, on the work of health experts, and on World Health Day were widely used in the Western Hemisphere press. The news releases most used were those on: a 2-month study of disease and hereditary patterns among the inhabitants of Easter Island; the report of the Expert Committee on Cancer; the possibilities of establishing an international, WHO-administered, cancer research center in Paris; a PASB-backed trip of 2 University of Illinois scientists to Central America to study insecticide resistant malaria-vector mosquitoes; the report on the need for metropolitan planning in order to avoid overcrowding, air pollution,

and other health hazards common to large cities; the XV Meeting of the PAHO Directing Council; the report on a study on remaining primitive societies; the Seventeenth World Health Assembly; and World Health Day.

Five feature stories in English, 9 in Spanish, and 3 in Portuguese were sent to editors throughout the Hemisphere. Two of the English-language stories, as well as 1 of the Spanish, went out as mat features, that is, text and a photograph mounted on a perforated cardboard that can be put directly on presses.

In 1964 the editors of specialized publications became more aware of, and interested in, the Organization's work; and in consequence more PAHO/WHO stories appeared in medical, technical, and trade periodicals of the Americas. Among the publications that carried one or more stories were *Desarrollo Económico*, *Antibiotic News*, *Food Chemical News*, *Pediatric Herald*, *Public Health Reports*, and *Health* (published by the Health League of Canada).

Two magazines which regularly published stories on PAHO/WHO work were the *Medical Tribune* and *Medical World News*. Among the stories run in the first of these periodicals were "A World Health Study Center Proposed for Assembly Action," "Biologics Market in Latin America Is Being Studied," "Urban Concentration Is a Worry," and "Latin America: Problems in Disease Eradication" (on the PAHO Directing Council Meeting in México City). Stories printed in *Medical World News*, a publication of about 320,000 circulation, included "World Experts Issue a Blacklist of Carcinogens," "World Health Chiefs Meet in Geneva" (on the World Health Assembly), and "WHO Turns the Tide Against TB."

Among general circulation magazines, *Visión*, a Spanish-language news magazine, and the Pan American Union's *Américas* (published in English, Spanish, and Portuguese editions) also carried stories on the Organization's activities.

For World Health Day a press kit was made up of 3 captioned photographs, a fact sheet, and a letter to the editor written in such a way that it could be used as an editorial. These kits were sent to editors of 2,500 English, 650 Spanish, and 1,250 Portuguese-language periodicals.

Radio and Television

The year's radio program included mainly the taping of 7 interviews with Bureau technical staff.

The Organization shared with the WHO liaison office at the United Nations in production costs of two 60-second television spots on tuberculosis—the 1964 World Health Day subject. The films were distributed, by the WHO liaison office, to television stations throughout the United

States of America. On World Health Day a special program was broadcast through *Panorama Panamericano*—the United States Information Agency's weekly television show produced for and distributed in Latin America.

During the XV Meeting of the PAHO Directing Council, television and radio coverage was arranged with México City stations to keep the public informed on the deliberations.

Other Activities

In preparation for World Health Day, information kits were sent out to 6,000 English, 4,000 Spanish, and 1,250 Portuguese publications, civic groups, and interested persons. Each kit contained 8 articles, 2 posters, and World Health Day messages from the Director of the PASB and the Director-General of the WHO. High health officials and eminent public figures of British Honduras, Canada, Chile, Costa Rica, Surinam, and the United States of America issued messages. As part of World Health Day observance in the Washington, D.C., area, cards and posters were displayed in busses, schools, libraries, and public buildings.

During the year, 1,828 requests for nontechnical information were answered. These inquiries came from all the countries of the Western Hemisphere. As a result of one such inquiry, it is worth mentioning that the Alpha Phi Omega fraternity of the University of Rochester, New York, U.S.A., donated \$1,500 for nutrition work in Central America.

About 80,000 pieces of literature were sent out in over 13,000 kits.

Four new films were added to the film library during the year, including "Killers at Large" (a 20-minute black-and-white new film on smallpox), "New Food for Health" (on INCAPARINA), "Water," and "Rural Nurse." The Organization loaned 72 films to schools, colleges, and civic organizations.

The program of internal information, aimed at the Organization's staff both in Washington and in the field, was continued.

Five issues of the *P. I. Newsletter* were put out during the year, an increase of 1 over 1963. Of the five, 3 were single-topic issues—one each devoted entirely to the XV Meeting of the PAHO Directing Council, the Seventeenth World Health Assembly, and World Health Day. Pressrun of each issue was 6,000 Spanish, and 5,000 English.

Seven flyers of the PAHO Information Series were reprinted to meet requests from the general public. They

were: "Busiest Border," 3,000 copies; "Trabajando por la Salud Mental en las Américas," "Ayer y Hoy," and "Then and Now," 5,000 copies of each; and "Malaria Eradication in the Americas" and "Erradicación de la Malaria en las Américas," 10,000 copies of each. The pamphlet "New Food for Hidden Hunger," issued the year before, was also reprinted in 5,000 copies.

To supplement the literature distributed to the general public, arrangements were made for reprints of 3 articles that appeared in outside publications. One of the articles was "New Food for Hungry Children" (originally printed in the *Reader's Digest*), of which 20,000 English and 10,000 Spanish copies were ordered. The other two articles (published in the *Medical Tribune*) were "An Active Volcano Presents Problems to Medical World," on the effects of the eruption of Mount Irazú on the population of San José, Costa Rica, and "World Health Bill Presented Before the Delegates of WHO," on the WHO program—and its cost—as presented to the Seventeenth World Health Assembly; 3,000 reprints of each article were obtained for distribution.

VISUAL AIDS

In 1964 the Organization engaged in the production of filmstrips, with printed narratives in Spanish and Portuguese, for use as teaching aids in Latin American schools of medicine, public health, nursing, veterinary medicine, and sanitary engineering. This new activity for the Bureau was undertaken in cooperation with the USPHS audiovisual facility of the Communicable Disease Center in Atlanta, Georgia. Some of the filmstrips were translated and adapted by Bureau staff from English versions selected from the numerous series produced by the Center's audiovisual facility; others will be planned by the Bureau's technical staff and produced at the Center.

By the end of the year, 6 Spanish-language filmstrips were ready to be distributed; 1 filmstrip dealt with brucellosis, 1 with the techniques for collecting human blood specimens, and the other 4 with tuberculosis. The first filmstrip with a Portuguese narrative, on schistosomiasis, was under preparation.

A special exhibit on tuberculosis was prepared for World Health Day and placed on display in a department store in Washington, D.C.; another, in Spanish, on the Bureau's activities in the field of environmental sanitation, was sent to Colombia for use at a seminar sponsored by the Organization during the Ninth Meeting of the

Inter-American Association of Sanitary Engineering. One exhibit was on permanent display, since September, at the headquarters of the Pan American Union; and another was displayed during the 7th Annual Teachers Conference on the United Nations, both in Washington, D.C. Panels drawing attention to antituberculosis work were displayed at the annual meeting of the American Public Health Association.

The initiation of filmstrip production brought about a decrease in the production of slides; however, staff made use of 297 slides for technical papers, lectures, and other activities. A special glass-mounted slide was designed to be used in the motion picture theatres in British Honduras to publicize the antimalaria campaign.

A total of 1,439 photographs of public health activities were added to the Organization's files; and 1,717 prints were supplied to WHO Headquarters, Zone Offices, civic groups, schools, periodicals, and publishing firms.

Numerous charts and graphs were prepared in connection with the planning of projects, statistical reports, reports to Governments, and the publication of technical manuals and other Bureau publications. Over 1,500 illustrations were prepared.

LIBRARY

The two principal functions of the Library—the acquisition of materials in the health-related sciences, and correlating these materials with the needs of the staff both at Headquarters and in the field—accounted for the aggregate activities of the Library. The services of the Library were also extended to students and research workers in the Americas.

The Library's collection was increased by 9,516 pieces of literature: 1,928 books and pamphlets, 4,877 issues of periodicals, and 2,611 WHO documents and publications. In addition, 49 Agreements were added to the Archives, and 32 new titles of journals to the periodical collection. To analyze the content of the literature, 11,814 cards were added to the several catalogs.

The information requested in the 3,646 inquiries received and answered revealed interest in the comprehensive program of the Organization. Bibliographies and lists of references on various topics were compiled.

The total circulation amounted to 7,551 items. This year, 2,913 pages of photocopies were supplied on demand, principally to staff members working in the field.

In addition, and also on demand, 305 publications were sent to the Zone Offices.

Also during 1964, detailed plans were prepared for the installation and arrangement of the Library equipment in the new Headquarters building; and, as preliminary to moving into the new quarters, the shelves were in-

ventoried and unwanted items, totaling 1,311 pieces, were forwarded to other libraries and exchange centers. A survey of the Library in Zone II Office was undertaken by a member of the Library staff, and during this time elementary instruction in custodial care was given to a staff member in said Zone.



XV Meeting of the Directing Council of the Pan American Health Organization (XVI Meeting of the Regional Committee, for the Americas, of the World Health Organization, held in México, D. F., from 31 August to 11 September.

VII. ORGANIZATION AND ADMINISTRATION

GOVERNING BODIES

The following meetings of the Governing Bodies of PAHO were held in 1964: the 50th Meeting of the Executive Committee, in Washington, D.C., from 27 April to 1 May; and, in México City from 31 August to 11 September, the XV Meeting of the Directing Council and 51st Meeting of the Executive Committee.

Directing Council

The following Governments were represented at the XV Meeting of the Directing Council (XVI Meeting of the Regional Committee of WHO for the Americas): Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, France, Guatemala, Honduras, Jamaica, Kingdom of the Netherlands, México, Nicaragua, Panamá, Paraguay, Perú, Trinidad and Tobago, United Kingdom, United States of America, Uruguay, and Venezuela. The Government of Canada designated an official observer. The Director-General of the World Health Organization also attended, as did observers of the Inter-American Development Bank, the International Labor Organization, the United Nations Children's Fund, and the United Nations Technical Assistance Board. In addition, there were observers from 8 nongovernmental and other interested agencies or organizations. The Representative of México was elected President of the meeting and the Representatives of Paraguay and of the Dominican Republic were elected Vice-Presidents.

The Council held an inaugural session, 15 plenary sessions, and a closing session; 8 sessions of the General Committee, and 4 of the Committee on Credentials. One entire day was devoted to the Technical Discussions. Forty-three resolutions were approved.

Among the more important items examined in the course of the meeting, in addition of the *Report of the*

Director for 1963, was the *Proposed Program and Budget Estimates* for 1965 and 1966, the status of malaria eradication and the financing of this activity, *Aedes aegypti* and smallpox eradication, the status of the venereal disease problem and control programs, the continental water supply and sewage disposal program in urban and rural areas, national health planning, research policy and program of PAHO, the relationships between social security medical programs and those of Ministries of Health or other official health agencies, a review of the program of the Organization (on the basis of a sample of long-term projects), and a progress report on the program of administrative rationalization in the PASB.

The Council made a detailed examination of the proposed program and budget of the Pan American Health Organization for 1965 and established the budget ceiling for that year at \$7,190,000, in accordance with the recommendation of the Executive Committee at its 50th Meeting.

After examining the report on the status of malaria eradication, the Council expressed its satisfaction with the progress achieved and reiterated the hope that UNICEF and the AID would continue to support the campaign until malaria was eradicated from the Hemisphere. The Council also expressed its concern over the shortage of sufficient funds with which to intensify the campaign in areas where the transmission of the disease persisted because of technical problems. In this regard, it instructed the Director of the Bureau to consult with the Director-General of WHO with a view to finding an appropriated method of assuring the financing of the malaria eradication program in the Americas.

As to the status of *Aedes aegypti* eradication, the Council urged the Governments of the countries and territories still infested by the mosquito to make every effort to achieve eradication as soon as possible, and reminded the Governments of the countries and areas from which the vector had been eradicated to maintain active vigilance services to prevent reinfestation.

The Council also examined a report on the status of smallpox eradication in the Americas, and expressed its

satisfaction with the fact that the disease had already disappeared from many countries, and that other countries were conducting intensive campaigns to achieve the same purpose. It asked the latter countries to continue their efforts to overcome all administrative and financial difficulties in the way of these programs, and to assign such programs the high priority they deserve.

Regarding the problem of venereal diseases the Council requested the Director of the Bureau to undertake a special study of the current situation for the purpose of preparing a proposal for a continental program to control these diseases.

The Council also studied the report on the status of the continental water supply and sewage disposal program for urban areas, and urged all Governments to give special attention to the formulation of sound project proposals supported by well-conceived plans and feasibility studies so as to ensure acceptance of such projects by the international lending agencies, since that would make it possible to meet the existing and projected needs for those services.

The Council also examined the progress report on the program of rural water supply and well-being, and urged that the Director promptly take all necessary steps to begin the Continent-wide program of rural environmental health and well-being along the guidelines set forth at the XIV Meeting of the Council, which called for the participation of the communities, the establishment of national revolving funds, and contributions from outside sources. In this regard it requested the Director to continue his close collaboration with national and international organizations which were sources for grants or credits, especially the IADB and the AID, with a view to stimulating greater investments in community water supply systems. It also instructed him to have the Organization provide technical services and assist the Governments with community organization and the integration of the rural water supply program with related community development. The Council further recommended that the Governments take appropriate action to establish adequate and competent organizations in each country, supported by legal and financial provisions necessary for administering the rural water supply program at the national level.

In addition, the Council examined a report on the fluoridation of public water supplies and recorded its satisfaction with regard to the terms of the recommendations on fluoridation that were adopted by the IX Pan American Congress of Sanitary Engineering, organized by the Inter-American Association of Sanitary Engineering and held in Bogotá, Colombia, in July, and suggested to

national authorities having responsibility for providing public water supplies that they take the necessary steps to begin fluoridation in systems which had not yet adopted that measure.

The Council took note of the report of the Director on the active part played by the Pan American Sanitary Bureau in the Second Annual Meetings of the Inter-American Economic and Social Council, and instructed the Director to continue to provide full Bureau participation at both the national and international levels in the planning and implementation of the economic and social development programs of the Americas, especially in connection with large-scale national or intercountry programs. It also instructed the Director to continue his efforts to implement the resolutions and recommendations regarding health which were adopted by the IA-ECOSOC, particularly those referring to the program of rural environmental health and well-being and its integration in other community development programs, and those relating to the economic significance of foot-and-mouth disease.

With regard to health planning, the Council recommended that the Organization continue to give substantial support to the training of health planning personnel and that it increase its collaboration with Governments in the administrative and management aspects of planning activities.

Another resolution adopted by the Council requested the Director to convene an advisory committee to study the planning aspects of hospitals and health facilities within the national health planning process and to report to the meetings of the Governing Bodies in 1965 on how the Bureau can best participate in the planning for the construction, staffing, and operation of integrated hospitals and related health facilities designed to serve the community needs in the various countries.

The Council approved the research policy and program of PAHO with respect to both the scope and depth as well as the balance of the programmed activities and recommended that the Organization undertake studies on population dynamics and population growth, with special reference to medical demography, epidemiology, and human reproduction as related to socioeconomic development. It also urged that the individual Governments, insofar as their resources permit, consider the possibility of establishing a permanent national fund for research on public health problems and assign it the technical and administrative autonomy necessary for accomplishing its purposes.

The Council further examined a progress report on the inter-American investigation of mortality and recom-

mended that the Governments and the Bureau make full use of the results in order to develop studies to determine the factors responsible for the difference revealed by that investigation. It also recommended that the Governments take the necessary steps to improve mortality statistics and medical certification, so that such data may be better utilized in both research and health programs.

Another report examined by the Council was the program review of a sample of long-term projects of the Organization. It requested the Director to continue the evaluation of the Organization's program, to extend it to all country projects in which the Organization cooperates, and to make a continuous review of the project activities in all stages of their development.

The Council also examined the report on the relationship between social security medical programs and those of Ministries of Health or other official health agencies; it instructed the Director to continue to provide the countries with advisory services at their request; and recommended that he convene a Study Group to present the Organization with a report on the promotion of better coordination between the public health services and the medical care programs provided by the social security agencies and other organizations.

The Council also adopted resolutions on epilepsy in the Americas, training of auxiliary personnel, inter-country exchange of teaching and other health personnel, training in preventive aspects of pathology, and some important aspects of the award of fellowships by the Pan American Sanitary Bureau.

The Council took note of the resolutions of the WHO Executive Board and the World Health Assembly of interest to the Regional Committee.

The Council also examined the report on administrative rationalization in the Bureau and requested the Director to continue the program and to report progress to future meetings of the Governing Bodies.

The Council made a careful examination of the problem of arrears in quota payments and urged all Governments to make budgetary provision for their quota assessments and to pay quotas as early as possible each year. In this regard, it recommended that, where appropriate, the Governments establish a plan with the Bureau for the payment of arrears within a definite period. The Council also approved an amendment to Article 6 of the Constitution of the Pan American Health Organization, by virtue of which voting privileges may be suspended for any Government in arrears in an amount exceeding the sum of its quotas for 2 full years should it fail to meet its financial obligations to the Organization by the date of

the opening of the Pan American Sanitary Conference or a meeting of the Directing Council. Nevertheless, if the Conference or the Directing Council were satisfied that the failure of the Government to pay was due to conditions beyond its control, it may permit the Government to vote.

In connection with the new Headquarters building the Council thanked the W. K. Kellogg Foundation for its generous gift and the Government of the United States of America for the site. It also expressed its appreciation to the members of the Permanent Subcommittee on Buildings and Installations for their valuable assistance in the prosecution of all activities related to the construction of the building.

Among other administrative and financial matters studied by the Council in the course of the meeting were the *Financial Report of the Director and Report of the External Auditor* for 1963, which were approved; the status of the Emergency Revolving Fund; the amendments to the Staff Rules of the PASB; the proposed program and budget of the World Health Organization for the Region of the Americas for 1966, for transmittal to the Director-General of WHO; and the regional projects to be implemented in 1965-1966 with funds of the United Nations Expanded Program of Technical Assistance. The Council also took note of the provisional draft of the proposed program and budget of PAHO for 1966 and recommended to the Director that, in submitting the proposed program and budget of PAHO for that year, he take into account both actual and anticipated budgetary income in the distribution of projects in accordance with priorities, as well as the recommendations and observations made by the various Representatives in the course of the meeting. The Council also approved the inclusion of an additional \$200,000 in that budget for INCAP.

A report on the collaboration of the Bureau in administrative practices of national health services in several countries was also examined by the Council.

The Council unanimously approved the Annual Report of the Chairman of the Executive Committee for the period September 1963 to September 1964 and commended him and the other members of the Committee for the work accomplished.

The Governments of Jamaica, Panamá, and Venezuela were elected to the Executive Committee on the termination of the period of office of Nicaragua, Perú, and Uruguay, and the Council thanked the latter three countries for the services rendered to the Organization by their Representatives on the Executive Committee.

Finally, the Council rendered tribute to the memory of three distinguished sanitarians who had died since the

previous meeting: Dr. René Rachou, PAHO/WHO Malaria Consultant; Dr. Francisco Vio Valdivieso, PAHO/WHO Administrative Methods Consultant stationed in Panamá; and Dr. Manuel A. Sánchez Vigil, Director General of Public Health of Nicaragua.

Technical Discussions. The Council devoted an entire day (4 September) to the discussion of "Tuberculosis: A Task for Present Planning and Future Action."

The Representative of Brazil acted as Moderator and the Representative of Colombia as Rapporteur; the technical secretary was the Regional Adviser on tuberculosis.

The Council examined the report on the Technical Discussions in plenary session and recommended to the Organization and to the Governments that in the matter of tuberculosis policy they take into account the guidelines contained in said report, especially with respect to the training of medical officers.

For the Technical Discussions to be held in 1965 during the XVI Meeting of the Directing Council the topic chosen was "Methods of Improving Vital and Health Statistics."

Executive Committee

At the 50th Meeting of the Executive Committee, held from 27 April to 1 May, the following 7 Member Governments were represented: Brazil, Costa Rica, México, Nicaragua, Perú, United States of America, and Uruguay. The Dominican Republic, Kingdom of the Netherlands, and Jamaica each sent an observer, as did the Organization of American States and the Inter-American Development Bank.

The Committee made a thorough study of the proposed program and budget of PAHO for 1965 and recommended to the Directing Council that the budgetary level be set at \$7,190,000. It also examined several technical, financial, and administrative reports, which were later submitted to the Council for consideration.

At the 51st Meeting, held on 11 September, the following countries were represented: Jamaica, Panamá, and Venezuela (new members), and Brazil, Costa Rica, México, and the United States of America. Perú sent an observer. The Representative of the United States of America was elected Chairman, and the Representative of Brazil was elected Vice-Chairman of the Committee. It was agreed to authorize the Chairman of the Executive Committee to fix the date for the 52nd Meeting of the Committee in consultation with the Director of the Pan American Sanitary Bureau.

LIAISON ACTIVITIES

The Organization continued to work in close cooperation with other international agencies, in particular those engaged in economic and social development programs of which health aspects should form part. In order to facilitate this type of cooperation a unit was established to coordinate activities and maintain relations with such agencies as the Organization of American States and the United Nations, their organs and specialized agencies; the Agency for International Development of the United States of America; international credit agencies, in particular the Inter-American Development Bank; and public and private organizations and foundations interested in providing the countries of the Americas with financial and technical assistance for economic and social development.

On initiating its work, the liaison unit placed special emphasis on three main activities: first, relations with the Organization of American States and its organs (the Council of the OAS, the Pan American Union, the Inter-American Economic and Social Council, the Inter-American Committee of the Alliance for Progress; the First Special Inter-American Conference); second, cooperation with the Inter-American Development Bank and with other international credit agencies; and third, contact with institutions and organizations interested in technical assistance and financing.

The relations with all these institutions developed in an atmosphere of full appreciation of the health sector, as well as of close collaboration within the respective specific functions of all the agencies concerned. Specific instances of such collaboration are summarized below.

The Organization participated in the meetings that CIAP held with the financial authorities of the countries for the purpose of studying the financial needs of their development plans for the period 1965-1966. PAHO was the only organization not engaged in financing that participated in such meetings, which clearly indicates the degree of progress achieved in the appreciation of the relationship between health and economic development. The experience acquired on that occasion, since then available to the Ministries of Health, has been contributing to a more effective planning of their applications for internal and external financing.

CIAP expressed its approval of the financing of foot-and-mouth disease and malaria programs and urged the integration of the programs into multinational programs having a bearing on the economic integration of the Continent.

At the Third Annual Meetings of IA-ECOSOC at the

Expert Level, recommendations were made on the following: rural and urban water supply (international credit agencies should broaden their lending by the adoption of flexible financing systems); health implications of investments (health service requirements should be taken into account when studies are being prepared on settlement, urbanization, road building, and other economic development programs, and use should be made of the technical resources of the Ministries of Health at the national level and the advisory services of the Pan American Health Organization at the international level); and financing the foot-and-mouth disease campaign.

Special mention should be made of relations with the Inter-American Development Bank. In addition to joint activities in urban and rural water supply programs, steps were taken to lay the bases for expanded investment policy in other fields of economic and social significance.

ADMINISTRATIVE MANAGEMENT AND DEVELOPMENTS

Headquarters Building

Construction of the new Headquarters building of the Pan American Health Organization progressed as well as could be expected. At the end of 1964 the building was structurally completed and work went forward on interior arrangements.

Completion of the building was somewhat delayed, however, owing to several periods of inclement weather and to certain unforeseeable difficulties. This made it necessary to renegotiate the construction contract and postpone moving into the new building until late in the summer of 1965.

Budget and Finance

The amount of PAHO/WHO funds budgeted, available, and obligated during 1964 are shown in Table 43. The total amount budgeted was \$16,227,238, representing an increase of 3.8 percent over the previous year.

The amount available during 1964 was almost identical to the budget in total but varied according to fund. The PAHO Regular amount available represented 95 percent of the budget, without including \$1 million representing a 1963 quota payment from the largest contributor, which,

due to an unusual legislative delay, was not received until January 1964. This amount was considered as belonging to the 1963 financial picture and was used early in the year to rectify the deficit which had occurred because of the delay in payment. PAHO Community Water Supply contributions were lower in 1964 than had been expected; therefore the funds available represented only 59 percent of the amount budgeted. Regarding PAHO Grants and other contributions, 123 percent of the budgeted amount is shown as available. Since only grants known at the time of budget preparation were included in the budget document (*PAHO Official Document 52*), the actual grants received are usually greater than the amount shown in the budget. The amounts of available WHO funds corresponded closely to the budget except for malaria eradication where substantial additional funds were made available during the year.

Total PAHO/WHO obligations in the year amounted to \$15,064,341, representing an increase of 6.5 percent over 1963. This figure does not include \$1,907,755 expended for construction of the new building. The PAHO Regular amount available was utilized in full. These obligations included \$300,000 to increase the Working Capital Fund and \$250,000 for the Special Fund for Health Promotion to finance expanded program activities in water supply, nutrition, and education. The payment to this latter fund was agreed with the W. K. Kellogg Foundation as the method for repayment of the generous "loan" of \$5 million toward construction of the new building.

The PAHO Special Malaria Fund expenditures were reduced below the budget because additional funds from WHO were made available for this program. Grants to PAHO and those to PAHO for INCAP do not show a high percentage of utilization because many of them were received late in the year and the funds will remain available for the following year.

A high percentage of most of the WHO funds was used, but some of the projects to be carried out with UN Special Fund assistance were delayed in starting.

The Pan American Health Organization is in sound financial condition. The Working Capital Fund reached \$2,473,480, or 34.4 percent of the 1965 budget—this percentage level is the highest reached since the beginning of 1958. The improved financial condition was achieved mainly through the policies followed over a period of years on expenditure, working capital fund, and reserves. The first of these policies, namely, to maintain expenditures within income and stay below the authorized budget if necessary, was adopted in 1959. Although income from quotas and other sources for the period 1958-1964 amounted to 94 percent of the authorized budget, ex-

VII. ORGANIZATION AND ADMINISTRATION

TABLE 43. PAHO/WHO FUNDS: AMOUNTS BUDGETED, AVAILABLE AND OBLIGATED, 1964

Source of funds	Amount of budget ^a	Increase or decrease from 1963	Amount available	Amount of obligation	Increase or decrease from 1963
	<i>U.S. dollars</i>	<i>Percent</i>	<i>U.S. dollars</i>	<i>U.S. dollars</i>	<i>Percent</i>
Pan American Health Organization					
Regular budget.....	6,560,000 ^b	9.51	6,253,025 ^c	6,251,197 ^b	22.80
Special Malaria Fund.....	2,551,283	-14.96	2,551,283	2,155,311	-24.31
Community Water Supply Fund.....	608,574	66.75	358,663	341,631	-5.06
Grants and other contributions.....	695,653	-28.85	858,232	659,815	-17.70
INCAP/Regular budget and Grants received.....	739,850	1.69	782,179	700,369	-8.42
OAS-Technical Cooperation Program.....	690,163	10.93	690,163	686,179	7.91
Total.....	11,845,523	1.05	11,493,545	10,792,502 ^d	2.74
World Health Organization					
Regular budget.....	2,766,295	10.85	2,764,400	2,680,857	12.85
Malaria Eradication Special Fund.....	78,000	12.94	188,079	168,213	114.46
Malaria Accelerated Program.....	—	—	207,464	167,728	—
Technical Assistance.....	1,150,508	-3.31	1,180,000	1,187,439	3.73
UN-Special Fund.....	386,912	148.97	414,128	55,602	292.33
Smallpox.....	—	—	14,400	12,000	-63.77
Total.....	4,381,715	12.07	4,768,471	4,271,839	17.16
PAHO/WHO total.....	16,227,238	3.80	16,262,016	15,064,341	6.50

^a As shown in *Official Document PAHO 52*, p. 7.

^b Includes \$300,000 to increase Working Capital Fund.

^c Does not include \$1,000,000 representing late payment of a 1963 quota used to meet 1963 obligations and therefore not available for expenditure in 1964.

^d Does not include Building Fund expenditure of \$1,907,755.

penditures averaged only 93 percent—producing a surplus of \$348,339. During this 7-year period there was a modest but steady annual growth in programs.

The second main policy was to effect a long-term solution to the financial problems of the Working Capital Fund. The foundation for the goal sought was laid in 1959 when the Directing Council authorized the Director to include in the PAHO Regular budget for 1961 and future years an amount of \$300,000 for gradually increasing and maintaining the Fund at its authorized level.

A third policy, adopted in 1962, was to expand on a gradual basis the partial reserves for repatriation entitlements and service benefits to include all termination costs. This was especially important to insure the Organization against risks arising out of the uncertainty of grants and voluntary contributions. This reserve was substantially complete at the end of 1964 and the Organization had assured capacity to meet future financial obligations which may arise from unanticipated program terminations, without danger to the PAHO Regular budget or the Working Capital Fund.

The picture with respect to quota contributions re-

mained unsatisfactory, but current improvement in the economic development of some of the countries in arrears in their payments offered promise of reducing the amount owed to the Organization. The number of countries in arrears in excess of 2 years totalled 6 on 1 January 1964 and did not change during the year. Quota receipts for 1964 reached 78 percent, which was higher than receipts for the 2 preceding years (Table 44). The receipts of quotas in arrears included the amount of \$1 million previously mentioned as a late payment of a 1963 quota, which at the end of the year was transferred to the Working Capital Fund.

During 1964 a further step in the direction of program budgeting was taken by an elaboration of the section on program analysis. This included a series of tables in which the program, financed from all sources of funds, was presented according to the approved program classification subject headings. This was followed by a series of narrative statements, each giving a summary description of the program in the Americas for the respective subject heading.

The plan for centralization of budgetary and financial

TABLE 44. PAHO QUOTA CONTRIBUTIONS, DUE AND RECEIVED, 1963 AND 1964

U.S. dollars

Quotas	1963			1964		
	Due on 1 January	Received by 31 December	Percent	Due on 1 January	Received by 31 December	Percent
Of corresponding year.....	5,949,828	3,806,269	64	6,534,182	5,096,445	78
Arrears.....	2,217,191	932,118	42	3,428,632	1,971,828	58
Total.....	8,167,019	4,738,387	58	9,962,814	7,068,273	71

services formulated in 1961 and commenced in 1962 was completed by the end of March 1964. Substantial savings were achieved during this period of somewhat over 2 years. By the end of 1964, Budget and Finance staff was 59 percent of the base year 1961, a saving of 28 posts. Work volume, however, had risen by over 50 percent, so that the effective workload per person was 250 percent of the 1961 base; the latter was achieved through the application of new concepts and techniques and use of mechanized equipment.

Management and Personnel

The reorganization of the administrative system of the Bureau, known as the program of administrative rationalization, continued during 1964 with concentration on the refinement of the administrative process at Headquarters and the gradual introduction of electronic data processing techniques. Through incorporation of the major part of field administrative operations into the Headquarters system the Bureau continued to reduce the expenditures for administration and consequently increase the funds available for direct technical assistance to Governments.

Since 1959, when this broad reform was conceived, until the end of 1964, when the objectives of the program were for the most part achieved, a total reduction of 68 administrative posts (48 in the field and 20 at Headquarters) had been realized. For 1964 this reduction of posts represented a saving of \$530,000. At INCAP, 21 administrative posts were also cancelled, at an estimated saving of \$53,030 per year.

The continued recentralization of field administrative activities continued to increase rather substantially the work of the Headquarters units. However, through periodic review and streamlining of internal procedures,

the additional work was absorbed without comparable increase of the staff.

Preparations for the introduction of electronic data processing in the Personnel area were completed and initiated in other administrative areas.

Sections of the *PAHO/WHO Country Representative Manual* were revised and issued as opportune during the course of the year.

Total staff strength of the Organization at the close of business on 31 December 1964 was 907 (965 in 1963), including 20 temporary employees and 8 short-term consultants. Of the 879 regular staff members, 254 were stationed at Headquarters and 625 in the field. The turnover rate for 1964 was 16.8 percent.

A total of 433 persons were appointed during 1964. Among them, appointed as regular staff members, were 32 professionals and 29 general service employees. Of the remainder, 298 were consultants and 74 were conference and general service temporary employees hired during peak workload periods and meetings of the Governing Bodies of the Organization.

Amendments to the PASB/WHO Staff Rules included a change in the amount of permissible earnings of a dependent spouse; the elimination of Service Benefit for staff appointed after 1 January 1964; the authorization of Repatriation Grant payments after 1 year of expatriate service instead of after 2 years; the institution of the UN system of gross salaries and of staff assessment; and the authorization to pay death benefits to a spouse whether or not recognized as such under the Staff Rules, and to "secondary" dependents in the absence of "primary" beneficiaries.

Local salary scale revisions were approved during 1964 for Azul and Buenos Aires, Argentina; Rio de Janeiro, Brazil; Santiago, Chile; Bogotá, Colombia; México City, México; Lima, Perú; Trinidad; and Washington, D.C., U.S.A. Changes in Staff Rules introducing staff assessment

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made it necessary to make minor increases in the local salary scales for Port-au-Prince, Haiti; Kingston, Jamaica; Lima, Perú; Trinidad; El Paso, Texas, U.S.A.; and Caracas, Venezuela. Towards the end of the year, reviews of the local salary scales for Guatemala City, Guatemala, and El Paso, Texas, U.S.A., were initiated.

Based upon studies of cost-of-living factors for each area, post adjustment classes for professional staff were revised for Argentina, Barbados, Brazil, Chile, Colombia, Costa Rica, Cuba, Ecuador, Honduras, Martinique, México, Netherlands Antilles, Panamá, and Perú. Reviews were also made of cost-of-living factors in British Guiana, Dominican Republic, El Salvador, Trinidad and Tobago, Uruguay, Venezuela, and Washington, D.C., U.S.A., resulting in no change of post adjustment classes.

In keeping with a decision of the Coordinating Committee on Administrative Questions certain preparatory work was done with a view to the introduction of a flat language allowance beginning in 1965. A special report on baggage entitlements was prepared for subsequent consideration by CCAQ.

Services and Supply

The work of the Supply service once more increased substantially over previous years' activities. During 1964 a total of 2,095 orders covering 11,690 line items valued at \$1,828,821 were processed, and 1,727 shipments were handled (an increase of 28 percent over the 1963 activity). Of the 2,095 orders processed, 182 with 1,868 line items valued at \$376,565 represented purchases made on behalf of Member Governments. Proforma estimates for 3,559 line items valued at \$3,280,451 were also furnished.

As always, requests from Member Governments for purchases against the Emergency Revolving Fund were given top priority. Several types of vaccines were procured and shipped to Chile, Costa Rica, Cuba, Nicaragua, Perú, Uruguay, and Venezuela.

The volume of work in most of the other general service areas also increased. In the Property services unit, for example, considerable preliminary planning and preparation for the move to and occupancy of the new Headquarters building took place during the latter part of the year.

Meeting and Translating Services

As in previous years, 1964 saw a heavy demand for translation work. The translations delivered during the year were as follows: 6,260 pages were translated into Spanish; 3,307 pages into English; and 1,141 pages into Portuguese—a total of 10,708 pages (8,166 pages in 1963).

The planning for and the servicing of the XV Meeting of the PAHO Directing Council, as well as the 50th and 51st Meetings of the Executive Committee, were the most important assignments of the year.

ZONE AND FIELD OFFICES

The program of administrative rationalization achieved its final twin goals of centralization of administration and decentralization of technical operations. While Zone Chiefs are responsible for overall planning direction and evaluation of programs in the countries of the Zone and for promoting the role of health in national, social, and economic development, Country Representatives are responsible for the full coordination of the Organization's program within their respective countries of assignment. In this capacity, the Country Representative also maintains liaison with the Ministry of Health and with public, private, national, or international agencies supporting health programs.

VIII. PROJECT ACTIVITIES

This chapter contains information on projects—begun, continued, or finished—in the Americas in 1964 with PAHO/WHO assistance. Unless otherwise specified, the information applies to the calendar year.

Country projects are arranged alphabetically, followed by AMRO (intercountry or inter-Zone), and by inter-Regional projects. The number in parentheses follows the new classification by subject matter already established in the *Proposed Program and Budget Estimates* (PAHO Official Documents 52).

A *country-project* objective states the purpose for which it was undertaken by the Government concerned and is not related to the form or extent of PAHO/WHO assistance. An *AMRO-project* objective states the goal, or goals, sought by the Organization.

Projects that include *Fellowships* in the title treat the fellowships themselves as projects; other fellowships are shown with 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 either through PAHO or WHO. Source of funds and co-operating agencies are shown below project descriptions, respectively at left and at right, as applicable.

The following acronyms are used to identify the source of funds:

PAHO/R	Regular budget
PAHO/CWSF	Community Water Supply Fund
PAHO/SMF	Special Malaria Fund
PAHO/G	Grant, followed by grantor
PAHO/INCAP	Institute of Nutrition of Central America and Panamá
PAHO/OAS-PTC	Organization of American States, Program of Technical Cooperation
WHO/R	Regular budget
WHO/MESA	Malaria Eradication Special Account
WHO/MAP	Malaria Accelerated Program

WHO/UN-TA	United Nations Technical Assistance
WHO/UN-SF	United Nations Special Fund

Other acronyms used in the Report appear on page iv.

ARGENTINA-3 (-6300), Nursing Education

Objective: To improve teaching in the schools of nursing of the universities of Buenos Aires, Córdoba, Litoral (Rosario), and Tucumán and, since December 1963, in the School of Nursing of the Army.

Probable duration: 1957-1966.

Assistance provided: 1 nurse educator, 2 short-term consultants (midwifery and nursing service administration), and consultant services by the nurses assigned to Argentina-7 and to AMRO-294.

Work done: The School of Nursing of the University of Buenos Aires modified its administrative structure and regulations on the basis of a 4-year program of studies, the first 3 years of which were in operation with 34 students. Efforts were being made to improve the areas where the students obtain their practical experience. In 1964 the last 12 students of the 3-year program were graduated, as compared to 3 in 1963 and 8 in 1962.

The Army School of Nursing, which at year's end had 34 students distributed in the 4 years, instituted night duty for all students from their second year on. The School graduated 6 nurses. A committee composed of nurses from the Military Hospital and from the School's staff began a revision of the procedures to be taught and the preparation of a procedural manual. The faculty of the School also collaborated in the inservice education program for 18 nurses and for 41 head nurses of the Military Hospital.

The National University of Córdoba set up, for the first time in Argentina, a competitive examination to select staff for its School of Nursing following the same regulations used to select staff members for its other schools. The School's student body numbered 66, dis-

VIII. PROJECT ACTIVITIES

tributed in the 3 years of the program. The new, 4-year curriculum was in its second year. The most significant modification in the new program of studies is a better correlation between theory and practice, especially in the areas of mental health and of teaching which are now taught throughout the entire curriculum.

The School of Nursing of the National University of the Litoral, at Rosario, established a 6-month paid internship for its fourth-year students. Additional posts for assistant instructors were set up and competitive examinations were planned. The School, which had only 35 students, carried out an intensive recruitment campaign in an effort to increase matriculation. The University authorities plan to close the School of Midwifery and asked the School of Nursing to take over the teaching of midwifery as a postgraduate course.

The School of Nursing of the National University of Tucumán had 39 students. The nurse-director chosen in 1963 through competitive examinations held according to University regulations took up her duties in June. The curriculum was revised on the basis of a 4-year program and the rules and regulations of the School were undergoing revision in consonance with overall University practice. Plans were underway to transform the Midwifery School of the University into a postgraduate course to be organized and administered by the School of Nursing. Both in anticipation of this and to give the existing midwives some preparation in public health and in nursing, an 8-week course was organized for the personnel of the Maternity Hospital; 128 midwives were enrolled in the course.

WHO/UN-TA

ARGENTINA-6 (-3101), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Health education	Chile	10
1	Laboratory services (serology)	Brazil, Venezuela	4
1	Medical librarianship	Colombia	6¼
1	Public health administration	Brazil	11
1	Ditto (health education)	Puerto Rico	11½
1	Ditto (leprosy)	Ditto	12
1	Rehabilitation (prosthetics and orthotics)	United States of America	6

WHO/R

ARGENTINA-7 (-3102), Health Services (El Chaco and Tucumán)

Objective: To plan and carry out an integrated health services program under the Provincial Health Services of El Chaco and Tucumán; to train professional and auxiliary personnel; and to draft for each Service a health code and supporting legislation.

Probable duration: 1957-1965.

Assistance provided: 1 medical officer, 1 sanitary engineer, 1 nurse, and advisory services by Zone VI Office personnel; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Public health administration	Brazil	11
1	Ditto (hospital administration)	Ditto	15
1	Ditto (leprosy)	Ditto	11
1	Ditto (tuberculosis)	Ditto	11
1	Ditto (health education)	Chile	12
1	Ditto (maternal and child health)	Ditto	10

Work done: In the Province of El Chaco, with a view to establishing a new hospital, a study was made of a land and buildings exchange between the Provincial Government and the National Northeastern University. A 90-bed pavilion was adapted to hospitalize men and women tuberculosis patients.

At the end of the year the nursing services at Villa Ángela, Las Breñas, and San Martín were being reorganized. Thirty persons received guidance on surgical aspects, and 20 nursing auxiliaries were trained. The regular 9-month course for nursing auxiliaries was in progress, with 17 students attending. In the matter of health education, 40 series of talks to mothers' clubs and 15 on nutrition were completed.

The School of Public Health of Buenos Aires and several nursing schools used the health services of the Province for field practice for their students.

In the Province of Tucumán, a project for the reorganization of the Ministry of Public Health was prepared. The proposed reorganization envisages the establishment of the technical and administrative branches needed to formulate and develop programs, the provision of a full-time staff, and appointment of a technical committee to advise the Ministry.

The Biostatistical Section of the Ministry, strengthened with the addition of trained personnel, began a census of the health resources available and introduced a suitable system of vital and health statistics using recommended international forms and procedures.

The first 4 physicians graduated in public health assumed posts of responsibility at the central level of the Ministry.

A series of maternal and child health centers were

established in the Province and were well received by the benefited communities.

Draft programs were prepared for several subjects, including control of communicable diseases; practical application of new knowledge and techniques regarding nutrition; provision of water for 10 small communities, and planning systems to supply water to communities with less than 3,000 inhabitants; a survey of public health needs and resources; and a system of vital and health statistics for the Province.

A Committee on Fellowships, with representatives from the University, the Ministry, and professional associations was established to plan the training of health personnel in Tucumán, elsewhere in the country, or abroad. A Public Health Association was established in Tucumán.

Emphasis was given to reorganizing the nursing services within the ministerial structure and in the peripheral agencies. The action included periodical meetings of heads or representatives of the nursing departments of all hospitals in the Capital of the Province.

The second course for nursing auxiliaries was attended by 30 students. A 9-month course for health officers began in October with 28 students. A postgraduate course to provide orientation on public health and nursing arts was attended by 92 midwives.

Six physicians from Tucumán began training at the School of Public Health of the University of Buenos Aires—5 of them were taking public health, and the sixth, hospital administration. Seven nurses attended a short course on hospital administration; and another 7 nurses, a short course on service administration offered by the School of Nursing of the National University of the Litoral, in Rosario, in which the Organization cooperated.

The 1-week course on public health dentistry, organized by the Ministry of Public Health, was attended by 95 dentists; a cycle of lectures on radiological protection, by 32 persons; and a short course for nonprofessional statistical personnel, by 39 staff members of the Ministry. Inservice training was given to the whole staff of the Statistics Department of the Tucumán Hospital-Health Center, which will be used as a practice area.

PAHO/R, WHO/UN-TA

UNICEF

ARGENTINA-8 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1951-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist and 1 sanitation inspector; and antimalarial drugs.

Work done: At the end of 1964 an area of 40,000 square kilometers, with a population of 1,021,000, was in maintenance phase. Areas in consolidation phase had 627,000 residents and areas in attack phase, 329,000; 761,000 persons were living in the Provinces of El Chaco and Formosa, still in preparatory phase. The high prevalence in El Chaco and Formosa continued to seed outbreaks in other parts of the country through migration of agricultural workers. Thus areas in late-attack phase in the northwest of the country had recurring small outbreaks.

During the 10th cycle (January-June) 39,430 houses were sprayed, and the 11th cycle (July-December) covered 44,040 houses. Of 181,170 blood smears examined, 553, or 0.31 percent, were positive: 8 from areas in maintenance and in consolidation phase and 545 from areas in attack and in preparatory phase.

PAHO/SMF

UNICEF

ARGENTINA-13 (-3103), Fellowships for Health Services

<i>Awards</i>	<i>Field of study</i>	<i>Country of study</i>	<i>Months</i>
2	Clinical and social pediatrics	Chile	1
1	Industrial Hygiene	Perú	6
1	Nursing services	Brazil	10½
1	Public health administration	Ditto	11
2	Ditto (administrative methods)	Chile, Colombia, Perú	3
1	Ditto (dental care and hygiene)	Brazil	11
1	Ditto (epidemiology)	Chile	10
2	Ditto (health planning)	Ditto	3½
1	Radiology (medical use of radioactive isotopes)	Ditto	12
1	Sanitary engineering	Colombia	2½

PAHO/R

ARGENTINA-17 (-6100), School of Public Health

Objective: To strengthen the School of Public Health of the University of Buenos Aires for the adequate preparation of professional and auxiliary personnel for health work, in order to meet the needs of the country in keeping with the development of health programs.

Probable duration: 1958-1967.

VIII. PROJECT ACTIVITIES

Assistance provided: 1 short-term consultant; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Organization of public health teaching (health statistics)	United States of America	12
1	Ditto (hospital administration)	Ditto	21

Work done: The teaching of epidemiology and hospital administration was substantially improved through 3 courses: a 9-month course on public health administration, with 31 attending; a 4-month course on public administration, for 21 staff members of the Ministry of Public Health; and a 4-month course on hospital administration, for 30 students.

WHO/R

ARGENTINA-18 (-6200), Medical Education

Objective: To improve the medical education programs of the Schools of Medicine through adequate planning not only of teaching activities but also of scientific research, by ascertaining the number of physicians and research workers needed in the country, and by improving the organization and administration of medical schools.

Probable duration: 1958.

Assistance provided: 4 short-term consultants; and one 12-month fellowship for studies in organization of medical training (vital statistics) in the United States of America.

Work done: The authorities of the Schools of Medicine of the Universities of Buenos Aires and of Salvador and the authorities of the Medical Education and Clinical Research Center of Buenos Aires studied, together with 2 of the consultants, the objectives, organization, and administration of medical education programs. Advisory services on medical education were also given to the faculty of these schools. The other consultant assisted the School of Medicine of the University of Salvador in a study on how to improve the organization of teaching the basic sciences.

WHO/R

ARGENTINA-20 (-0400), Tuberculosis Control

Objective: To organize and develop in the demonstration area of the Province of Santa Fe a National Tuberculosis Control Center for the following purposes: to obtain epidemiological data, apply and evaluate tuber-

culosis control methods, and train personnel from Argentina and from other countries.

Probable duration: 1960-1966.

Assistance provided: Advisory services by staff of Zone VI and by the Regional Adviser in tuberculosis.

Work done: The regular work was continued under the same standards and methods of periodic evaluation of activities. The experience of the Center served as the basis for the preparation of a working document entitled "Planning of Tuberculosis Control Activities, Objectives, Operational Targets, Evaluation, and Reports," which was submitted and discussed at the Regional Tuberculosis Seminar (see AMRO-110).

A total of 480 cases were detected, of which 359 were discovered by the dispensary service, 82 by the peripheral dispensaries, 19 by the Provincial Hospital, and 20 by mobile units. The case detection rate was 0.78 for every 100 persons examined; that rate was 0.60 in 1963 and 0.59 in 1962. At 31 December, 677 patients were receiving domiciliary treatment, and 176 cases were hospitalized.

Photofluorographic examination was made on 63,433 persons—39,760 at the dispensary service, 20,911 by mobile units, and 2,772 at the outpatient clinic of the General Provincial Hospital. A total of 46,783 tuberculin tests was made, 42,742 were read, and 12,963 persons were vaccinated with BCG. The laboratory made 4,804 sputum tests, 5,542 cultures, and 499 drug sensitivity tests.

A short course for medical officers was attended by 8 persons from Argentina and 2 from Paraguay. A course for auxiliary health visitors was attended by 14 students. Two studies on the bacteriological aspects of tuberculosis, and another 2 on its statistical aspects were begun, all were aimed at demonstrating training of personnel in service.

A study of the possibility of expanding personnel training and applied research activities of the Center, as well as of ensuring a more complete integration of all public health services in the Province, was underway.

UNICEF

ARGENTINA-24 (-4800), Medical Care Services

Objective: To develop needful studies and investigations on medical care problems, on human and material resources available, and on organization of medical care and health establishments and their potential integration with general health services; and to train personnel in hospital organization and administration.

Probable duration: 1958-

Assistance provided: Consultant services by the adviser of project AMRO-304, and the following fellowships:

Awards	Field of study	Place of study	Months
1	Hospital and medical care administration	Brazil, Perú, Puerto Rico, Venezuela	2½
1	Hospital construction	Brazil, Chile, México, Perú, Venezuela	3

Work done: Numerous medical care institutions were advised on service administration and personnel training. An intensive course in hospital administration was conducted at the School of Public Health of the University of Buenos Aires and was attended by 30 professionals, 20 of whom were hospital directors or heads of services. A course on hospital architecture was attended by 25 professionals.

PAHO/R

ARGENTINA-25 (-6301), Training of Nursing Personnel

Objective: To carry out training courses for professional and auxiliary nursing personnel in order to improve the public health services of the country.

Probable duration: 1960-1968.

Assistance provided: Consultant services by the nurses assigned to AMRO-294 and to other projects in Argentina; and fellowships as follow:

Awards	Field of study	Place of study	Months
1	Nursing education (psychiatric nursing)	Puerto Rico	11½
1	Nursing services	Brazil	10½
1	Public health nursing (administration and supervision)	Chile	10

Work done: A 9-month course in teaching and administration was conducted in Buenos Aires for 19 nurses who were preparing to teach or supervise auxiliary nursing personnel; and a course in ward management (9 hours weekly) was given in October and November for 160 head nurses who had only 6 years of primary schooling.

A guide for the training of auxiliaries throughout the country was prepared and distributed to all cities where courses to train nursing auxiliaries were underway, that is, the Federal Capital, Córdoba, La Plata (Buenos Aires), Mendoza, Resistencia (El Chaco), Rosario (Santa Fe), San Juan, and Tucumán. Requests for similar programs were received from the capitals of

Salta and San Luis Provinces. A total of 219 auxiliaries completed the 9-month training course.

PAHO/R

UNICEF

ARGENTINA-28 (-0500), Leprosy Control

Objective: To organize and put into practice a national leprosy control program which will include pertinent evaluation procedures.

Probable duration: 1960-1965.

Assistance provided: Consultant services by the advisers specialized in health statistics and administration assigned to projects AMRO-159 and AMRO-305 and by Headquarters staff; and one 4-month fellowship for leprosy control studies in Venezuela.

Work done: Work on reorganizing and bringing leprosy control programs up to date in the various Provinces of the country was continued. The programs in the Provinces of Córdoba, Entre Ríos, Santa Fe, and Tucumán were conducted in accordance with a new system encompassing planning, programing, and organization stages, and the programs of Misiones Province and of the city of Buenos Aires entered into an advanced phase of change.

Special attention was paid to a study of a data registration system in experimental use in the programs of the Provinces of Entre Ríos and Santa Fe and the city of Buenos Aires. A special study was also begun in order to determine the administrative structure best suited to serve the program objectives, prior to another study to determine the cost, quality, and yield of the work methods used.

The leprosy situation in Argentina at 30 June 1964 was summarized as follows: of a total of 7,688 cases registered, 3,439 were under control and treatment (1,011 in hospitals, and 2,428 in outpatient services), and of 12,796 contacts, 8,813, or 68.9 percent, were under control.

WHO/R

UNICEF

ARGENTINA-29 (-2200), Water Supplies

Objective: To prepare and carry out plans for the construction or expansion of water supply systems and sewerages.

Probable duration: 1961-1967.

Assistance provided: Advisory services by staff of Headquarters, of Zone VI Office, and of other projects in the country.

Work done: The Ministry of Public Health prepared first a draft project and later a loan request to IADB for financing a national plan of water supply services for rural communities with a population of from 100 to 3,000. The plan is to be implemented in 3 stages, each lasting 2 years; it is estimated that ultimately a population of about 2 million will be served at a total cost of approximately \$40 million, 50 percent of which would be provided by IADB. A National Water Supply and Rural Sanitation Service was created within the Ministry.

IADB approved a \$5.5 million loan to National Sanitary Works for the expansion of the water supply systems of Avellaneda and Lanús, in the Province of Buenos Aires. The same agency also submitted to IADB loan requests in the amount of \$20 million for the improvement and expansion of the water supply services of the cities of Buenos Aires, Córdoba, Jujuy, Mendoza, San Martín, and certain other localities in the interior of the country. At the end of the year, a loan request to AID for a project to construct a series of aqueducts to supply 200 localities with a future population of 2 million was under study.

ARGENTINA-30 (-6400), Sanitary Engineering Education

Objective: To strengthen teaching at the School of Sanitary Engineering of the University of Buenos Aires, in order to graduate engineers trained according to the needs of health programs.

Probable duration: 1961-1965.

Assistance provided: Advisory services by personnel of Zone VI Office and of other projects in the country; and supplies and equipment.

Work done: The establishment of the Environmental Engineering Research Center was a great stimulus to the School of Sanitary Engineering of the University of Buenos Aires. Both the National Institute of Industrial Technology and the National Directorate of Chemistry will assist the Research Center with funds, personnel, and laboratories. The School conducted a seminar on refuse collection and disposal, which was attended by 70 officers of the principal municipalities in the country. The regular postgraduate course in sanitary engineering was attended by 12 students. Plans were made to expand and divide the course into two special branches, one for engineers engaged in sanitary works, and the other for engineers who will be responsible for integrated public health activities.

PAHO/R

ARGENTINA-32 (-3500), Health Statistics

Objective: To develop an integrated program of vital and health statistics in the Province of Buenos Aires; and to establish among provincial agencies concerned with statistics a coordinated program to be used for demonstration purposes and for field practice of personnel undergoing training in statistics.

Probable duration: 1960-1965.

Assistance provided: Advice and teaching services of the statistical consultant assigned to Zone VI (AMRO-159); and the following fellowships:

Awards	Field of study	Country of study	Months
1	Health statistics	United States of America	½
3	Vital and health statistics	Chile	7½

Work done: The Buenos Aires Province integrated program of vital and health statistics continued to be used both for demonstration purposes in connection with students of the School of Public Health of the national University of Buenos Aires and as a prototype for systems of collection and tabulation of data being established in other Provinces of the country. At year's end the registration system had been established in 7 Provinces, covering two thirds of the population of the country, and plans had been prepared to establish the system in other Provinces.

The Ministry of Social Welfare and Public Health initiated a national plan to improve health statistics and began implementing it by organizing in each Province the collection of hospital morbidity statistics.

PAHO/R

ARGENTINA-35 (-3104), Health Services (San Juan and Mendoza)

Objective: To develop a program of integrated health services in the Provinces of San Juan and Mendoza.

Probable duration: 1961-1966.

Assistance provided: 1 public health physician, 1 sanitary engineer, and 1 nurse; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Public health administration (hospital administration)	Chile	16
1	Ditto (public health laboratory)	Brazil	12

Work done: In San Juan Province, the organizational structure of the Health Service was simplified by reducing the number of its levels; a set of rules of procedure was prepared for each technical department, defining its function, authority, and responsibility. The

boundaries of the health regions of the Province were rearranged and the number of regions reduced to 4.

A study of nursing needs and resources of 6 hospitals in the Capital and the interior of the Province was completed, and the duties and responsibilities of the 12 graduate nurses in the Service were planned.

Water supply activities included the installation of 30 manual water pumps serving 2,500 residents of rural areas, 7,200 meters of pipes supplying water to 3,500 persons, 400 home connections, and 5 wells.

Of the 4,976 births recorded during the first semester, 26.6 percent were attended by physicians, 67 percent by midwives, and 6 percent by other persons.

A short course was held for 40 sanitation inspectors and inservice training was provided to 102 nursing auxiliaries.

As to the Province of Mendoza, the definitive text of an agreement between the Nation and the Province for the conduct of the program was prepared. The Ministry of Public Health made a study of its organizational structure, with a view to simplifying it, and prepared a more functional budget; began formulating a plan to organize a statistical program that will include the establishment of a central department and, eventually, peripheral units; established the posts of Director General of Administration, Director of Veterinary Medicine, Director of Nursing, and Chief of Health Region II; organized a technical committee and a committee on fellowships; and recruited 18 nurses for the health services of the Province.

Boundaries were fixed for each health district and health center in the region that includes the Departments of Guaymallén and Las Heras, where the health services are being developed particularly with a view to conducting pilot experiments in them. Cost-accounting studies, which were continued at Central and Civit Hospitals, covered cost estimates of the equipment and materials supplied to the hospitals, and of staff. In both hospitals, records and filing systems to register patients were established and the personnel in charge were given training for this purpose. The technical and administrative reorganization of the Nursing Department of Civit Hospital was continued. Three nurses were placed in charge of organizing the nursing services of Las Heras and Guaymallén and of Health Centers No. 6 and No. 37.

The following courses were conducted: a 2-month course in public health orientation for 20 physicians, a 1-month course in general administration for 30 students, a course in hospital administration for 10 stu-

dents, a 2-month course in statistics for 20 students, a 10-month course for 28 nursing auxiliaries, and a 10-month course in sanitation for 16 students.

PAHO/R

UNICEF

ARGENTINA-38 (-3501), Training in Hospital Statistics

Objective: To organize centralized departments of statistics and medical records in hospitals of the city of Buenos Aires, in order to develop a training program using some of the departments as demonstration areas; and to train professional and auxiliary personnel in this field.

Probable duration: 1963-

Assistance provided: Consultant services by the medical records librarian assigned to project AMRO-156.

Work done: A Medical Records Section and a central file room which use terminal digits were established in the Ministry's Profesor Gregorio Aráoz Alfaro Polyclinic, in Lanús.

Instructors trained in previous years by the hospital statistics program conducted short courses on 3 different topics relating to hospital statistics and records. The courses, for auxiliary personnel of the hospitals of the city of Buenos Aires, trained 127 students.

In addition to notes which were prepared and distributed to the students at the intermediate level, teaching materials were developed for the courses at the auxiliary level with the thought that this would facilitate more widespread training.

ARGENTINA-51 (-2300), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1950-1965.

Assistance provided: 1 specialized medical consultant and 1 sanitation inspector; and supplies and equipment.

Work done: The 165 localities found positive at the beginning of the program were free of the vector in 1962. The special verification carried out in 1964 was negative, which confirmed that the vector had been eradicated in Argentina. At the end of the year, documentation for the official declaration of eradication was in preparation.

PAHO/R

ARGENTINA-4301, Research in Psychiatry

Objective: To conduct research on the interaction between family members of schizophrenics.

Probable duration: 1964-1965.

Assistance provided: A grant.

Work done: The investigation was begun, in the form of interviews with patients and their families, at the outpatient department of the Profesor Gregorio Aráoz Alfaro Polyclinic of Lanús.

PAHO/G¹**BARBADOS-2200, Water Supplies**

Objective: To prepare plans for water supply systems as a first step toward building the necessary waterworks.

Probable duration: 1964-

Assistance provided: 1 sanitary engineer.

Work done: A thorough study was made of financial and technical needs to provide the Island with water, and first steps were taken to create a water authority.

WHO/UN-TA**BOLIVIA-4 (-0200), Malaria Eradication**

Objective: To eradicate malaria.

Probable duration: 1957-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist and 3 sanitation inspectors; antimalarial drugs and some supplies.

Work done: 75 percent of the previously malarious areas, with 84 percent of the originally exposed population, was in consolidation phase; the Departments of Pando and Beni, in the upper Amazon basin, and a few other river basins in other parts of the country were the only remaining areas with persistent transmission. The number of malaria cases in the Beni-Pando area increased in 1964. Although the increase in the number of cases discovered was partly the result of better detection, it was also indicative of the true situation, due, it was suspected, to chloroquine-resistant strains of *Plasmodium falciparum* and possibly to cyclic variations in density and insecticide-evading behavior of the vector.

Spraying operations were continued in the under-attack areas, with more frequent cycles in the Beni-Pando area and in some consolidation-phase areas, as a protective measure or for emergency purposes.

A 7th and 8th spraying cycles were carried out specifically in the Beni and Pando Departments, with 7,889 houses sprayed in the 7th cycle (January-April) and 3,134 in the 8th (May-September). In a special general coverage carried out from January to December 42,552 houses were sprayed. Blood smears examined totalled 155,540; 3,454, or 2.2 percent, were positive. The number of smears collected fell far short of the planned target because the volunteer collaborators were not enough for the need and their collection rate was low. Among the positive smears, 139 were from consolidation-phase areas where lack of early case-finding had resulted in active foci becoming established in localities and areas previously cleared of malaria. The foci were all brought under control, but the consolidation phase period must be extended for the areas.

The difficulties arose from financial problems—a sharp cut in the annual budget, compounded by a complete cut-off of funds for the first few months of 1964. A new agreement was signed on 26 June 1964 between the Government of Bolivia and AID, but at a figure 31 percent lower than the previous year's budget.

PAHO/SMF**AID, UNICEF****BOLIVIA-5 (-6300), Nursing Education**

Objective: To strengthen the teaching at the National School of Nursing, in La Paz, in order to improve the health services of the country.

Duration: 1953-1964.

Assistance provided: The services of specialized consultants, from 1953 to 1964: 1 from September 1953 until July 1954, 2 from July to December 1954, 3 from January 1955 to January 1956, 2 from the latter date until May 1957, and since then only 1.

During the entire period, sixteen 12-month fellowships were awarded for advanced studies on nursing; and of 6 fellowships awarded for basic studies, 5 were for 3 years each and the other for 1 year. An additional 10-month fellowship to study public health nursing in Chile was granted in 1964.

Supplies and equipment were provided to the National School and to the Miraflores Hospital, at La Paz, where nursing students do their practice training.

Work done: During the 11 years of this project, an adequate organizational structure was established for the National School; through the award of fellowships for advanced studies, nurses were prepared for teaching; and a high school diploma became a prerequisite for admission to the School. Training in obstetrical nursing was

¹ Foundations' Fund for Research in Psychiatry

integrated into the curriculum; teaching was improved, in respect to all subjects; and the practice phase of the training was broadened, both in hospitals and health centers. Of the 16 nurses who received advanced education with PAHO/WHO fellowships between 1954 and 1963, 53 percent continue working either at the School or in other health services of the country.

WHO/R

BOLIVIA-7 (-0400), Tuberculosis Control

Objective: To organize in the northern part of the Bolivian Plateau a demonstration area (consisting of the Provinces of Omasuyos, Manco Kapac, Camacho and part of the Provinces of Ingavi and Los Andes) in order to: obtain epidemiological information, apply and evaluate practical methods of tuberculosis control, and train medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1963-1968.

Assistance provided: Consultant services by the adviser of project AMRO-316.

Work done: 26,316 persons were examined by photo-fluorography and 28,711 tuberculin tests were read, representing 102 percent and 82 percent fulfillment of the targets. Cases discovered amounted 1,240, including 454 classified as minimal and 237 as ganglionic and pleural cases. Of these, 1,135 began and regularly followed ambulatory treatment until July, when, for various reasons, a high percentage of patients were lost sight of. Tuberculin-positive tests among the 5-14-year-old children examined were 29.5 percent, and cases with positive sputum were 2.41 percent of the total persons examined.

UNICEF

BOLIVIA-8 (-0300), Smallpox Eradication

Objective: To complete the vaccination campaign, begun in 1957, until 80 percent of the population has been protected.

Probable duration: 1962-1965.

Assistance provided: 1 sanitation inspector and advisory services by the consultant of project Ecuador-20; and a limited amount of supplies and equipment.

Work done: 535,049 persons were vaccinated repre-

senting 66.4 percent of the 1964 target. Among 9,964 primovaccinations checked, the positivity rate was 98.8 percent. Total number of vaccinations since resumption of the campaign in August 1963 amounted to 954,894. Political and administrative difficulties have affected the rate of program progress, making it slower than what had been anticipated.

WHO/UN-TA

BOLIVIA-10 (-3100), Public Health Services

Objective: To improve the national health services at the ministerial and local levels; and to train technical and auxiliary personnel to meet the needs of the country.

Probable duration: 1955-1969.

Assistance provided: 1 medical adviser, 1 sanitary engineer, and 1 public health nurse; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Public health administration (health planning)	Chile	3½
1	Ditto (administrative methods)	Ditto	12
1	Organization of medical education (leprosy)	Argentina, Brazil, México, Venezuela	4
2	Social and clinical pediatrics	Chile	1
1	Occupational health	Perú	6

Work done: A health plan for the 1965-1966 period was drawn up as part of the Ten-Year Plan. An autonomous Water Supply and Sewerage Agency was established in the city of Oruro, population 86,000, for which the IADB approved a loan of \$2.4 million for the construction of a new water supply system (see Bolivia-15).

Water supply systems were built in 6 communities with an aggregate population of 25,000 inhabitants. Some progress was made in the rural water supply program, under which wells equipped with hand pumps were installed in 12 small communities, 15 rural schools, and 5 health centers.

A School of Public Health was established, in La Paz, at which the following courses were conducted: a 1-month orientation course in public health, for 40 physicians; a 9-month course in public health nursing, for 18 nurses; a 10-month course for 40 dietitians; and a 9-month course for 60 nursing auxiliaries. A seminar on hospital administration was also held.

PAHO/R

UNICEF

BOLIVIA-11 (-3101), National Plan for Rural Development

Objective: To promote economic and social development, including health, of the Indian population of the Andean Highlands so as to facilitate their integration into national life.

Probable duration: 1953-

Assistance provided: 1 medical adviser for 1 month; and advisory services by the staff of project Bolivia-10.

Work done: 2 new bases of operations were added: 1 in Paracaya, Cochabamba Province, and 1 in San Lucas, Chuquisaca Province, which brought the total number of bases in the country to 6. Five of the bases are located in high plateau areas, and 1 (Cotoca) on the semitropical plains.

WHO/UN-TA FAO, ILO, UN, UNESCO, UNICEF

BOLIVIA-15 (-2200), Water Supply

Objective: To prepare a national public water supply program; and to design and build municipal water supply systems.

Probable duration: 1960-1966.

Assistance provided: Advisory services by staff of Zone IV Office and of other projects in the country.

Work done: Considerable progress was achieved during the year. Studies for expanding the water supply systems of the cities of La Paz, Cochabamba, and Oruro were carried out by a German consortium. IADB approved a loan of \$2.4 million for the expansion of the water supply network of the city of Oruro, which has a population of 86,000, and autonomous municipal institutions were being established to administer this service as well as those of La Paz and Cochabamba. PAHO/WHO concluded an agreement with the School of Engineering of the San Andrés University, at La Paz, to organize short courses on the sanitary engineering aspects of water supply systems (see AMRO-270).

BOLIVIA-16 (-3102), Fellowships for Health Services

One 3-month fellowship for studies in leprosy and dermatology in Venezuela.

WHO/R

BOLIVIA-17 and -17.1 (-4200 and -4201), Nutrition

Objective: To develop an integrated program of applied nutrition in a selected area of the country, including training of professional and auxiliary personnel, laboratory studies, and research on the extent of protein-calorie malnutrition in preschool children.

Probable duration: 1964-1966.

Assistance provided: Advisory services by means of the medical nutritionist assigned to project AMRO-262; and grants for special studies.

Work done: A pilot program to study treatment and prevention of malnutrition in the preschool child was established in a suburb of La Paz, and a national Nutrition and Bromatology Institute was created at the University of Cochabamba.

PAHO/G²

FAO, UNICEF

BRAZIL-3 (-3101), Health Services in 9 States of the Northeast

Objective: To stimulate the development of general health services in selected areas of 9 States of Northeast Brazil.

Probable duration: 1958-1968.

Assistance provided: 1 medical officer, 1 sanitary engineer, and 1 statistician; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Medical librarianship	Colombia	6¼
3	Nursing education	Puerto Rico	11½
1	Ditto (training of auxiliaries)	Costa Rica, Guatemala, United States of America	3
1	Nutrition	Guatemala	2½
1	Public health administration (integrated public health services)	Chile, Colombia, Venezuela	3

Work done: In the State of Pernambuco, a Health Council was organized and a Planning Unit created in the Health Secretariat, and the establishment of a community training center at Recife—for the practice-training of medical, nursing, and social work students—was under study.

Officers of the Health Division of the Department of Human Resources of SUDENE met with PASB technical personnel assigned to its Zone V Office and to this project and agreed to start health planning jointly.

² Foundation for International Child Research, Inc. Williams Waterman Fund

Studies revealed that the development of good statistics in the 9 Northeast States is hampered by (1) insufficient reporting of communicable diseases and (2) inadequate certification of causes of death. Both problems originate in the great shortage of physicians—particularly of physicians with statistical training—and are compounded by the nonexistence of statistical personnel. As one remedial step, 12 physicians and 2 laymen connected with the health services or medical teaching, from 7 States of the Northeast, attended the Course on Classification of Diseases in São Paulo. (An expedient suggested was a 4-month course to train statistical clerks in registration procedures, recording of communicable diseases, tabulation, and calculation of rates.)

All together, 5 States in the Northeast—among them those of Alagoas, Bahia, and Rio Grande do Norte—were compiling statistics on communicable diseases for their own program planning and for international distribution through PASB. The data collected were mostly from the State Capitals, but efforts were being made to extend and improve the reporting from the interior of the States as well.

With regard to environmental sanitation activity, financial difficulties hampered progress; nevertheless, some data were collected on well drilling, sewage disposal, and rural housing needs as well as on achievements of previous years. The improvements made in previous years are insignificant when compared to what should be done and to the goals established in several States, and although the information collected for the 9 States is incomplete it nevertheless served as a starting point to lay the groundwork for future periodical evaluation. The PAHO/WHO sanitary engineer assigned to the project assisted in preliminary preparations for the Course on the Design of Water Supplies for Small Communities, scheduled for December 1964 but postponed to early 1965.

PAHO/R, WHO/R

AID, UNICEF

BRAZIL-7 (-4200), Nutrition (Rio Grande do Norte)

Objective: To develop a program to improve the nutritional status of the population of the State—through maximum utilization of locally available foods, through education in good dietary habits, and through the organization of nutrition courses for professional and auxiliary personnel engaged in health, education, and agriculture.

Probable duration: 1960-1967.

Assistance provided: 1 nutrition adviser and the following fellowships:

Awards	Field of study	Country of study	Months
1	Organization of medical education (nutrition)	Guatemala, México	5
1	Ditto	Guatemala	12

Work done: 96 school gardens and 26 poultry units were organized and several nutrition courses were conducted for the benefit of personnel of the Departments of Health, Education, and Agriculture. In Paraíba preliminary steps were taken regarding nutrition training programs.

PAHO/R, WHO/R

FAO, UNICEF

BRAZIL-8 (-3301), National Virus Laboratory Services

Objective: To expand laboratory facilities for the diagnosis of virus diseases, development of research programs, and production of vaccine at the Oswaldo Cruz Institute.

Probable duration: 1959-1967.

Assistance provided: 1 consultant in virology; supplies and equipment; and one 1½-month fellowship for studies in virology (arbovirus infections) in the United States of America.

Work done: The introduction of new cell cultures made it possible to increase the number of cytopathogenic agents isolated from specimens received from Brasília and from hospitals in Rio de Janeiro. A research program to evaluate the efficiency of oral antipoliomyelitis vaccination was started. At the end of the year the Institute was cooperating with the SESP Foundation in studies on measles immunization and the Pan American Foot-and-Mouth Disease Center was studying the susceptibility of new cell lines to various cytopathogenic agents of human origin.

PAHO/G,³ WHO/UN-TA

BRAZIL-19 (-6100), School of Public Health (Rio de Janeiro)

Objective: To develop modern training methods and improve practice areas; to cooperate in the organization of laboratory and library services; and to obtain full-time teaching staff for the National School of Public Health.

Probable duration: 1957-1967.

³ American Cyanamid Co.

VIII. PROJECT ACTIVITIES

Assistance provided: Advisory services by Zone V Office personnel.

Work done: The construction of new buildings to house the School were discussed, as was a change in its administrative structure and organization.

BRAZIL-24 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1958-1970, year when the consolidation phase is expected to be completed.

Assistance provided: 1 chief consultant in malariology, 4 malariologists, 3 sanitary engineers, 1 engineering assistant, 1 consultant in administrative methods, and 3 sanitation inspectors; antimalarial drugs; some laboratory equipment; and one fellowship for 5½ months to study malaria eradication in México and Venezuela.

Work done: The realistic program-status evaluation begun in 1963 to determine the areas which might properly be classed as in consolidation phase, those which were to be considered as in attack phase and therefore under total-coverage treatment, and those which should be classed as in preparatory phase because they were neither undergoing total-coverage treatment nor was the information available sufficient to confirm lack of transmission, was completed. As a result large areas, with a population in the millions, were returned, from either maintenance or consolidation phase, to preparatory phase. Another outcome of the evaluation was the shifting of the delimitations of areas in attack phase, to include larger areas. It had not been possible, however, to carry out total-coverage treatment of attack-phase areas. The greatest obstacle to progress has been the impossibility of obtaining an adequate operating budget.

In 1964 the Governments of Brazil and of the United States signed an agreement arranging for a \$6.5 million loan to cover the costs of imported equipment and supplies for the next 2 years of the program; the Government of Brazil assumed responsibility for all local costs. Under the terms of the agreement, a thorough evaluation of the program was carried out from October to December by a joint PASB/AID team to determine the current condition of the antimalarial campaign and its status in relation to the minimum requirements for a successful program, and to prepare recommendations for bringing the program up to standards that will offer a prospect of success.

During 1964, 4,249,120 house-sprays were performed and 1,241,242 blood smears examined; 109,507 smears, or 8.8 percent, were positive.

PAHO/SMF

AID

BRAZIL-25 (-2100), Sanitary Engineering

Objective: To improve the organization of the environmental sanitation services of the Ministry of Health; and to cooperate with universities and other pertinent institutions in preparing and training professional and auxiliary engineering personnel.

Probable duration: 1952-

Assistance provided: 1 sanitary engineer and secretarial services; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Organization of public health teaching (sanitary engineering)	Denmark, Federal Republic of Germany, Netherlands, Switzerland, United Kingdom	1
1	Sanitary engineering design	United States of America	11½
1	Sanitary engineering	Colombia	2½

Work done: The Superintendency of Urbanization and Sanitation of Guanabara State continued work on the project to establish an Institute of Sanitary Engineering for which United Nations Special Fund participation was approved to cover the costs of consultants, fellowships, and laboratory equipment. The consultant advised SURSAN on the organization of a mosquito control program in the city of Rio de Janeiro and neighboring areas. Regular postgraduate courses in sanitary engineering continued to be held at the School of Hygiene and Public Health, of the University of São Paulo, which also organized a short course on water pollution and its control, attended by approximately 60 engineers from Brazil and other countries. The consultant collaborated with the Superintendency for the Development of the Northeast on the organization of a short course on the design of water supplies for urban and rural areas, held at the University of Recife. Work on the installation of a laboratory for the control of air pollution in São Paulo and activities relating to the city's water supply were continued.

PAHO/R

BRAZIL-28 (-3102), Fellowships for Health Services

Awards	Field of study	Place of study	Months
2	Clinical and social pediatrics	Chile	1
1	Organization of medical education (pedagogy)	Perú	1½
1	Ditto (vital statistics)	Chile	16
1	Public health administration (health education)	Puerto Rico	11½
3	Ditto (health planning)	Chile	3½

PAHO/R**BRAZIL-31 (-4801), Rehabilitation**

Objective: To reorganize the Department of Occupational Therapy of the Institute of Rehabilitation of the University of São Paulo; and to organize training courses and rehabilitation centers throughout the country.

Probable duration: 1958-1961; 1963-1965.

Assistance provided: 1 occupational therapist.

Work done: A new law changed the course from 2 years with classes in both mornings and afternoons to 3 years of studies with class sessions only in the mornings. Four students were graduated during the year.

WHO/UN-TA**ILO, UN-TAO****BRAZIL-35 (-6101), School of Public Health (São Paulo)**

Objective: To strengthen the School of Hygiene and Public Health, of the University of São Paulo, with emphasis on its use as an international center for the training of health workers.

Probable duration: 1958-1968.

Assistance provided: 1 short-term consultant; supplies and equipment; a grant to the School to help defray the cost of salaries of the teaching personnel at the Araraquara Field Training Center; and one 3-month fellowship to study organization of public health teaching (tuberculosis) in Canada and the United States of America.

Work done: The School continued to be used by the Organization as an international training center for Latin America, enrolling 26 foreign students in 1964. In August the University of São Paulo signed an agreement with the State Health Department for the purpose of organizing training courses for technical personnel connected with the plan of integrated health services of the State.

WHO/R**BRAZIL-36 (-3500), Health Statistics**

Objective: To improve the vital and health statistics services, especially those related to the notification of communicable diseases; and to train personnel in vital and health statistics and in the registry of medical records and hospital statistics.

Probable duration: 1963-1966.

Assistance provided: 1 statistical consultant; and the following fellowships:

Awards	Field of study	Country of study	Weeks
23	Biostatistics	Brazil	2
1	Hospital statistics	Venezuela	3

Work done: A new statistical service of the Ministry of Health, combining the functions of 3 former units at the federal level, was developing programs for the collection of data of vital events, communicable diseases, and hospital records. The translation of the International Classification of Diseases into Portuguese was completed.

A draft plan for development of hospital statistics in the State of São Paulo was prepared. New record and statistics procedures were established in the Clinic Hospital of Ribeirão Preto, and statistical services in the State of Mato Grosso were surveyed and reorganized. In the Northeast, development of the registration area proceeded, but progress was slow because of insufficient funds.

PAHO/R, WHO/R**BRAZIL-37 (-6601), Dental Health Education**

Objective: To provide for dentists who attend the regular public health courses at the School of Hygiene and Public Health of the University of São Paulo, Brazil, training in specific fields of dentistry; and to assist the School to build up a faculty with training in teaching and research in public health dentistry.

Probable duration: 1958-1966.

Assistance provided: Advisory services by personnel from Headquarters.

Work done: The School of Hygiene and Public Health increased the training offered in epidemiology and applied research. The PAHO/WHO, together with the W. K. Kellogg Foundation, the United States Public Health Service, and the University, studied the possibility of establishing at the School an international epidemiology and research center which would train public health specialists and professors for schools of dentistry in Latin America.

KF

BRAZIL-38 (-0300), Smallpox Eradication

Objective: To set up laboratories to produce sufficient lyophilized vaccine to meet the needs of the national smallpox eradication campaign.

Probable duration: 1956-1967.

Assistance provided: Advisory services by staff of Headquarters and of Zone V Office; and a small amount of supplies and equipment.

Work done: 5,177,874 vaccinations were administered up to 30 September, which brought the recorded total of vaccinations since the inception of the campaign to 13,062,465.

Vaccine production during the first 9 months of the year was 27,040,878 doses, two thirds of which came from the Oswaldo Cruz Institute (Rio de Janeiro) and the rest from the national laboratories at Pôrto Alegre and Recife and the Butantan Institute (São Paulo).

In July the Ministry of Health authorized the supply of smallpox vaccine to the countries of Central America, which during the year requested a total of 306,000 doses. Haiti requested 400,000 doses. By 30 November 356,000 doses had been supplied to those countries.

Two officers of the United States Communicable Disease Center (Atlanta, Georgia) demonstrated the use of the jet injector in smallpox eradication campaigns.

PAHO/R**AID****BRAZIL-39 (-3103), Health Services (Mato Grosso)**

Objective: To improve the public health services of the State of Mato Grosso by strengthening the central organization, regionalizing the services, providing adequate technical supervision, and training personnel.

Probable duration: 1959-1969.

Assistance provided: 1 medical officer, 1 sanitary engineer, and 1 public health nurse.

Work done: Project activities concentrated on establishing the quantitative goals to be attained and on collecting data necessary for concurrent evaluation of the program.

The Mato Grosso Health Foundation (FUSMAT) was created, with a statistical service included, and completed work on its statutes, internal regulation policies, and salary scales that include fringe benefits.

A new death certificate form, conforming to WHO recommendations, was approved by the State Secretary of Health.

A 6-month training course for auxiliary personnel was conducted from 1 April to 30 September in the Várzea Grande Health Center, near Cuiabá, and 9 visiting public health nursing auxiliaries and 8 sanitation and 5 laboratory auxiliaries completed the course. A short course of inservice training for nurses, visiting public health nursing auxiliaries, and nursing aides of the Várzea Grande Health Center was also completed; its purpose was to improve the participation of this group in the training and service activities of the Center. Nursing techniques and procedures were reviewed and, when necessary, modified to improve the quality of the service. Health education activities in child care and nutrition were started with the collaboration of an agricultural extension worker.

In the Dourados health district, visits of nursing supervisors were resumed, a short course on nutrition was offered to 100 school teachers, and 11 health units and a new tuberculosis dispensary were created. During the first 9 months of 1964, prenatal care was given to 6.7 percent of the 34,020 women known to be pregnant; the pre-established goal was 5 percent. The number of visits made was 3,809, or 1.6 per pregnant woman. Also under supervision—with an average of 1.6 visits per child—were 17.3 percent of 32,250 infants. Only 4.1 percent of 136,000 preschool children were seen at the health service, with an average of 2.2 visits per child. From 21 February to 31 October, 204,609 persons were vaccinated against smallpox, representing 35.7 percent of the 572,412 population.

In the field of environmental sanitation, 9,596 water connections were performed and 8,008 privies of various types and 158 cesspools were constructed.

PAHO/R**UNICEF****BRAZIL-41 (-0201), Malaria Eradication (São Paulo)**

Objective: To eradicate malaria.

Probable duration: 1958-1968, year when the consolidation phase is expected to be completed.

Assistance provided: 1 sanitary engineer and 1 sanitation inspector; and a limited amount of funds for supplies and equipment.

Work done: 79.1 percent of the originally malarious area, with a population of 2,183 persons, was in consolidation phase.

In the 9th spraying cycle (January-June) 113,467 houses were treated and in the 10th (July-December),

113,257. During the year, 534,622 blood smears were examined and 1,771, or 0.33 percent, were positive. Of these, 340 were found between January and October in areas in consolidation phase and among the cases investigated 20 were autochthonous, 14 were relapses, 8 were introduced, and 281 were imported from other States; 17 cases could not be located or investigated. These figures show excellent results within the State, but there is great pressure from areas outside its borders which have not approached the same level of progress.

PAHO/SMF**AID****BRAZIL-42 (-0701), Rabies Control**

Objective: To develop the national and State health services needed for producing vaccine and carrying out rabies control programs.

Probable duration: 1959-1966.

Assistance provided: 1 short-term consultant, for 2 months, and consultant services by the veterinary adviser assigned to project Brazil-79 and by Zone V Office staff.

Work done: The consultant collaborated with the Oswaldo Cruz Institute, of Rio de Janeiro, and the Butantan Institute, of São Paulo, in carrying out demonstrations and training of personnel, as well as in the preparation of a new rabies vaccine developed by the Bacteriological Institute of Chile for both human and animal use.

The Pan American Zoonoses Center provided virus strains for the production of standard rabies vaccine and other vaccines, and tested for potency and purity the rabies vaccines produced by several institutes.

WHO/R**BRAZIL-43 (-6600), Teaching of Preventive Dentistry**

Objective: To develop the teaching program of preventive and social dentistry in the dental schools of Brazil.

Probable duration: 1963-1966.

Assistance provided: Advisory services by Headquarters personnel; a small amount of supplies and equipment; and a 2½-month fellowship for studies in organization of dental education (public health dentistry) in Colombia, El Salvador, and México.

Work done: Assistance in building up the Department of Preventive and Social Dentistry of the School

of Pharmacy and Dentistry of Araçatuba, in the State of São Paulo, was continued.

PAHO/R**BRAZIL-44 (-6500), Teaching of Public Health in Schools of Veterinary Medicine**

Objective: To improve the teaching of public health and related subjects in the schools of veterinary medicine of the country.

Probable duration: 1960-1966.

Assistance provided: Consultant services by the adviser of project Brazil-79; and supplies.

Work done: In cooperation with the Pan American Zoonoses Center, several schools were provided with reagents, biologicals, teaching material, and technical publications, including the final report of the Seminar on the Teaching of Preventive Medicine and Public Health at Schools of Veterinary Medicine (*PAHO Scientific Publication 96*). Assistance was given to the School of Veterinary Medicine of São Paulo in the preparation of teaching programs for courses in epidemiology and public health.

PAHO/R**BRAZIL-48 (-0500), Leprosy Control**

Objective: To intensify and expand the leprosy control program by applying modern methods and techniques; to gradually incorporate leprosy control activities into the general health services; and to train the professional and auxiliary personnel needed for the program.

Probable duration: 1962-1967.

Assistance provided: Advisory services by Headquarters staff.

Work done: The National Leprosy Control Campaign, which covers 19 percent of the territory and 49 percent of the estimated population of the country, had 33,650 patients and 134,390 contacts under control. Of the patients under control, 16,354 (48.6 percent) had the lepromatous form of the disease; 9,792 (29.1 percent) the indeterminate form; 7,403 (22 percent) the tuberculoid form, and in 101 cases the clinical form had not been identified. Of the contacts registered, 56.8 percent were contacts of patients with the lepromatous form of the disease.

During the first six months, 990 cases were discovered;

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463 (46.7 percent) were lepromatous, 294 (30 percent) indeterminate, 230 (23 percent) tuberculoid, and in 3 the form was not identified. Of the total number of cases registered since January, 32.6 percent were notified by physicians or laymen, 20.6 percent were discovered by the examination of contacts, 29.2 percent by spontaneous consultation on the part of the individuals, 2.7 percent by mass examinations, and the remaining 14.9 by other means.

During the same period, 25,041 patients were re-examined, 18,022 bacilloscopies were performed, the treatment of 22,964 patients was controlled, 4,876 contacts were registered for the first time, and 40,085 contacts of patients were re-examined for control purposes.

BRAZIL-49 (-2200), Water Supplies

Objective: To draw up plans for building water supply systems.

Probable duration: 1962-1965.

Assistance provided: 1 short-term consultant.

Work done: The Special Public Health Service Foundation of the Ministry of Public Health prepared, for submittal to IADB, a loan request for a water supply program in rural areas. The first phase, which will require a loan of about \$6 million and a similar amount provided by the country, will service some 200 localities with populations of up to 10,000 and will benefit some 800,000 persons in all. The Department of Water Supply and Sewerage Services of the State of São Paulo used the advisory services of the Organization in matters of water supply accounting. The program for the expansion of the water supply systems of 6 cities in the northeastern part of the country continued to advance upon receipt of IADB loans. In Rio de Janeiro, where the water supply system is being expanded with financial assistance from IADB, the work being done by SURSAN also continued satisfactorily.

PAHO/CWSF

BRAZIL-51 (-3302), Yellow Fever Laboratory

Objective: To support the Hemisphere-wide campaign against yellow fever by providing laboratory diagnostic services and supplying yellow fever vaccine.

Probable duration: 1950-1967.

Assistance provided: An annual grant.

Work done: During the first 11 months of the year,

2,774,500 doses of yellow fever vaccine were produced; 558,000 doses were distributed—to Bolivia, 130,000; to Portugal, 108,000; and to Venezuela, 320,000.

During the same period, yellow fever diagnostic examinations were made on 993 liver specimens.

PAHO/R

BRAZIL-59 (-6201), Teaching of Preventive Medicine (University of Ceará)

Objective: To improve teaching at the Institute of Preventive Medicine of the Medical School of the University of Ceará, introducing any necessary changes in the curriculum.

Probable duration: 1963-1966.

Assistance provided: 1 public health nurse and 1 short-term consultant; and one 10-month fellowship for studies in the organization of medical education (public health administration) in Chile.

Work done: The preventive medicine and public health program was reviewed; of the 264 students involved, 93 were in the second year, 95 in the third year, and 76 in the fourth year. Preventive medicine courses were conducted for 14 nursing students, 26 nursing auxiliaries, and 33 social service workers.

PAHO/R

BRAZIL-60 (-6301), Nursing Education (Recife)

Objective: To develop in the School of Nursing of the University of Recife a center for postgraduate nursing education for the use of the North and Northeast regions of Brazil.

Probable duration: 1963-1966.

Assistance provided: 1 consultant in nursing education, for 6 months; and a small amount of supplies and equipment.

Work done: A 5-week workshop in nursing services administration was held for 33 nurses of the University Hospital (70 percent of its nursing staff). The basic program in nursing was reviewed for the purpose of revising the present curriculum, and efforts were made to improve some of the clinical practice areas of the University Hospital. Orientation was given to faculty committees, especially those dealing with teaching materials and recruitment.

PAHO/R, WHO/R

BRAZIL-61 (-4201), Nutrition Courses

Objective: To establish facilities for the training of physicians in the field of public health nutrition, at selected Brazilian Universities.

Probable duration: 1963-1967.

Assistance provided: Consultant services through the nutrition adviser assigned to project Brazil-7; and a grant to the Universities through the National Food Commission of the Ministry of Health.

Work done: An intensive, 1-month course—consisting of lectures, practical demonstrations, field visits, discussions, and seminars—on the most pressing nutritional problems of the country was held at the University of Recife with the attendance of 11 physicians from different States of the Northeast, raising to 30 the total number of area physicians trained under this project. Because of the Government's interest to extend this type of course, the Government, the Universities of Pará, Minas Gerais, and Rio Grande do Sul and the Organization signed an agreement to conduct future courses in these universities.

PAHO/R

BRAZIL-62 (-4202), Nutrition (São Paulo)

Objective: To prepare, in cooperation with the School of Hygiene and Public Health of the University of São Paulo, nutrition personnel for the development of integrated health services.

Probable duration: 1964-

Assistance provided: Consultant services through the nutrition adviser assigned to project Brazil-7.

Work done: Preliminary work was initiated and a suitable plan was prepared. An agreement was under preparation.

BRAZIL-63 (-6302), Training of Nursing Auxiliaries

Objective: To improve the quality of the training of nursing auxiliaries; and to increase the quantity of trained nursing auxiliaries.

Probable duration: 1963-1967.

Assistance provided: 1 adviser in nursing education, beginning in July; and one 10-month fellowship to study rehabilitation (nursing) in the United States of America.

Work done: A 4-month intensive course in teaching and administration was conducted for 14 instructors who later returned to their posts in 9 schools for auxiliaries

in the States of Pará, Maranhão, Piauí, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, and Mato Grosso.

PAHO/R

UNICEF

BRAZIL-64 (-6202), Pediatric Education (Recife)

Objective: To improve the teaching of pediatrics in the School of Medicine of the University of Recife; and to extend teaching activities to professional and auxiliary personnel and to the community at large.

Probable duration: 1963-1968.

Assistance provided: 1 short-term consultant and a grant for the Pediatrics Department.

Work done: A study was made of the best way to use the available resources for teaching pediatrics to medical students, as well as of the organization of graduate courses for medical and paramedical personnel, and courses for auxiliary personnel, on the preventive aspects of pediatrics. A 1-month course in general pediatrics was attended by 18 physicians; and a 1-month refresher course in pediatrics, by 8 physicians. Two-month practical training was provided for 20 physicians; 3-month training to 8 nurses; 3-month training to 6 nutritionists; and 4-month training to 15 nursing auxiliaries.

PAHO/R

UNICEF

BRAZIL-65 (-3100), Planning

One 2-month fellowship to study health planning in the United States of America.

PAHO/R

BRAZIL-66, Research on Protein Foods

Objective: To carry out experiments on local vegetable foods rich in protein and study nutritional conditions in children, at the Institute of Physiology and Nutrition of the School of Medicine of the University of Recife.

Probable duration: 1962-1964.

Assistance provided: Technical advisory services through Zone and Headquarters staff.

Work done: Biological trials were carried out in animals to test local sources of vegetable protein—including macassar bean, cashew nut, and cotton seed. The findings showed that these local foods are good sources of protein for human consumption. This project was sponsored (up to 1963) by the U.S. National Research Council.

BRAZIL-68 (-2101), Air and Water Pollution Control

Objective: To plan and carry out programs for the control of air pollution and surface water pollution in the State of São Paulo, especially in the Capital.

Probable duration: 1963-1966.

Assistance provided: Advisory services by Zone V Office staff.

Work done: The equipment provided for the air pollution laboratory was received, and the laboratory was to begin operations in early 1965. With AID assistance, studies were begun to increase the water supply and to solve the problem of pollution of the bodies of water which supply the Capital of the State of São Paulo.

BRAZIL-76 (-4203), Institute of Nutrition (Recife)

Objective: To improve nutrition services in the Northeast, through applied research and training programs to meet the needs of the area.

Probable duration: 1964-1967.

Assistance provided: Consultant services through the nutrition adviser assigned to project Brazil-7; and a grant.

Work done: A course for physicians was conducted and the courses for nutritionists, medical students, and laboratory technicians were reorganized. As a complement to its regular research and training program, the Institute selected a rural area and began organizing it as a field demonstration unit for public health work. Suitable material for nutrition education was prepared. Stimulated by the Institute, a local nutrition advisory committee at the State level was appointed in December.

PAHO/R

BRAZIL-78 (-3200), Nursing

Objective: To develop the basic aspects of research, planning of activities, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1953-

Assistance provided: 1 nurse-consultant.

Work done: Enrollment in Schools of Nursing in Brazil continued to increase slowly, a trend anticipated since 1962 when the minimal educational entrance requirements were raised to 12 years of basic schooling.

Standards of professional education and practice for nursing service needs were set.

Efforts were continued towards solving the problems caused by differences in basic educational requirements for nurses and midwives as well as differences in their respective courses. Recent legislation provides an opportunity for midwives to develop professionally, parallel with nurses.

The 39 schools of nursing reported 879 places for first year students, but only 367 enrolled. This capacity rate of 42 percent is, nevertheless, an increase of 30 percent over 1963 (282 enrollment).

Six postbasic courses in nursing midwifery, 2 in public health nursing, 1 in nursing administration and 1 in teaching were carried out during 1964, with a total of 131 attendants.

The 70 schools offering courses for nursing auxiliaries, of which 63 are officially recognized, enrolled during the first semester 1,282 students for the 18-month course.

PAHO/R

BRAZIL-79 (-0700), Veterinary Public Health

Objective: To study and apply control techniques against zoonoses prevalent in the country.

Probable duration: 1959-1964.

Assistance provided: 1 public health veterinarian.

Work done: During the development of this project, which was concluded in December, advisory services in the preparation of courses for public health veterinarians were provided to the schools of public health of both São Paulo and Rio de Janeiro, and cooperation was given to State and federal Ministries of Public Health in the establishment of veterinary public health services, which were instituted in the most important areas of the country. Basic data were gathered on veterinary public health problems, especially on those concerned with zoonoses and food hygiene, and on the basis of this information assistance was given in establishing food hygiene programs, in initiating zoonoses surveys—especially in São Paulo, Belo Horizonte, and Pôrto Alegre—and in improving the diagnostic laboratory services for rabies and other diseases.

Concerning the preparation of personnel, PAHO/WHO awarded fellowships and collaborated in the development of the schools of veterinary public health by promoting improved teaching of the basic sciences, preventive medicine, and public health.

The Pan American Foot-and-Mouth Disease Center and the Pan American Zoonoses Center provided universities

and research institutes with biological materials and technical publications.

WHO/R

BRAZIL-81 (-3104), Health Services (São Paulo)

Objective: To study the functioning of the São Paulo State Department of Public Health, with a view to establishing the most practical organizational structure.

Probable duration: 1964-1966.

Assistance provided: 2 short-term consultants.

Work done: The consultants reviewed a proposed reorganization prepared by the State authorities and made recommendations which the Organization submitted to the State authorities.

PAHO/R

BRAZIL-82 (-6400), Institute of Sanitary Engineering

Objective: To combine the sanitary engineering laboratory facilities of the Institute of Sanitary Engineering of SURSAN with those of the College of Engineering of the University of Guanabara; and to develop the combined laboratory facilities as a center for education, research, and service for all the educational institutions in the Rio de Janeiro area.

Probable duration: 1964-1969.

Assistance provided: Advisory services by personnel of Headquarters, Zone V Office, and field staff.

Work done: Preliminary steps were taken to begin the project in 1965, after an agreement to govern project operations is signed.

BRAZIL-200 (-3105), Fellowships for Health Services

Awards	Field of study	Place of study	Months
2	Clinical and social pediatrics	Chile	3
1	Organization of medical education (maternal and child health)	Chile, Costa Rica, Puerto Rico, United States of America, Venezuela	3
1	Ditto (parasitology and zoonoses)	United States of America	8
2	Ditto (pedagogy)	Colombia	(weeks) 2½
1	Rehabilitation	Argentina	10
1	Radiochemistry	United States of America	4½

WHO/R

BRAZIL-4802, Training in Orthopedic Brace-Making

Objective: To expand rehabilitation services for the handicapped in Brazil by providing personnel training in orthotics techniques through courses in the manufacture of low-cost, high-quality prostheses and in their modification, fitting, and adjustment.

Probable duration: 1964-1967.

Assistance provided: Consultant services by the Regional Adviser in rehabilitation (AMRO-3).

Work done: Preliminary arrangements for a training course in brace-making to be held in 1965 were completed.

UNICEF

BRITISH GUIANA-5 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1961-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 2 sanitary inspectors and the services of a short-term consultant to evaluate the program; chloroquine for salt medication, and other drugs.

Work done: The medicated salt program was continued and succeeded in interrupting transmission throughout the interior except in the Rupununi District. In the latter area, DDT spraying had diminished transmission. Resistance to chloroquine, and possibly to pyrimethamine, exists. The use of quinine was introduced to treat cases with double resistance.

Of 55,181 blood smears examined, 225, or 0.41 percent, were positive.

PAHO/SMF

UNICEF

BRITISH GUIANA-10 (-3100), National Health Services

Objective: To organize, expand, and integrate health services and environmental sanitation activities in the heavily populated coastal area and in isolated communities in the interior of the country.

Probable duration: 1963-1967.

Assistance provided: 1 medical adviser and 1 sanitary engineer.

Work done: In accordance with established goals, 1 health center was set up in Pomeroon (population 8,000), 1 medical outpost in Bacarara and 1 in Saint Lust (aggregate population 7,000); and 28 beds were added to the Lethem Hospital. Plans for the construction of 1 dis-

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pensary and 1 poliomyelitis rehabilitation center in Georgetown were begun.

Tuberculin tests were made on 14,236 school children and 1,053 adults; 4,334 were found negative and 4,169 were given BCG vaccinations. Also, 7,447 smallpox vaccinations were performed; and among 4,384 pregnant women tested for syphilis 91 were found to be positive and were treated.

Ten new water supply systems to serve a population of 40,346 were built in rural communities, and the Georgetown and New Amsterdam plants were improved. The sanitation program was continued with the installation of new latrines, to serve 1,400 families, and 6 septic tanks in as many schools.

The following were trained in the country: 24 nurse-midwives, 18 midwives, 20 nursing auxiliaries to work with Indian tribes, 45 nursing auxiliaries for home visits, 11 laboratory technicians and 10 laboratory assistants; 19 sanitation inspectors were still in training at the end of the year.

WHO/R

UNICEF

BRITISH HONDURAS-1 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1965, year when it is expected that the consolidation phase will be completed.

Assistance provided: 1 malariologist, until September; supplies and antimalarial drugs.

Work done: 11,826 blood smears were examined: 35, or 0.30 percent, were positive and, upon investigation, 32 were found to be from autochthonous cases, 1 from a relapse, and 2 from imported cases. All the cases occurred near the border with México.

Emergency spraying and mass drug treatment were undertaken in the localities affected by the outbreaks. These outbreaks appeared to be connected to an initial outbreak in San Víctor which, owing to budgetary delays, was not controlled with sufficient speed.

PAHO/SMF

UNICEF

BRITISH HONDURAS-5 (-3100), Health Services

Objective: To reorganize, expand, and improve the general health services, beginning with the development of an environmental sanitation plan.

Probable duration: 1962-1968.

Assistance provided: 1 sanitary engineer; a limited

amount of supplies and equipment; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Environmental sanitation	United States of America	4
1	Ditto (Course for sanitation inspectors)	Jamaica	10
2	Laboratory services (medical technology)	Ditto	12

Work done: This project continued limited to environmental sanitation activities. Work was done in 10 of the 18 villages included in the rural sanitation pilot project. Plans were made for 3 rural water supply systems of which 2 were completed, and for drilling 50 wells of which 15 were completed. Up to the end of October, 10 water pumps had been installed and 561 of the 1,100 planned sanitary privies had been completed.

WHO/R

UNICEF

BRITISH HONDURAS-7 (-2200), Water Supplies

Objective: To gather under a central authority the management of water-supply and sewerage services; and to expand the water supply services of Belize.

Probable duration: 1964-1967.

Assistance provided: Advisory services by the sanitary engineer of project British Honduras-5 and by staff of Zone III Office; and 1 fellowship, for 1½ months, for attendance at the Course for Waterworks Operators held in Costa Rica (see AMRO-17.7).

Work done: Final plans for the water filtration plant to be financed by the Government in Stann Creek, a locality with a population of 5,000, were completed. A sanitary survey of Belize was 30 percent completed, a preliminary study on the utilization of ground water was carried out and the funds needed for the definitive study were approved. It was decided to establish an autonomous water supply and sewerage authority and by the end of the year the agency was being organized.

PAHO/CWSF

BRITISH HONDURAS-9 (-6300), Nursing Education

Objective: To study the country's nursing needs and resources, in order to develop at the Belize School of Nursing a basic education program that will include teacher-training and integration of preventive and curative medicine concepts, as well as those of social and community development aspects, into the teaching.

Probable duration: 1964-1966.

Assistance provided: Consultant services by the advisers assigned to project West Indies-12 and project AMRO-291.

Work done: The director of the School of Nursing participated in the seminar to plan a survey of schools of nursing in the English-speaking areas of the Caribbean; and the nurse adviser of West Indies-12 made 2 short visits to the School in planning for and carrying out the survey.

Assistance provided: Advisory services by the Regional Adviser.

Work done: Activities were begun on 21 September and the preliminary phase was completed by the end of December. This phase consisted of a socio-anthropological survey of the approximately 200,000 urban population of La Cisterna and a prevalence study covering 10 percent of the population in each of the 3 districts.

UNICEF

BRITISH VIRGIN ISLANDS-3 (-3101), Fellowships for Health Services

A 6-month extension to the 1963 award for studies in medical technology in Jamaica.

WHO/R

CANADA-200 (-3101), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Health education	United States of America	12
1	Ditto (community development)	Guatemala, México, Puerto Rico, Perú	3
1	Nursing education (maternal and child health)	Belgium, France, Netherlands, Switzerland	12
1	Organization of public health teaching (health planning)	El Salvador, United States of America, Venezuela	3
1	Ditto (nursing education)	Belgium, Denmark, Federal Republic of Germany, Finland, Sweden, Switzerland, United Kingdom	3½
1	Public health administration (epidemiology)	United States of America	9½
1	Ditto (nutrition)	Ditto	12

WHO/R

CHILE-10 (-0400), Tuberculosis Control

Objective: To organize in the Commune of La Cisterna of the Province of Santiago a demonstration area to obtain epidemiological information, apply and evaluate practical methods of tuberculosis control, and train medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1964-1968.

CHILE-21 (-4801), Rehabilitation Center

Objective: To develop a nationwide medical rehabilitation program, including the coordination of all resources available; to organize a Rehabilitation Center in Santiago, with inclusion of a prosthesis workshop and facilities for training personnel for the entire country; and to establish rehabilitation services in selected cities of the Provinces.

Probable duration: 1960-1965.

Assistance provided: 1 prosthesis specialist, 1 occupational therapist, and 1 consultant in physiotherapy; and supplies and equipment.

Work done: The training and production activities of the Center were continued in accordance with program plans. Because of difficulties in importing prefabricated pieces the possibility of producing them at the Center was studied, and other establishments in the Capital and in the interior of the country also began to manufacture them. The Center treated 734 physical rehabilitation cases and, through 1,266 interviews, 176 social rehabilitation cases. The Occupational Therapy Department, inaugurated in February, handled 49 cases, and the Prostheses Department produced 106 prostheses and other devices.

Twelve students began in April the 3-year occupational therapy course, and 3 were already in the second year. A 3-month course in orthotics and prosthesis repair was attended by 5 students.

WHO/UN-TA

CHILE-22 (-4601), Institute of Occupational Health and Air Pollution Research

Objective: To establish an Institute of Occupational Health and Air Pollution Research which will provide services and training facilities for Chile and other countries of the Americas.

Probable duration: 1961-1968.

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Assistance provided: 1 consultant in occupational health who also serves as Regional Adviser; laboratory equipment and materials; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Occupational health	United States of America	12
1	Ditto	Denmark, England, Federal Republic of Germany, France, Italy, México, Perú, United States of America	3½

Work done: The Institute of Occupational Health and Air Pollution Research was officially inaugurated on 29 October. The Radiological Protection and Industrial Hygiene Chemistry Laboratories, for which the supplies and equipment ordered had been installed, were in operation. The equipment for the other laboratories was gradually arriving.

Six training courses were conducted. The first was a 3-week advanced course in radiological health for 6 public health administrators from Brazil, Costa Rica, México, Nicaragua, Perú, and Venezuela. A 20-hour course in occupational health was held for 20 physicians at the School of Public Health as part of the year's academic course for graduate students. A 15-hour course was conducted for 40 sanitation inspectors and a 30-hour course on environmental toxicology was held for 17 undergraduates at the School of Chemistry of Catholic University. Two 12-hour courses were given to 60 final-year medical students as part of their studies in preventive medicine, and separate classes were presented to fourth-year medical students studying internal medicine.

Brief epidemiological investigations were conducted in metal mines, a smelter, and other industries, and a mass survey of pneumoconiosis was carried out in small mines. A study of radioactive fallout at the 80th Meridian was begun. A study of mercury poisoning among hospital laboratory workers was completed and a paper presented for publication. A substantial loan was obtained from IADB to complete the School of Public Health building in which 2,000 square meters will be assigned to house the Institute.

WHO/UN-SF

CHILE-25 (-3101), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Gynecology and obstetrics	Costa Rica, México, Puerto Rico, United States of America, Venezuela	3¼
1	Hospital administration	United States of America	12

1	Immuno-hematology blood bank	France, Netherlands, Sweden, United States of America	5
1	Medical librarianship	Colombia	6¼
1	Organization of medical education (internal medicine)	United States of America	3¼
1	Public health administration	Czechoslovakia, England, Israel, Puerto Rico, United States of America, Yugoslavia	4
1	Virology	United States of America	10½

WHO/R, WHO/UN-TA

CHILE-26 (-3102), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Food control	United States of America	3
1	Mental health (alcoholism)	Czechoslovakia, Denmark, Finland, Netherlands, United Kingdom	3
1	Organization of medical education (cancer control)	United States of America	1½
1	Organization of public health teaching (epidemiology)	Brazil, United States of America, Venezuela	3
1	Pediatrics (neuro-psychiatry)	United States of America	12
1	Tuberculosis	Czechoslovakia, Denmark, Italy, India, Sweden, Switzerland, United Kingdom, Yugoslavia	3½
1	Ditto (BCG production)	Canada, Denmark, France, United States of America	2½

PAHO/R

CHILE-27 (-3103), Public Health Services

Objective: To develop a plan to provide integrated health services to the urban and rural populations of the Provinces of Atacama, Copiapó, Coquimbo, and Ovalle.

Probable duration: 1958-1967.

Assistance provided: Advisory services by Headquarters and Zone VI Office personnel.

Work done: The project begun in the Departments of Ovalle and Copiapó was extended in 1963 to the hospital areas of La Serena, Vallenar, and Illapel. The progress made in improved health services in those Departments

was also reflected at the end of 1964 in new premises furnished with modern equipment.

UNICEF

CHILE-31 (-6100), School of Public Health

Objective: To strengthen the teaching at the School of Public Health of the University of Chile; and to expand the facilities for training students from other countries of the Americas.

Probable duration: 1953-1965.

Assistance provided: A special grant to provide the Library of the School with books and subscriptions to major public health journals.

Work done: Courses and students were as follows: public health administration, 17 professionals; hospital administration, 6 physicians; public health nursing, 7 nurses; vital and health statistics, 16 students; health education, 2 students; and sanitation inspectors, 2 students.

PAHO/R

CHILE-35 (-4200), Nutrition

Objective: To develop a coordinated program to improve the nutritional status of the population of the Provinces of Atacama, Coquimbo, and Linares by increasing the number of school breakfasts, by developing vegetable gardens in selected schools, and by organizing an education program for teachers and the general public; also, during 1964, to carry out a study to determine the most adequate commercial method to control the quality of fish meal for human consumption.

Probable duration: 1960-1965.

Assistance provided: 1 short-term consultant, and technical advisory services through personnel assigned to the country and Zone VI Office.

Work done: The consultant undertook, under the Ministry of Health, a complete evaluation of the fish flower plant in Quintero. A full report on the status and utility of the plant, including specific recommendations for future action, was under preparation.

PAHO/R, WHO/R

FAO, UNICEF

CHILE-37 (-6200), Medical Education

Objective: To develop courses in medical-teaching methodology at the School of Medicine of the University

of Chile, in Santiago, by means of visiting professors and specialized consultants; and to assist the authorities of the School of Medicine in reviewing programs and teaching methods, mainly on preventive medicine.

Probable duration: 1962-1964.

Assistance provided: 1 short-term consultant; teaching material; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Organization of medical education (rheumatic fever)	United States of America	3
1	Ditto (preventive medicine)	Poland, United Kingdom, Yugoslavia	1½
1	Ditto (rehabilitation)	Denmark, France, Italy, United Kingdom, Federal Republic of Germany, Yugoslavia	3½
1	Ditto (laboratory services, serology)	United States of America	6

Work done: A course on teaching methods was held at the School with the assistance of the consultant on medical education, who also collaborated in a revision of the programs of teaching surgery. The School modified several aspects of its program of teaching preventive medicine. Steps were taken to acquire a vehicle to provide transportation for the students in their field work. The third Seminar on Human Relations and Medical Education was held.

PAHO/R

CHILE-39 (-6201), Training in the Medical Use of Radioisotopes

Objective: To develop at Salvador Hospital, in connection with the University of Chile, a Latin American center for the training of physicians in the medical uses of radioisotopes.

Probable duration: 1962-1966.

Assistance provided: Teaching supplies.

Work done: The third annual training Course on the Medical Use of Radioactive Isotopes was conducted from 4 May to 25 November. Five physicians—from Argentina, Colombia, El Salvador, México, and Uruguay—were trained. The awards appear in the Fellowships for Health Services projects of the respective countries.

PAHO/R

KF

CHILE-40 (-2200), Water Supplies

Objective: To plan and carry out a national water supply program and in particular to design and build an expansion to the water supply system of the city of Santiago.

Probable duration: 1960-1967.

Assistance provided: Advisory services by Zone VI Office staff; and one 2½-month fellowship for sanitary engineering studies in Colombia.

Work done: Studies were made to determine the most suitable manner of drawing water from the Maipo River to supply the Santiago City waterworks. The National Health Service made a study of the list of equipment and materials required for a program of 300 water supply systems for rural localities, which is being conducted with financial assistance from IADB.

PAHO/CWSF**CHILE-41 (-3200), National Planning for Nursing Services**

Objective: To improve the quality of the nursing care given in the health services; and to prepare adequately trained professional and auxiliary personnel for the needs of the country.

Probable duration: 1960-1969.

Assistance provided: 1 nurse-consultant and 1 short-term consultant in nursing education; a small amount of supplies and equipment; and one 12-month fellowship for nursing education studies in the United States of America.

Work done: The *Estudio de Actividades del Personal de Enfermería y de los Pacientes*, Part II of the final report on the study of nursing resources and needs in Chile, was published. Work proceeded on Part III, which refers to auxiliary nursing personnel.

The staff of the experimental center established in Buin was gradually being appointed and a final draft of the design for the study on basic elements in minimum level nursing care was under discussion.

In the junior colleges in the north and south of the country the schools of nursing were progressing satisfactorily. Students who successfully complete the first 2 years of the 4-year university nursing course transfer to the universities of Valdivia and Santiago for the 3rd and 4th years.

It has been estimated that the country needs at least 1 nurse per physician. The present numbers are: physicians, 4,861; nurses, 1,656.

Enrollment in schools of nursing increased from 416 in 1962 to 876 in 1964, and in the same period the number of graduate nurses increased from 71 to 117. The advanced course in supervision and administration prepared 24 nurses; and 1,167 auxiliaries were trained in 17 centers in the country.

In an attempt to improve nursing services, extension courses in teaching and supervision were begun with the assistance of the consultants, and a plan was developed for expanding the program into the Provinces and down to the local level.

Two national regional seminars on continued inservice nursing education were held with a total attendance of 80 nurses.

WHO/R, WHO/UN-TA**UNICEF****CHILE-49 (-3100), Health Services**

Objective: To strengthen the health services in the southern part of the country in order to meet the needs of the population of the area devastated in 1960 by a violent earthquake (34 percent of Chile's total population); and to provide water supply and sewerage services to the rural population of the area, numbering 960,000 inhabitants.

Probable duration: 1961-1967.

Assistance provided: Advisory services by personnel of Zone VI Office; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Health administration (epidemiology)	United States of America	12
1	Organization of public health teaching (nursing education)	Ditto	12

Work done: The program was being conducted according to plan, but very little information had been received on the results achieved.

WHO/UN-TA**UNICEF****CHILE-51 (-3400), Health Teaching in Schools**

Objective: To develop a program to teach public health and health education in the teacher-training schools of the country, in order to enable graduates to teach those subjects to students in the primary grades.

Probable duration: 1962-1965.

Assistance provided: Advisory services by Headquarters staff.

Work done: The study plan in elementary schools was gradually changed to include principles of health and

health education. The equipment supplied by UNICEF to improve health conditions in the schools continued to arrive, and running water and sewage disposal services were installed in some of the schools.

UNICEF

CHILE-56 (-4101), Health Social Services (Santiago)

Objective: To improve maternal and child health services, including social welfare aspects, in the periphery of Santiago.

Probable duration: 1963-1965.

Assistance provided: Advisory services by technical personnel assigned to the Zone VI Office and to other projects in Chile.

Work done: A technical committee was organized and in operation, and a course for 31 social workers was organized and completed.

UN, UNICEF

CHILE-6400, Sanitary Engineering Education

Objective: To strengthen the teaching of sanitary engineering in the School of Engineering of the University of Chile.

Probable duration: 1964-1966.

Assistance provided: 1 short-term consultant and advisory services by personnel of Zone VI Office.

Work done: The School of Physical and Mathematical Sciences of the University of Chile examined, with the assistance of the consultant, the possibility of including the sanitary engineering major into the civil engineering course. A study was also made of the needs of the laboratories that will be used for training and research. An intensive course on the quality of drinking water was held in cooperation with the School and the Directorate of Sanitary Works of the Ministry of Public Works. The course was attended by engineers from the Directorate, from the Ministry of Public Health, from the Water Administration of Santiago, from private concerns, and by 2 fellows from Argentina and 1 from Uruguay.

PAHO/R

COLOMBIA-4 (-3100), National Health Services

Objective: To prepare a national health plan; to strengthen the Ministry of Health and the departmental

and local services; to extend coverage with integrated health services to the entire population; and to train professional and auxiliary personnel.

Probable duration: 1951-1969.

Assistance provided: 1 chief medical adviser, 1 medical officer, 1 sanitary engineer, 1 public health nurse, and 1 statistician; and a small amount of supplies and equipment.

Work done: 3 integrated health districts were created during the first half of the year, raising to 52 the number of districts established throughout all the Departments and some of the Intendencies and Commissaries of the Republic. Plans call for 200 such districts by 1971. The planning of districts to be established in the period 1965-1967 was also completed. There are plans to organize and operate 12 more districts; their local services will comprise 42 health centers, each manned by a full-time medical officer, and 31 subcenters each of which will be visited once or twice a week by a medical officer. These new districts will serve a population of 1,053,720.

At the end of the year, 4 hospitals with a total bed capacity of 1,130 in Girardot, Neiva, Sogamoso, and Villavicencio were being supplied with furnishings, instruments, and equipment. Hospitals which are completely or partly supported by the Health Ministry now total 456 with an aggregate bed capacity of 44,904. The increase in the number of beds kept the bed/population ratio at 2.6 per 1,000. Cost analyses made in these hospitals showed that in 1964 the average cost per bed/day was Col\$16.91.

The Medical Care Division had in progress plans for 11 hospitals, with 1,770 beds, at an estimated cost of Col\$105,603,200; another 17 hospitals, with 4,443 beds, were under construction at a cost of Col\$204,315,000, not including furnishings and equipment.

A National Basic Sanitation and Rural Welfare Rotating Fund was established and the following sanitation work was done: 42 rural water supply systems and 10 small water supply systems were built; 193 wells were dug and another 15 were drilled. This work affected 11,280 houses and will benefit a population of 78,913, including 356 schools attended by 22,024 pupils. In addition, 33,059 sanitary privies were installed.

The training of the personnel needed to staff these services is coordinated through the Ministry's recently created Office of Personnel Training. Receiving training under Ministry auspices were 16 medical officers of health, 5 dentists, 1 veterinarian, 14 public health nurses, 10 health educators, 54 health inspectors at the national level and 182 at the departmental level, 34 statisticians, and

VIII. PROJECT ACTIVITIES

40 hospital administrators. Two courses on the Use of Ground Water were conducted for a total of 36 engineers, 16 of whom came from abroad (14 were PAHO/WHO fellows), 12 from the Ministry of Health, and the remaining 8 from private enterprises and the Institute of Municipal Development.

PAHO/R, WHO/UN-TA AID, UNICEF

COLOMBIA-5 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1957-1968, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist, 1 epidemiologist, 1 sanitary engineer, 1 entomologist, and 6 sanitation inspectors; some supplies and antimalarial drugs; and 2 fellowships, each for 5½ months, for malaria eradication studies in México and Venezuela.

Work done: Re-training programs were carried out for all field personnel, and spraying operations, although still below the desired standard, improved in quality.

House sprayings amounted to 640,443—277,650 corresponded to part of the 11th cycle; 362,793 corresponded to the 12th cycle. Blood smears examined totaled 499,523 of which 14,729, or 2.9 percent, were positive; 178,279 of the smears and 1,214 of those positive were from areas in consolidation phase. Because transmission persisted in an area of about 50,000 residents in Cartagena, the area was returned from consolidation to attack phase in the third quarter of 1964.

While work to delimit the epidemiological regions of the country with greater accuracy was still in progress, it was known that *Plasmodium falciparum* strains resistant to chloroquine existed in 3 areas. This problem is complicated by the presence of a significant degree of outdoor vector-biting.

A border meeting was held with Venezuelan authorities in October, to discuss the problem of continuing transmission on both sides of the border of the Department of Norte de Santander. The Ministers of Health of Colombia and Venezuela met in Bogotá in December and agreed, among other things, to continue the interchange of information on antimalarial activities along both sides of the border, especially as regards the origin of imported cases of malaria, and to establish procedures for periodic meetings of the National Directors of the Malaria Eradication Programs and their staff.

PAHO/SMF AID, UNICEF

COLOMBIA-19 (-0500), Leprosy Control

Objective: To organize a leprosy control program based on modern techniques and procedures.

Probable duration: 1958-1967.

Assistance provided: Consultant services by the adviser of project AMRO-263.

Work done: The decentralization begun in 1962 was continued, as was the integration of public health agencies.

A new national director of the leprosy control program was appointed. The Dermatological Center of Bogotá was reorganized and converted into a National Training Center for personnel assigned to the leprosy control program, as well as into a national center for clinical, epidemiological, and administrative research in leprosy.

A special training course was held for 2 general practitioners and 4 auxiliary sanitarians. During the first half of 1964, 25 dermatological dispensaries and 2 sanatoria were in operation.

At 30 June, the number of cases recorded was 15,732, of which 14,357 were under control; 4,979 of the latter were receiving treatment at hospitals and 9,378 ambulatory treatment. The number of new cases registered during the first 6 months of the year was 555. Of the 40,280 contacts registered, 22,804 were under control and 17,476 were not. No further data were available at the end of the year.

UNICEF

COLOMBIA-21 (-3101), Fellowships for Health Services

Awards	Field of study	Country of study	Months
2	Clinical and social pediatrics	Chile	1
1	Control of pharmaceutical and biological products	Ditto	½
1	Hospital administration	United States of America	6
1	Organization of medical education (anesthesiology)	Sweden	2
1	Ditto (immunology)	Brazil, Chile	3
1	Public health administration	México	10½
1	Ditto	Chile	10
1	Ditto (dental care and hygiene)	Brazil	11
2	Ditto (health planning)	Chile	3½
1	Ditto (sanitary engineering)	Brazil	11
1	Ditto (veterinary public health)	Ditto	11
1	Public health nursing (administration and supervision)	Chile	10
1	Radiology (medical use of radioactive isotopes)	Ditto	8
1	Sanitary engineering	Chile, Perú	1¼

PAHO/R

COLOMBIA-22 (-2300), *Aedes aegypti***Eradication**

Objective: To eradicate *A. aegypti*.

Probable duration: 1951-1965.

Assistance provided: 1 sanitation inspector and advisory services by staff of project Venezuela-16.

Work done: Verification activities were continued in the cities of Cúcuta, San Luis, and Santa Marta, which had been found reinfested in 1961, 1962, and 1963, respectively. During 1964 Cúcuta was inspected 5 times and San Luis 2 times, and no *A. aegypti* were found. Two verifications, also negative, were made in Santa Marta, but in the third verification, completed in December, 5 houses in the city's port area were positive. This reinfestation was probably due to the introduction of *A. aegypti* by vessels coming from Caribbean ports—adults and larvae were found in one of the vessels on its arrival at Santa Marta some 15 days before finding the positive houses in the port area.

The vigilance service in other localities in the country was also continued. An inspection was made of the port areas of Barranquilla, Buenaventura, and Cartagena, the cities of Bucaramanga and Cali, the international airport of Barranquilla, and 8 localities along the railroad line that extends from Santa Marta to Bogotá, and all were negative.

PAHO/R**COLOMBIA-24 (-6100), School of Public Health**

Objective: Up to 1963, to strengthen the School of Public Health of the National University of Colombia; and, beginning in 1964, to organize and develop the School of Public Health of the University of Antioquia.

Probable duration: 1959-1963; 1964-1969.

Assistance provided: 1 professor of public health administration; and 1 fellowship for 2½ months to study organization of public health teaching (clinical and social pediatrics) in Brazil, Chile, Guatemala, México, Panamá, Puerto Rico, and Venezuela.

Work done: The School of Public Health at Medellín was organized and began functioning on 17 February. Two courses for assistant hospital administrators were attended by 15 and 25 students, and the 10-month public health course for nurses began on 30 March with 13 students. The 6-month course for environmental sanitation inspectors began in October with 32 students. At year's end, the 10-month course on public health had 15 physicians, 5 dentists, and 1 veterinarian attending, and

the 6-month course on statistics at the intermediate level had 32 students. (Both these courses will continue throughout the first quarter of 1965.) The teaching staff consisted of 13 full-time professors.

PAHO/R, WHO/R**UNICEF****COLOMBIA-25 (-2200), Water Supplies**

Objective: To plan and carry out a national water supply program; and to make a study of the planning, design, financing, construction, and operation of municipal water supply services.

Probable duration: 1960-1969.

Assistance provided: 2 engineering advisers, and consultant services by staff of Zone IV Office.

Work done: IADB granted a 6-month extension to the National Development Institute to invest a minimum of 12 million pesos in accordance with the terms of the loan agreement concluded in 1962 for the building of water supply and sewerage systems in 367 urban localities.

Efforts were continued to establish a committee, representing the National Planning Board's Department of Specific Projects, the Ministry of Public Health, and the Pan American Health Organization, to be charged with carrying out the national rural sanitation plan which the Ministry is preparing. Construction work on the expansion of water supply systems continued at a normal rate in Cartagena, Cali, and Medellín, as well as in Cúcuta where 60 percent of the total project had been completed.

The first intensive short Course on Financial Feasibility Studies of Water Supply Projects was held at the School of Engineering of the National University of Colombia and was attended by 30 engineers. Two courses on the use of ground sources of water supplies were attended by 38 students; and a third course, on agency administration, was attended by 11 students. The three-courses were organized and held at the National University of Bogotá, in cooperation with AID.

PAHO/CWSE**IADB****COLOMBIA-26 (-4200), Nutrition**

Objective: To improve the level of nutrition in the Departments of Caldas, Cauca, and Norte de Santander, especially in the rural areas, in coordination with the local health, education, and agricultural services; to train personnel at the local and intermediate levels; and to

VIII. PROJECT ACTIVITIES

establish food preparation and school garden demonstration services in the schools of the area.

Probable duration: 1961-1966.

Assistance provided: Advisory services through the medical nutritionist assigned to project AMRO-262; and the following fellowships:

<i>Awards</i>	<i>Field of study</i>	<i>Country of study</i>	<i>Months</i>
4	Nutrition	Guatemala	2½
1	Ditto	Ditto	6

Work done: Advisory services to the National Institute of Nutrition were continued regarding the development of the public health aspect of applied nutrition programs in the Departments of Caldas, Cauca, and Norte de Santander, in all of which satisfactory progress was made in the integration of nutrition into local health services.

The expansion of the Institute's program to the Departments of Antioquia, Boyacá, Huila, Meta, and Tolima was initiated, with 2 nutrition rehabilitation centers created. The Institute's educational activities included 28 courses held for intermediate personnel with a total of 637 attending, 40 inservice courses conducted for 1,731 persons, and 4 courses in extension work including nutrition, agriculture, and animal breeding for 117 students.

PAHO/R

FAO, UNICEF

COLOMBIA-27 (-6600), Teaching of Preventive Dentistry

Objective: To include preventive dentistry in the courses of the School of Dentistry of the University of Antioquia; and to establish a center for research on dentistry, stressing aspects of public health dentistry.

Probable duration: 1961-1966.

Assistance provided: 2 short-term consultants and advisory services by the Regional Adviser in dentistry; and supplies and equipment.

Work done: The programs of the Department of Preventive and Social Dentistry of the School of Dentistry of the University of Antioquia were revised by expanding the public health dentistry field programs and adding a curriculum for the training of auxiliary personnel.

PAHO/R

KF

COLOMBIA-28 (-4100), Social Services

Objective: To improve social services for the protection and rehabilitation of minors with social problems, including training of necessary personnel.

Probable duration: 1962-1965.

Assistance provided: Advisory services by technical personnel assigned to the Zone IV Office and to other projects in Colombia.

Work done: 6 training courses for various types of personnel working in children's institutions were organized and completed, as follows: a 5-week course on child welfare, for heads of "homes" (institution managers), 48 students; a 6-week course on supervised recreation, for leaders, 40 students, and a 1-month course on the same subject matter for 55 students; a 5-week refresher course, for professional social workers, 44 students; a 1-month course on welfare promotion, for volunteers, 31 students; and a 6-week course on group-work and auxiliary techniques, 16 students. In addition, 18 children's institutions received equipment and working materials.

UN, UNICEF

COLOMBIA-33 (-6400), Sanitary Engineering Education

Objective: To improve the technical training of engineers who work in the field of sanitary engineering; and to promote the development of a sanitary engineering research center in the National University of Colombia.

Probable duration: 1964-1967.

Assistance provided: 1 short-term consultant and advisory services by personnel of Zone IV Office and of other projects in the country.

Work done: An intensive short course on the financial aspects of water supply systems was held at the School of Engineering of the National University of Colombia; 3 other courses also held, sponsored by AID, were on the use of ground water and the administration of water supply systems.

PAHO/R

UNESCO, UN-SF

COLOMBIA-34 (-6200), Health Manpower Studies

Objective: To carry out a pilot study of the needs regarding health manpower, taking into account the resources presently available; and to determine ways and means to plan for increasing the resources in Colombia and other Latin American countries, as recommended by the Charter of Punta del Este.

Probable duration: 1964-1966.

Assistance provided: Consultant services and publications on manpower studies.

Work done: The work began with studies on the availability of medical manpower (physicians and nurses) and medical and nursing education facilities, and in particular with the planning of the health survey envisaged in the project. In all these activities assistance was provided by consultants selected by the Organization.

PAHO/G⁴

COLOMBIA-52 (-3301), National Institute of Health (Carlos Finlay)

Objective: To strengthen the services that the Yellow Fever Section of the National Institute of Health provides to other countries in connection with the Hemisphere-wide fight against yellow fever, that is, research, laboratory diagnosis, and vaccine preparation.

Probable duration: 1950-

Assistance provided: An annual grant.

Work done: 250,307 doses of yellow fever vaccine were produced, and 223,265 doses were distributed, to Aruba, British Guiana, Chile, Curaçao, Ecuador, Guatemala, Jamaica, México, Nicaragua, Panamá, Perú and Venezuela. In Colombia 68,732 persons were vaccinated.

The Institute received 1,400 liver specimens for yellow fever diagnostic examination; 9 (0.7 percent) of the specimens were positive. The cases had occurred in the Departments of Bolívar (1), Caldas (5), and Caquetá (3), Colombia.

PAHO/R

COLOMBIA-200 (-3102), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Nutrition (biochemistry)	United States of America	12
1	Organization of medical education (nutrition)	Argentina, Chile, Guatemala, México	2½
1	Ditto (teaching of pediatric odontology)	United States of America	12
1	Organization of veterinary education (veterinary public health)	Brazil	11
1	Pediatrics	México	1
1	Public health administration (dental care and hygiene)	Brazil	11
1	Ditto (hospital administration)	Chile	16
1	Sanitary engineering	México	10½

WHO/R, WHO/UN-TA

⁴ Milbank Memorial Fund

COLOMBIA-0900, Onchocerciasis

Objective: To plan the initial phase of an onchocerciasis research program in Colombia.

Probable duration: 1964-1965 (2 months).

Assistance provided: 1 short-term consultant.

Work done: The consultant began his studies in early December 1964.

WHO/R

COSTA RICA-2 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist and 3 sanitation inspectors; antimalarial drugs; and 1 fellowship for 5½ months to study malaria eradication in México and Venezuela.

Work done: Of the 423,296 inhabitants living in originally malarious areas, 293,720 were residing in areas in consolidation phase and 129,576 in areas under attack.

The planned switch to dieldrin in the problem areas of persistent transmission (to counter the irritability factor) was not carried out because of lack of funds for retraining the spraymen. The mass drug-treatment program initiated in 1963 as a supplementary attack measure in some of the problem areas was discontinued in September 1964 in the remaining 3 of the original 8 treatment areas, funds having been exhausted. Wherever used, the program was very effective, but expensive. No cases had been discovered in those 3 areas since June, but case-finding also was hampered by lack of funds.

Several outbreaks occurred in consolidation-phase areas. One outbreak, on the Atlantic slope, produced almost 50 cases before it was controlled; others, smaller but more numerous, occurred on the Pacific slope. Lack of adequate surveillance activities—the result of the operations freeze caused by financial problems—prevented discovery of the first cases and their treatment in time to avoid these outbreaks.

PAHO/SMF, WHO/MAP

UNICEF

COSTA RICA-12 (-3400), Health Education

Objective: To introduce health education methods in the education and training programs for health workers at all levels; and to coordinate the programs with those of other agencies engaged in community development.

Probable duration: 1963-1964.

VIII. PROJECT ACTIVITIES

Assistance provided: 1 short-term consultant.

Work done: A detailed study was made of health education resources and needs as well as of the organization and functions of the Health Education Department of the Ministry of Public Health. The study included an estimate of the health education personnel available and an analysis of the minimal organizational structure required for an adequately functioning Department. A health education plan forming an integral part of the national health plan was recommended.

WHO/UN-TA

COSTA RICA-14 (-3100), National Health Services

Objective: To prepare and implement a national health plan, as part of the national economic and social development plan; to improve the administration and expand the health services, including medical care services; to train the necessary professional and auxiliary personnel; and to carry out an extensive rural sanitation program.

Probable duration: 1959-1969.

Assistance provided: 1 medical officer; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Health statistics	Chile	7½
1	Nursing services	Guatemala	4¾
1	Organization of medical education (medical pedagogy, laboratory on human relations)	Perú	½
1	Public health administration	Chile	4
2	Ditto (administrative methods)	Chile	10
1	Ditto (health education)	Puerto Rico	11½

Work done: The functions of sector units in the Planning Office were defined; and units of planning, of organization and methods, of coordination and evaluation, and of statistics and economic studies were established, each with specifically assigned functions. The stage of sector diagnosis was concluded, and a situation analysis was made in accordance with conditioning factors. A Committee on Administrative Efficiency reviewed the organization of the Ministry of Public Health, including its structure, functions, responsibilities, and lines of authority. The Departments of Health Education and of Training were reorganized. A start was made on the regionalization of medical care with a view to establishing the level of care to be provided by the local, regional, and central services in each area.

The study of the draft of the new Health Code, which is to be submitted to the legislature for approval, was continued in cooperation with professional associations and health institutions.

Three hospitals with a combined capacity of 475 beds were inaugurated, but the number of hospital beds in the country was increased only by 144, because 331 beds were eliminated in other hospitals. At the end of the year, the total number of hospital beds was 5,977, the occupation index was 76.1 percent and the average period of hospitalization was 6.3 days. Ten new nutrition centers were established, which brought the total to 81, but none had been integrated with the local health services. Three additional mobile units were established to serve 26 new centers of operation with a population of 58,144, raising the total number of centers to 90 and the number of persons served to 246,466. Two rural medical care centers, with 7 beds each, were also established. The Social Security service set up 8 new dispensaries.

In order to vaccinate 80 percent of the population against smallpox within 5 years, a monthly goal of 17,669 vaccinations was established, but the number of vaccinations administered during the year reached 220,518, far surpassing the target. The report of a single suspected case of smallpox, which passed through Puerto Limón, was enough to cause 106,000 persons to be vaccinated in less than 2 weeks in October.

The established target for DPT vaccinations was 12,282 children per month, or 147,384 for the year; 60,209 children were vaccinated, or only 40 percent of the target. The goal for poliomyelitis vaccinations was 15,861 persons per month; or 190,322 for the year; the number of persons vaccinated was 27,207, or only 14.3 percent of the target figure. The total number of BCG vaccinations was 34,280, or 14.6 percent of the target figure of 234,600.

In maternal and child health it was expected that the health units would handle some 12,000 prenatal consultations per month, but only 83,670 consultations were attended to, or 69.7 percent. On the other hand, whereas the well-child clinics had planned to make an average 2.5 routine checkups on 60 percent of the children under 1 year of age, representing 10,000 checkups per month, 192,708 were performed.

Almost all the plans made in training were fulfilled. The following courses were held: a 2-month course on hospital records was attended by 30 students; a 1-month course on orientation in public health, by 29 physicians; a 2-month refresher course for nurses, by 36 students; a 3-month course on methods of health education, by 74 students; a 6-month course on environmental sanitation, by 19 inspectors; a 1-month course on orientation in nutrition, by 369 students; a 3-month refresher course in tuberculosis hospital nursing, by 29 nurses. Two 20-day courses were also held, one for 15 nursing super-

visors, and the other for 10 laboratory technicians. Training was given to 150 food handlers; and 5-day meetings for committees of nutrition centers were attended by 168 persons. Finally, there was an 8-day health education seminar, with 15 nursing supervisors participating.

A study of the use made of personnel trained in the past 3 years showed that out of 39 professional workers trained abroad, 36, or 92.3 percent, had continued to work in the branches for which they were trained. Of 141 persons trained locally, 137, or 94.4 percent, were still doing the job for which they were given training.

PAHO/R

UNICEF

COSTA RICA-18 (-6300), Advanced Nursing Education

Objective: To establish at the School of Nursing an advanced education center to train nurses in teaching, in supervision, and in other specialties; and to evaluate the work of the School.

Probable duration: 1959-1965.

Assistance provided: 1 adviser in nursing education; a small amount of supplies and equipment; and fellowships as follows:

Awards	Field of study	Place of study	Months
1	Nursing	Guatemala	6½
1	Nursing education	Puerto Rico	12

Work done: Intense negotiations with Congress and with the University of Costa Rica resulted, first, in Congress setting the School on a sound financial footing with approximately two thirds of the School's budget assured, and, secondly, in University approval of the School's program and concomitant incorporation with the University.

PAHO/R

COSTA RICA-21 (-4200), Nutrition

Objective: To improve the nutritional level of the population by studying the factors that determine and contribute to malnutrition, by offering dietetic and nutritional education, and by rehabilitating the undernourished.

Probable duration: 1960-1965.

Assistance provided: Advisory services by personnel of Headquarters, Zone III Office, and INCAP.

Work done: In connection with the expanded program of nutrition, a course in applied nutrition was held for

home economics supervisors, and regional clinics on nutritional rehabilitation were held. Work was also done on the diagnosis of the nutrition problem at the national level, and the First Assembly of the Society of Nutritionists and Dietitians of Central America and Panamá was held in San José.

FAO, UNICEF

COSTA RICA-22 (-2200), Water Supplies

Objective: To develop programs to provide public water supply systems and sewerages to urban and rural communities of the country; and to establish the National Water Supply and Sewerage Service, providing for its proper administration.

Probable duration: 1960-1968.

Assistance provided: 1 sanitary engineer and advisory services by the staff of Zone III Office.

Work done: A request for a \$1 million loan was submitted to IADB for financing a rural water supply program which provides for the building of 80 networks, estimated to cost \$2 million, to serve 131 communities with a population totaling 56,249. Negotiations were continued with the UN World Food Program for assistance in the rural water supply program, and with the UN Special Fund for the establishment of an Institute of Hydraulic Resources at the University of Costa Rica.

Work was continued on the preparation of studies of water supply and sewage disposal projects for 12 of the principal cities in the interior of the country. A study was also made of the proposed expansion of the sewerage system of San José.

Two training courses on water quality control were given: one for 16 waterworks operators; and the other for 6 engineers from the National Water Supply and Sewerage Service and the Public Health Ministry.

PAHO/CWSF

COSTA RICA-24 (-3301), Laboratory for Diagnosis of Viral Diseases

Objective: To organize in the National Health Laboratory a section for the diagnosis of viral diseases.

Probable duration: 1962-1966.

Assistance provided: 1 short-term consultant.

Work done: A study was begun of the prevalence of respiratory diseases caused by viruses in the children attending the health centers of the Capital. The labora-

VIII. PROJECT ACTIVITIES

tory took part in the national smallpox vaccination program by carrying out potency tests on the vaccine.

PAHO/G,⁵ WHO/R Lederle Laboratories

COSTA RICA-200 (-3101), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Organization of medical education (pedagogy)	Colombia	2½ (weeks)
1	Pediatrics	México	12
1	Public health administration	Chile	10
1	Ditto (epidemiology)	México	10½
1	Ditto (health education)	Chile	12

WHO/R

COSTA RICA-201 (-3102), Fellowships for Health Services

One 16-month fellowship to study public health administration (hospital administration) in Chile.

WHO/UN-TA

COSTA RICA-0400, Tuberculosis Control

Objective: To organize and develop a demonstration area in the Province of Guanacaste for the purpose of obtaining epidemiological information, applying and evaluating practical tuberculosis control methods, and training medical and auxiliary personnel in order to gradually extend the program to other areas of the country.

Probable duration: 1964-1969.

Assistance provided: Consultant services by the adviser of project AMRO-246 and by the Regional Adviser.

Work done: Activities began with the training of auxiliary personnel and the incorporation of tuberculosis control activities into the general health services. The Costa Rican medical officer who will be in charge of the program, and the staff of X-ray technicians and nursing auxiliaries observed during 8 days the program being conducted in the Province of Chiriquí, Panamá.

Cases discovered totaled 501; and persons X-rayed, 33,593. A total of 34,280 persons were vaccinated with BCG, or 14.6 percent of the established target, which was 234,600 persons.

UNICEF

⁵ American Cyanamid Co.

COSTA RICA-2101, Air Pollution

Objective: To carry out a study of the health aspects related to air pollution caused by the continuous eruption of the Irazú Volcano.

Duration: 1964.

Assistance provided: Advisory services by personnel assigned to other projects in the country.

Work done: Since 1963 the country has had problems caused by ashes from the continual eruptions of the Irazú Volcano. Toward the end of that year, 2 PAHO/WHO consultants made a study of the effects of this fall of ashes on the population of San José and other localities, as well as a study of general health conditions of the population of San José. In 1964 the consultants' report was presented to the Government, which began putting into effect the recommendations contained in the report. In 1964 also, the change from slow to rapid filters in the San José water plant was begun and improvements were introduced in the cleaning of the sewage system; improvements were also made in the water plant of Moravia.

CUBA-1 (-2300), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1953-1967.

Assistance provided: 1 medical officer and 3 sanitation inspectors; supplies and equipment.

Work done: Campaign activities were again limited to the Provinces of La Habana, Matanzas, and Pinar del Río. An initial survey of 35 localities showed 26 of them to be infested with *A. aegypti*; of 203 localities inspected after treatment, 22 were found to be still infested, and 166 localities were again treated. In the course of this work 595,005 houses were inspected and 242,122 treated.

PAHO/R, WHO/UN-TA

CUBA-3 (-3100), Public Health Services

Objective: To improve the organization of health services at the national, intermediate, and local level; and to establish a demonstration and training area.

Probable duration: 1959-1969.

Assistance provided: 1 medical officer, and 2 nurses specialized respectively in public health and nursing education.

Work done: A Subsecretariat of Education having under it Directorates of Postgraduate Studies in Medical

Sciences and in Medical Education was established within the Ministry of Public Health. The Directorate of Medical Education (to which responsibility for the Carlos J. Finlay School of Public Health was assigned) worked with the Schools of Medicine of the Universities of La Habana and of Oriente in a review of the basic medical education curriculum.

Both the regionalization and the subsequent decentralization of public health activities were completed, and the Regional Health Departments became responsible for the training of technical and auxiliary personnel. This was followed by a review of the program, and as a result the demonstration and training area was transferred, from Pinar del Río Province to the Marianao Health District, and the Carlos J. Finlay School of Public Health was reorganized and expanded.

In the new demonstration area, which has a population of approximately 400,000, 10 polyclinics (health centers), 2 nurseries, 1 home for the aged, and 1 medical care service which serves 40,000 scholarship students between the ages of 7 and 18 years, were reorganized.

Two polyclinics, which serve a population of 60,000, were reorganized. These units not only provide general medical care, medical care for pregnant women, care of the child up to the age of puberty, control of communicable diseases, health education, and environmental sanitation, but also are in charge of the vital statistics services and the development of occupational health and nutrition programs. Medical activities of both units up to 30 November were as follows: 371 pregnant women were registered and averaged 1.9 consultations each; 1,927 children aged from 2 to 6 years averaged 2 consultations each; 1,155 school children aged from 7 to 14 years averaged 1.9 consultations each; and 2,522 adults averaged 1.6 consultations each.

In the field of professional and technical education, a new study was made of the curriculum of the School of Medicine in order to extend it to 6 years, and a vertical internship in hygiene and epidemiology was established, replacing for some medical students about to graduate, hospital internship by a short course in public health to train them for service in rural health units. Inservice training was given to 9 nurses and 10 nursing auxiliaries; 1 course on health administration was conducted for 17 medical officers; 1 course for public health nurses, for 8 students; and 1 advanced course in statistics was held for officers engaged in teaching statistics in the Health Regions.

PAHO/R, WHO/UN-TA

UNICEF

CUBA-4 (-6300), Nursing Education

Objective: To strengthen the schools of nursing of the country; and to prepare nursing instructors.

Probable duration: 1961-1969.

Assistance provided: Consultant services by the nursing advisers assigned to project Cuba-3.

Work done: The health authorities, as agreed in 1963, reinstated the 3-year program of basic nursing studies, with 7 years of primary and 2 of secondary schooling as prerequisite. Minimum educational standards for pediatric nurses and for inservice training of nursing auxiliaries were set up. Of 5 new schools established, 3 are to train obstetrical nurses, 1 to train pediatric nurses, and 1 for general nursing studies.

Nine nurses finished the 11-month course on public health nursing; 572 nurses finished the 3-year basic nursing course offered in 9 schools; 682 auxiliaries were trained in twenty 6-month courses; and 135 pediatric-nursing auxiliaries were trained in five 6-month courses. A course in education and administration of nursing services was begun with 57 nurses attending.

UNICEF

CUBA-5 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1959-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist and 2 sanitation inspectors; and antimalarial drugs.

Work done: 594,574 house sprayings were performed in operations that included the termination of the 3rd cycle, (79,279 houses) part of the 4th and 5th cycles (326,572 and 162,828 houses), and the beginning of the 6th (25,895 houses). Of 276,470 blood smears examined, 624, or 0.23 percent, were positive.

In early 1964, campaign headquarters were moved from Havana to Santiago de Cuba for closer contact with main activities.

WHO/MESA

CUBA-16 (-3102), Emergency Health Services

Objective: To strengthen the health services affected by Hurricane Flora; to promote the establishment of outpatient clinics in the rural hospitals of the affected zone; and to train technical and auxiliary personnel.

Probable duration: 1963-1969.

VIII. PROJECT ACTIVITIES

Assistance provided: Advisory services through the technical staff assigned to project Cuba-3.

Work done: The equipment and supplies provided by UNICEF were distributed among the health institutions of the rural area affected by the hurricane.

UNICEF

CUBA-200 (-3101), Fellowships for Health Services

Awards	Field of study	Country of study	Months
2	Health statistics	Chile	7½
2	Nursing education	Chile, Uruguay	3
1	Nutrition	England, Nigeria	8½
2	Public health administration	México	10½

WHO/R

CUBA-6200, Medical Education

Objective: To improve the medical education programs of the country.

Duration: 1964-

Assistance provided: Reference materials.

Work done: The library of the School of Medicine of the University of La Habana was supplied, by PAHO, with books and scientific literature.

PAHO/R

DOMINICAN REPUBLIC-2 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1957-1968, year when the consolidation phase is expected to be completed.

Assistance provided: 1 co-director of the campaign, 1 epidemiologist, 1 engineer, 3 sanitation inspectors, and 1 administrative consultant; supplies and some equipment.

Work done: Spraying operations were converted to 6-monthly cycles and for the first time cycles were completed according to schedule. The 1st cycle (April-September), completed, covered 480,537 houses; the 2nd cycle was begun and 248,167 houses had been sprayed by 31 December (202,795 house sprayings were also carried out from January to April—the pre-conversion period). Among 121,211 blood smears examined during 1964, 321, or 0.26 percent, were positive.

DDT-resistant anophelines were discovered in a small rice-growing area, but very few malaria cases have

been found in this region and the situation does not threaten to become a problem.

PAHO/SMF

UNICEF

DOMINICAN REPUBLIC-3 (-6300), Nursing Education

Objective: To strengthen the National School of Nursing by preparing nurses for the faculty, improving the physical facilities and areas for field practice, and expanding the curriculum to include the teaching of public health nursing and courses in teaching and supervision.

Probable duration: 1958-1965.

Assistance provided: 1 nurse educator; a small amount of supplies and equipment; and fellowships as follows:

Awards	Field of study	Country of study	Months
1	Nursing education	México	7½
2	Ditto	Brazil	10½

Work done: In an effort to attract more candidates, reduce the budget, and have the School closer to the clinical practice areas, it was decided to eliminate the residence requirement and transfer the School from its former quarters, outside the Capital, to a location close to Santo Domingo Health Center. A building formerly used by a Government clinical laboratory was being adapted for the School's offices and classrooms.

A study of the School's curriculum in relation to the country's needs resulted in plans to give more emphasis to teaching related to maternal and child health, communicable diseases, and the importance of integration of public health services. Special attention was given to continuous guidance of the nursing instructors and to the improvement of the clinical practice areas.

The School graduated 11 nurses. An intensive recruitment campaign was carried out in the capital cities of 17 Provinces. Out of the many applications received, 17 students were selected for the class entering in October, a marked increase over matriculation in the years following the establishment of higher educational entrance requirements. Enrollment totaled 37.

PAHO/R, WHO/R

DOMINICAN REPUBLIC-4 (-3100), Public Health Services

Objective: To improve the organization of health services at the national and regional level; and to expand

the local services in order to provide integrated services to the entire country.

Probable duration: 1953-1967.

Assistance provided: 1 medical adviser, 1 sanitary engineer, 1 public health nurse, 1 adviser in administrative methods, and 1 health educator; and supplies and equipment.

Work done: At the Ministry of Health and Social Welfare, the Personnel Section was reorganized and a first attempt at a program budget was made; the Supply Division was also reorganized and the Transport Section was improved considerably.

Six health subcenters with a total of 152 beds were established.

The National Rural Water Supply Service (SNAR) was established, and water supply systems were built to serve a population of 10,960. Studies of water supplies for another 11 localities were begun.

In the poliomyelitis vaccination consolidation program, which is a continuation of the mass campaign conducted in 1963, 40,343 children aged from 3 months to 6 years were vaccinated in the first 10 months of the year. That figure represents 28.3 percent of the established goal of 142,679 children. During the same period, 31,383 persons were vaccinated against smallpox, 6,575 among them, or 21 percent, were vaccinated for the first time.

The health services of Barahona Province, which has a population of 80,000, were also reorganized. A study was made of problems in relation to resources; the 60 beds of the only hospital were redistributed in order to make better use of them, the outpatient clinics were reorganized, and the number of physician/hours was increased; close cooperation was established between the hospital and the other health services, which include one urban health center, 6 rural posts, the Social Security medical services, and private clinics. A plan was prepared for the extension of the services, including the establishment of a new health post for nursing babies in the urban periphery, the reorganization and improvement of rural posts, and the establishment of 4 new posts and of 1 rehydration center at the hospital.

In the Municipality of San Cristóbal, which has a population of 98,112, the reorganization of the health center and of 2 hospitals continued; 3 pediatric clinics were established, 2 for prenatal care, and 1 as a rehydration center with 45 beds. Wells were drilled to provide water to a population of 6,287.

In 13 courses 281 nursing auxiliaries were trained. Another course, for sanitation officers, was held for 22 students; a course on hospital administration was given

for 2 students; and a course for health education aides was attended by 5 students.

PAHO/R, WHO/R

UNICEF

DOMINICAN REPUBLIC-9 (-3101), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Pediatrics	México	11
1	Public health administration	Ditto	10½

WHO/R

DOMINICAN REPUBLIC-10 (-0400), Tuberculosis Control

Objective: To organize in the Province of San Cristóbal a demonstration area to obtain epidemiological information, apply and evaluate practical methods of tuberculosis control, and train medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1963-1967.

Assistance provided: 1 short-term consultant and advisory services by the consultant of project México-38.

Work done: Certain local conditions, particularly changes in personnel, delayed the initiation of this program until September. Auxiliary personnel was trained in the meantime. Photofluorograms were taken of 4,250 exposed workers, and 6,200 school children were given tuberculin tests, 63.2 of which were negative.

WHO/UN-TA

UNICEF

DOMINICAN REPUBLIC-11 (-3102), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Environmental sanitation (sanitary inspection)	Chile	6½
1	Ditto (water control laboratory)	México	1
1	Public health administration (health planning)	Chile	3½
1	Ditto (integrated public health services)	Chile, Colombia, Venezuela	3
1	Ditto (vital statistics)	Chile	16
1	Sanitary engineering	Colombia	2½
1	Ditto	México	10½

PAHO/R

DOMINICAN REPUBLIC-14 (-6200), Medical Education

Objective: To reorganize the administration and the teaching methods of the School of Medicine of the Autonomous University of Santo Domingo; and to establish a 1-year premedical course.

Probable duration: 1962-1965.

Assistance provided: 1 professor of physiology and one 12-month fellowship to study the organization of medical education (physiology) in México.

Work done: In order that practical instruction in physiology might be given to medical students a laboratory was organized. Ten instructors were trained, and 4 physicians who will devote their undivided time to teaching this subject were being trained.

PAHO/R, WHO/R**DOMINICAN REPUBLIC-15 (-2200), Water Supplies**

Objective: To organize a central water supply and sewerage authority; to design waterworks and sewerage systems; and to obtain from international credit agencies loans to build the systems.

Probable duration: 1961-1969.

Assistance provided: 1 sanitary engineer and advisory services by Headquarters and project staff; and a 1-month fellowship for sanitary engineering studies in México.

Work done: The National Rural Water Supply Systems Service was created under the Ministry of Public Health.

A \$1,150,000 loan was obtained from IADB to cover 50 percent of the cost of financing water supplies systems for 5 cities. IADB also granted a loan of \$95,000 for pitometric studies of the water distribution system in Santo Domingo.

Eight wells were drilled in Barahona Province and 1 in San Cristóbal Province. Because of the high salt content of most of the wells drilled in Barahona, 3 projects were prepared to use surface waters instead, and a study to finance these works was also begun.

PAHO/CWSF**DOMINICAN REPUBLIC-16 (-6500), Veterinary Public Health**

One 11-month fellowship for studies in public health administration (veterinary public health) in Brazil.

WHO/UN-TA**DOMINICAN REPUBLIC-52 (-0600), Yaws Eradication and Control of Venereal Diseases**

Objective: To eradicate yaws; to control venereal diseases; and to strengthen and regionalize public health laboratories, especially with reference to the serological diagnosis of syphilis.

Probable duration: 1953-1965.

Assistance provided: Advisory services by Headquarters staff.

Work done: Epidemiological data on yaws and venereal diseases continued to be collected, and plans were made for an evaluation of the program.

ECUADOR-4 (-3100), National Health Services

Objective: To develop and integrate the public health services at the national and local levels, and especially the services of the Province of Manabí.

Probable duration: 1953-1969.

Assistance provided: 1 medical adviser, 1 public health nurse, and 1 sanitary inspector; and the following fellowships:

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
2	Clinical and social pediatrics	Chile	3
1	Histopathology of leprosy	Brazil	3
2	Hospital administration	Chile	9½
1	Laboratory services (radio-active determination of iodine absorption)	United States of America	2
1	Plague (mastoology)	Brazil	4
1	Public health administration	Brazil	11
1	Ditto	México	10½
1	Ditto	Puerto Rico	11½
1	Ditto (epidemiology)	Brazil	12
1	Public health nursing (midwifery)	Puerto Rico	11

Work done: In accordance with the concept of integration of the National Health Plan, the Ministry of Social Welfare and Health was reorganized, and a Subdirectorato of Planning was established within the National Directorate of Health as a sectoral office for health. Also, legislation was promulgated on civil service and on career administrative service.

The social security medical services in Ecuador were also reorganized. The Pension Fund for public employees and military and banking personnel was merged with the Insurance Fund for private employees and laborers, and this permitted the benefits of Social Security medical care to be extended to workers who had not previously been covered.

The study to organize the Ecuadorian Institute of

Sanitary Works was completed, and the Institute will begin to function in 1965.

Two new health centers were built and installed in Guayaquil.

The smallpox eradication campaign was completed in May (*see Ecuador-20*); 203,125 persons were vaccinated in 1964, raising the 6-year total to 3,541,989. At 31 October, out of a total of 269,514 children aged from 3 months to 6 years, 165,000, or 51.2 percent, had been immunized against diphtheria, whooping cough, tetanus, and poliomyelitis; the percentage varied from Province to Province. Target figure for the year was 60 percent. In the same period, 333,508 persons were vaccinated with BCG; 75,476 of them were vaccinated for the first time. The plague control program in Manabí Province was continued and national regulations were drawn up. Cases of plague recorded during the year totaled 93; there were 7 deaths.

Studies for the expansion of the water treatment plant of Guayaquil were completed. The work will take 4 months and cost approximately S/300 million. In rural areas, 18 wells and 632 sanitary privies were built.

The courses held and personnel trained were as follows: for sanitation inspectors, 20 students; for nursing auxiliaries, 34 students; on nursing administration and supervision, 16 nurses; for auxiliary personnel for the plague campaign, 60 persons; for vaccinators, 67 persons; on orientation in public health, for primary school teachers, 27 teachers. Inservice training was provided to 15 nurses.

Anti plague activities consisting of rat-killing by means of poisoned food or cyanide gas were begun in the Manabí health demonstration area; 10,795 rats were killed in 91 percent of the houses in the area.

PAHO/R, WHO/R, WHO/UN-TA UNICEF

ECUADOR-14 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1970, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist, 1 epidemiologist, 1 sanitary engineer, 1 entomologist, and 3 sanitation inspectors; equipment; antimalarial drugs; and 2 fellowships, each for 5½ months, for malaria eradication studies in México and Venezuela.

Work done: The 718,428 house sprayings carried out up to the end of October corresponded to the 7th and 8th cycles (362,930 and 355,498 houses). In a

limited area where the presence of bedbugs led the population to wash walls and thus destroy the spray residual, BHC was added to DDT, the insecticide in use.

Among the 314,700 blood smears examined, 4,628, or 1.5 percent, were positive; 140,497 of the smears and 382 of the positives came from consolidation-phase areas.

An outbreak in a consolidation-phase area was discovered in August in the south of the country, and a considerable number of cases also occurred in consolidation-phase areas in the central zone. The outbreak in the south was controlled. The cases in the central region, although primarily imported from attack-phase areas of the country, included some autochthonous cases.

Special activities were undertaken in the northern high-positivity areas including detailed surveys of the population, between-cycle spraying of new constructions, and entomological studies.

Also during 1964 it was discovered that 2 species of *Anopheles kerteszia* are prevalent in the eastern region of the country.

PAHO/SMF, WHO/UN-TA AID, UNICEF

ECUADOR-16 (-6300), Nursing Education

Objective: To improve the organization and teaching of the School of Nurses of the School of Medical Sciences of the University of Guayas, in Guayaquil, by preparing instructors, including in the curriculum public health nursing and principles of teaching and supervision, and by improving the physical facilities.

Probable duration: 1957-1964.

Assistance provided: 1 adviser in nursing education, up to July, and 1 short-term consultant in nursing service administration, for 6 months; and fellowships as follows:

<i>Awards</i>	<i>Field of study</i>	<i>Place of study</i>	<i>Months</i>
3	Public health nursing (administration and supervision)	Chile	10
1	Nursing education	Puerto Rico	11½

Work done: The first-year class numbered 23, including 3 students who were repeating the year, and the student body numbered 33. The 7 students who graduated in 1964 were employed immediately. The 1964 enrollment showed that at last in the coastal area of Ecuador there is public interest in nursing as a career and that full-time advisory services to the Guayaquil School need not be continued.

VIII. PROJECT ACTIVITIES

An intensive 4-month course in teaching and administration was conducted at the University for 15 nurses from the coastal region, including the director and 3 instructors of the School of Nursing.

The report of the Survey of Nursing Resources and Needs of Ecuador, which was distributed, showed that this country, with a population of approximately 4,600,000, had 274 nurses and 313 trained auxiliaries in active service. Untrained personnel engaged in nursing work totaled 1,401.

PAHO/R, WHO/R

ECUADOR-18 (-0500), Leprosy Control

Objective: To organize a leprosy control program in a demonstration area, in order to develop work methods that may be carried out through regular health services.

Probable duration: 1964-1967.

Assistance provided: Consultant services by the adviser of project AMRO-263 and by staff of Headquarters, of Zone IV Office, and of other projects in the country.

Work done: After finding 62 leprosy cases in the Province of Manabí it was decided to extend the program to other areas of the country. Work was done in the Provinces of Azuay, Cañar, El Oro, Guayas, Loja, Los Ríos, Manabí, and Pichincha. The program has target figures, a schedule of operations, working methods considered satisfactory as to efficiency, cost and yield, and a suitable administrative structure.

During 1964, 192,332 persons were examined, or 91.15 percent of the established target of 211,039. The Regional Services examined an average of 144.3 persons per working day (25 per month); 356 new leprosy cases were discovered; and the total number of cases under control was 856. Twenty-one cases were found among 1,270 contacts examined for the first time; and among 722 contacts re-examined, 13 cases were discovered. The number of contacts examined during the year represented 35.4 percent, the target had been 50 percent.

The clinical forms of the new cases were as follows: lepromatous, 37 percent; indeterminate, 36 percent; and tuberculoid, 27 percent. Age and sex ratios were: 6 percent under 15 years of age, and 1.6 males to every female.

Out of 1,200 clinical examinations planned for the year, 1,008 (84 percent) were made. The number of bacilloscopies performed for diagnosis and control treatment was 1,137 and the number of biopsies was 34. A

data registration system which makes it possible to collect better and more complete data was in use.

One special feature of this program is the use of health aides who are trained to undertake case-finding among the population. Trained in the clinical characteristics of leprosy, they register the name and address of any suspect in every locality they visit, leaving verification of the diagnosis to the physician in charge. This method accounts for the efficient results obtained and the number of cases detected.

In 1964 this program had 4 medical officers in the field, 4 inspectors, and 24 aides. Of the latter, 8 were working on case-finding, and the remaining 16 were being trained to undertake it in 1965. Special leprology training was given to 2 physicians and 5 field auxiliaries, and 3 secretaries were trained in terminology and record handling.

UNICEF

ECUADOR-19 (-3101), Fellowships for Health Services

Awards	Field of study	Country of study	Months
2	Clinical and social pediatrics	Chile	1
1	Public health administration	Ditto	10
1	Ditto	Ditto	6¼
1	Ditto (health planning)	Ditto	3½
1	Ditto (sanitary engineering)	Brazil	11

PAHO/R

ECUADOR-20 (-0300), Smallpox Eradication

Objective: To eradicate smallpox.

Probable duration: 1953-1965.

Assistance provided: 1 medical consultant and 1 sanitation inspector.

Work done: The eradication program intended to vaccinate at least 80 percent of the country's population was concluded in May 1964. Up to that date, 3,541,989 persons, or 85 percent of the estimated population, had been vaccinated. The percentage of protected population in each Province ranged from 74.6 to 100 percent.

Personnel were given on-the-job training in vaccinating techniques; and an epidemiological surveillance service was organized to study any suspected cases occurring after the end of the program.

Routine vaccination was continued in order to maintain the level of immunity of the population. No case of smallpox was reported in 1964.

PAHO/R, WHO/UN-TA

ECUADOR-21 (-2200), Water Supplies

Objective: To expand the water supply system of Quito and to plan for the construction of water supply systems for several cities of Ecuador.

Probable duration: 1961-

Assistance provided: Travel and per diem for the sanitary engineers assigned to projects Colombia-25 and Perú-30 to contribute technical advice, and advisory services by staff of Zone IV Office.

Work done: A study of their water rates was made for the Quito Potable Water Companies, which are negotiating for an IADB loan to finance the expansion of the city's water supply system. With IADB financial assistance, work on the expansion of the sewerage system of Quito continued satisfactorily and the Municipality of Guayaquil began a study for the expansion and improvement of its sewerage system. Work on the water supply and sewerage plan for 18 medium-size cities was also continued with IADB funds. The Organization concluded an agreement with the Quito School of Engineering to organize short courses on the sanitary engineering aspects of water supplies.

PAHO/CWSF**ECUADOR-22 (-3102), Rural Medical Services**

Objective: To promote the economic and social development and the health of the rural populations of the Andean Highlands so as to facilitate their integration into the national community.

Probable duration: 1956-1970.

Assistance provided: 1 medical adviser.

Work done: The working area of the program was extended to cover 96 Indian communities. Of these, 66 were receiving integrated health care services, consisting of disease prevention and health promotion and restoration; the remaining 30 communities received only curative medical care.

Three additional mobile units were formed for work in rural areas; and the staff of the rural program was increased by 3 physicians, 6 dentists, 2 nurses, 20 health inspectors, 25 Indian nursing auxiliaries, and 1 health education aide.

A 2-month course was given for 39 nursing auxiliaries, and a 4-month course for 20 sanitation inspectors.

WHO/UN-TA**FAO, ILO, UN,
UNESCO, UNICEF****ECUADOR-53 and -53.5 (-4200 and -4201),
National Institute of Nutrition**

Objective: To intensify applied nutrition research and personnel training at the National Institute of Nutrition.

Probable duration: 1950-1967.

Assistance provided: Advisory services through the medical nutritionist assigned to project AMRO-262.

Work done: A new draft for compulsory salt iodization on a national scale was prepared and presented to the Health Secretariat of the Ministry of Social Welfare and Hygiene.

Research on the treatment of severe malnutrition, vegetable sources of protein, and animal feeds was continued.

Training activities in nutrition for personnel of health services were continued, especially in the Province of Manabí. Similar training was organized for personnel of the Rural Medical Services program (Ecuador-22).

PAHO/R, PAHO/C⁶**EL SALVADOR-1 (-0400), Tuberculosis Control**

Objective: To develop a tuberculosis control program which, at first limited to the Province of Usulután, will later be expanded to cover the whole country.

Probable duration: 1964-1968.

Assistance provided: Consultant services by the adviser of project AMRO-246.

Work done: The Plan of Operations was signed in October and training of auxiliary personnel was begun. At year's end the chief medical officer of the Tuberculosis Division was receiving public health training.

EL SALVADOR-2 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1955-1970, year when the consolidation phase is expected to be completed.

Assistance provided: 2 malariologists, 1 sanitary engineer, 1 entomologist's assistant, 3 sanitation inspectors, and, for part of the year, 1 entomologist and 1 health educator; supplies and equipment; and one 5-month fellowship for malaria eradication (medical entomology) studies in Brazil.

Work done: The mass drug-treatment program initiated in 1963 in an area of some 59,000 persons was proving to be successful—in 1964 many localities were

⁶ Williams Waterman Fund

Work done: The resources of the existing central and peripheral laboratories were studied, and measures designed to enable them to meet the country's needs with regard to laboratory services were recommended.

WHO/R

EL SALVADOR-16 (-4200), Nutrition

Objective: To develop, in collaboration with the Ministries of Public Health and Social Welfare, of Agriculture and Livestock, and of Education, an integrated program aimed at improving the nutrition status of the population of selected areas of the country and planned for expansion into a nationwide program.

Probable duration: 1964-1966.

Assistance provided: Advisory services by staff of Headquarters, Zone III Office, and INCAP.

Work done: Studies on morbidity and mortality by nutritional deficiencies and studies to determine the nutrition status of preschool-age children were carried out in Health Areas I and III. Education in nutrition was continued in the schools; and two courses were held, one for nutrition education supervisors and another on the making and pretesting of health education audio-visual media. A certain amount of educational material was also prepared and distributed.

FAO, UNICEF

EL SALVADOR-19 (-3100), National Health Services

Objective: To plan and carry out integrated health-services programs in El Salvador, as part of a national health plan.

Probable duration: 1963-1968.

Assistance provided: 1 medical officer and 1 sanitary engineer; supplies and equipment; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Public health administration	Brazil	11
2	Ditto	Chile	10
1	Vital and health statistics	México	10½

Work done: The National Health Plan prepared during 1963 was put into effect in early 1964, and, immediately after, an Executive Coordinating Secretariat was organized within the Department of Planning. As an expedient, the Statistical Section of the National Directorate of Public Health was temporarily attached to Planning, and at the end of the year was ready to

process and supervise all statistics of the Ministry of Public Health and Social Welfare. Since the Plan began to be developed, statistical services function in even the smallest dependencies of the Ministry, and the data flow to the Capital in a regular, complete, and satisfactory manner. To achieve this state of operations it was previously necessary to carry out not only a widespread campaign regarding the Plan, but also the task of preparing statistical forms and instructions for their use.

In reorganizing the Ministry, attempts were made to translate into reality the organizational scheme proposed in the Plan. The former General Directorates of Public Health and of Hospitals were fused into a National Directorate of Health, and the 4 Regional Directorates of Health were established. Progress was made also in the integration of services, which was accomplished in some places. The task of integrating public health services into hospitals proceeded, with the incorporation of vaccination services as one of the first steps.

Vaccinations administered during the year were as follows: 311,823 against smallpox, 94,956 complete DPT, and 114,736 with BCG.

The Division of Environmental Sanitation was created within the National Directorate of Health; and the Service of Engineering and Architecture, within the Ministry. A 1964 target was to build 125 wells, with hand pumps and related structures, and 80 had been installed by 31 October. At the end of the year, water supply systems for several urban and rural localities in the country were under study. A latrine construction shop was installed.

A course for nursing auxiliaries was held in the chief town of each of the 4 Regions: 100 students were trained.

Courses were held for nurse supervisors and for sanitation supervisors, under a revised program which is more practical and in accordance with the standards of the Health Plan. A short course on planning was conducted for about 100 health officers.

PAHO/R, WHO/UN-TA

UNICEF

FRENCH ANTILLES AND GUIANA-4 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1963-1969, year when the consolidation phase is expected to be completed.

Assistance provided: Technical guidance by means of the Zone I malariologist; and supplies and equipment.

VIII. PROJECT ACTIVITIES

Work done: 3,025 blood smears were examined, of which 48, or 1.6 percent, were positive.

Aedes aegypti discovered in Cayenne and along the coast during the first part of 1964 complicated the malaria eradication problem, since the same unit is charged with both malaria and *Aedes aegypti* eradication.

PAHO/SMF

GUATEMALA-1 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1955-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist, 1 entomologist, 1 sanitary engineer, and 3 sanitation inspectors; supplies, drugs, and 1 vehicle; and one 5½-month fellowship to study malaria eradication in México and Venezuela.

Work done: 372,220 house sprayings with DDT were carried out, corresponding to part of the 10th cycle (17,832 houses), the complete 11th cycle (193,780 houses), and part of the 12th cycle (160,608 houses). Blood smears totaling 289,058 were examined and 20,401, or 7.1 percent, were found positive; 121,797 smears and 3,160 positives were from consolidation-phase areas.

Incidence rose not only in problem areas but also in areas previously cleared and areas in consolidation phase. Some of those areas had to be returned to the attack phase.

Lack of local funds limited to 38,000 persons the mass drug program that had been planned to cover 350,000 individuals.

PAHO/SMF

AID, UNICEF

GUATEMALA-6 (-6300), Nursing Education

Objective: To improve the nursing services of the country through the strengthening of the National School of Nursing, establishment of advanced educational programs, and training of nursing auxiliaries.

Duration: 1955-1964.

Assistance provided: The services of specialized consultants, since August 1955 until July 1964: 1 from August 1955 until March 1959, 2 since then until August 1962, and only 1 since that date until the project was terminated, except for the period between August 1963 and February 1964 when there were 2.

The fellowships awarded for advanced nursing studies abroad amounted to 13, of 8 to 12 months each,

and 14 other fellowships were awarded for 6 months or less. An additional 11-month fellowship to study nursing education in Puerto Rico was granted in 1964.

Some supplies and equipment were also provided.

Work done: During the course of the project the Training Center for Nursing Auxiliaries was established at the General Hospital of Guatemala; the training was later extended to the Provinces.

Four courses in nursing administration and supervision were held, with the attendance of 82 graduate nurses: 46 from Guatemala, 10 from Costa Rica, 9 from Nicaragua, 5 each from El Salvador and Panamá, 4 from Honduras, and 1 each from México, the Dominican Republic, and Venezuela.

The curriculum of the National School of Nursing was revised and a new course of studies and general program prepared with the inclusion of new subjects, such as psychiatric nursing; also, hospital practice was broadened.

A study was made of the Quetzaltenango School of Nursing and recommendations were submitted for transforming the School into a nursing auxiliaries training center.

During the 10 years that this project was in operation the number of nurses active in the country was increased from 277 in 1954, at which time only 10 had advanced nursing training, to 730 nurses in 1964 with 70 having had advanced training.

In 1954 Guatemala had 1,059 nursing auxiliaries but in fact none had had any training; in 1964 there were 2,180 auxiliaries and 1,377 of them, or 63 percent, had received training.

WHO/UN-TA

GUATEMALA-7 (-3102), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Organization of medical education (teaching of preventive medicine)	Brazil, Chile, Colombia	2
1	Public health administration (epidemiology)	México	10½
1	Ditto (tuberculosis)	Ditto	10½
1	Ditto (vital statistics)	Chile	16

WHO/UN-TA

GUATEMALA-8 (-3100), National Health Services

Objective: To formulate and carry out a national health plan providing for the extension of health serv-

ices, to cover the entire population, and for the preparation of professional and auxiliary personnel.

Probable duration: 1954-1971.

Assistance provided: 1 medical adviser, 1 sanitary engineer, and 1 sanitation inspector; supplies and equipment; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Clinical and social pediatrics	Chile	3
1	Food control	Panamá	8
1	Laboratory services	Brazil	3
1	Laboratory services (immunofluorescence)	Panamá	¾
1	Organization of medical education (pharmacology)	Chile	12
1	Public health nursing	Ditto	10
1	Ditto (supervision and administration)	Ditto	10

Work done: A Health Planning Unit was established and staffed by 2 physicians, who in addition to having qualifications in public health had also attended the Planning Course of the Latin American Institute of Economic and Social Development, in Santiago, Chile. The country was divided into 14 program areas forming 4 Regions and, by 31 October, sufficient data had been collected to make the diagnosis of 10 areas in Regions II, III, and IV. A short course on planning was conducted for 18 health officers and 84 more received in-service training as they collaborated in the survey for making the health-situation diagnosis of the areas.

A program budget went into effect on 1 July 1964, and the second program budget, for 1965, was under consideration by the central level at the end of 1964.

During the first 10 months of the year, 7,354 dogs were vaccinated and 21,330 were destroyed in the rabies campaign. The national program of diphtheria, whooping cough, tetanus, and smallpox vaccinations was begun in April, and by 31 December had administered 555,724 smallpox vaccinations and 84,899 complete DPT vaccinations. During the year, 49,136 persons were vaccinated with BCG.

The cases of communicable diseases reported—chiefly of intestinal parasitoses, diarrheal infections, and malaria—totaled 156,766. Hospital movement was as follows: 107,390 separations, with a 26.4-day average hospitalization; and 136,958 consultations. The number of beds available was 9,566.

The Ministry of Public Health and Social Welfare is particularly interested in developing an extensive program to supply water to the rural population. In this regard, important preparatory steps were taken to promote activity, using funds made available by the United Nations Expanded Program of Technical Assistance.

The necessary technical studies for the Rural Sanitation Program were also made, and a request for a loan was submitted to IADB. The accomplishments of this combined program covered the preparation of 18 water supply draft projects and improvement studies of 15 existing systems. The systems built during the year will give service to a population of 193,127 in urban areas; \$1,786,439 were provided by international loans, and \$911,851 by the Government. New sewerage systems to serve a population of 70,908 were built in urban localities at a cost of \$1,212,732. In rural areas, water was supplied to 10,353 persons and 18,295 latrines were built.

Locally held courses provided training to 157 nursing auxiliaries, and an additional 39 will complete their training in the first quarter of 1965; 17 nurses attended an advanced course in nursing; 12 nurses, a nursing supervision and administration course; and another 5 nurses, a course in psychiatric nursing.

PAHO/R, WHO/R

UNICEF

GUATEMALA-12 (3101), Fellowships for Health Services

One 4-month fellowship to study public health administration (administrative methods) in Chile.

PAHO/R

GUATEMALA-13 (-4200), Nutrition

Objective: To improve the nutritional level in 70 communities in 10 Departments of the country, especially in the rural areas, in coordination with the local health, educational, and agricultural services; to train personnel at the intermediate and local levels; and to establish food preparation and school garden demonstration services.

Probable duration: 1960-1965.

Assistance provided: Advisory services by personnel of Headquarters, Zone III Office, and INCAP.

Work done: The production and distribution of INCAPARINA on a commercial scale was intensified. Work was done in connection with the first Education in Nutrition and Nutritional Rehabilitation Service. A goiter survey was made. Educational television programs were prepared, and educational material was tested and evaluated. Advisory services were also given to libraries.

FAO, UNICEF

GUATEMALA-14 (-6500), Teaching of Public Health at the School of Veterinary Medicine

Objective: To strengthen the School of Veterinary Medicine of the University of San Carlos, especially as to the teaching of public health and preventive medicine.

Probable duration: 1962-1967.

Assistance provided: 1 short-term consultant and consultant services by the adviser of project AMRO-188; and teaching materials and equipment.

Work done: The consultant assisted the Department of Microbiology of the School of Veterinary Medicine in the preparation of its teaching and research plans. The adviser in public health veterinary assigned to Zone III gave a course in infectious diseases at the School of Veterinary Medicine and Zootechnics of the University of San Carlos; and, at the request of the dean of the University, a study was made of the teaching program and of the premises and facilities of the School. The Pan American Zoonoses Center provided the Department of Microbiology and the Department of Public Health with antigens and other biological materials as well as with technical information and publications.

PAHO/R**GUATEMALA-17 (-2200), Water Supplies**

One 1½-month fellowship for studies in environmental sanitation (Waterworks operators course) in Costa Rica.

PAHO/CWSF**GUATEMALA-21 (-3300), Public Health Laboratories**

Objective: To study and evaluate the services provided by the existing central and local public health laboratories; to plan operating programs for the Instituto Biológico and for all laboratories that function at other levels; to establish local laboratories wherever necessary; and to train the necessary personnel.

Probable duration: 1964-1966.

Assistance provided: 1 short-term consultant; supplies and equipment for the manufacture of vaccine; and one 10-month fellowship for studies in public health laboratory techniques (preparation and control of biological products) in the United States of America.

Work done: The production of biological products

continued to increase, and the production of pertussis vaccine was begun on an experimental scale.

WHO/UN-TA**HAITI-1 (-0600), Yaws Eradication**

Objective: To eradicate yaws from the country; and to use the program's manpower resources to vaccinate 80 percent of the population against smallpox in a period of 4 years beginning in 1962.

Probable duration: 1950-1965.

Assistance provided: 1 sanitation inspector.

Work done: Between January and August only 13 cases of yaws were confirmed (8 in the Department du Nord and 5 in that of l'Ouest), and 38 suspected cases were reported.

Smallpox vaccinations were continued and 293,441 persons were vaccinated in the first 9 months of the year, bringing the total number of vaccinations performed since 9 July 1962, when this phase of the program was initiated, to 847,109, or 78.4 percent of the population visited.

WHO/R**UNICEF****HAITI-4 (-0200), Malaria Eradication**

Objective: To eradicate malaria.

Probable duration: 1961-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 1 co-director, 1 epidemiologist, 1 sanitary engineer, and 3 sanitation inspectors; and antimalarial drugs.

Work done: 1,885,533 house sprayings were performed: 974,136 houses were treated under the 5th semiannual cycle, 454,029 under the 6th(A) cycle—shift to quarterly cycles—and 457,368 under the 6th(B). Of the 473,297 blood smears examined, 19,170, or 4.1 percent, were positive: 18,422 infections were caused by *Plasmodium falciparum*, 24 by *P. vivax*, and 724 by *P. malariae*.

During 1964 it became evident that semiannual spraying with DDT was not interrupting transmission in large portions of the malarious area. One factor was hurricane Flora, in the wake of which there followed from December 1963 to April 1964 an intensive epidemic with an estimated 50,000 cases. An evaluation was made in July, and areas where transmission continued were subjected to a schedule of DDT-spraying every 3 months, but was discontinued in the areas where trans-

mission had been interrupted. Because entomological studies indicated that outdoor biting was an important factor in the continuation of transmission, an anti-malarial drug-treatment pilot-program involving 50,000 persons was initiated in October in the Petit Goâve area; 99 percent coverage was achieved during the first triweekly cycle.

The experimental study of the usefulness of DDVP, a fumigant insecticide used indoors, was concluded. Partial evaluation of the results indicated that this method was not more successful than spraying with DDT.

PAHO/SMF, WHO/MAP

AID, UNICEF

HAITI-9 (-3300), Public Health Laboratory

Objective: To strengthen the organization of the Public Health Laboratory for the purpose of improving its services; to establish subsidiary laboratories in 3 local areas; and to improve the organization of hospital laboratories and dispensaries in the region damaged by hurricane Flora.

Probable duration: 1953-1965.

Assistance provided: 1 adviser in laboratory services; and supplies and equipment.

Work done: Work on the reorganization and expansion of the central laboratory services and supervision of laboratory work in the Cul de Sac pilot area was continued, as was assistance to the Technicians' School in training personnel; also, a research program on enteric bacteriology was begun. Specimens received totaled 24,250 and 49,676 tests were carried out on them.

PAHO/R

HAITI-16 (-3100), National Health Services

Objective: To develop integrated public health services at the national and local levels; and to establish a demonstration and personnel-training area.

Probable duration: 1957-1968.

Assistance provided: 1 medical officer and secretarial services; and one 3-month fellowship for nutrition studies in Guatemala and México.

Work done: The budget of the proposed working area of 2,024.73 km² with a population of 214,800 was reduced during the year. Only 54.39 percent of the amount originally approved was available, and the activities therefore continued limited to 2 communes encom-

passing an area of 479.68 km² with a population of 70,299.

In maternal and child health, 4 checkups for each of 720 pregnant women (2,880 consultations), or 36 percent of the 1,989 anticipated pregnancies, was set as target for the year. However, only 447 pregnant women sought prenatal checkups, or 62 percent of the pregnancy-control target; they averaged 2.9 consultations, with a total of 1,319. Consultations on children under 1 year of age totaled 2,531; on preschool children, 3,787; and on school children, 4,268. Smallpox vaccinations administered to children totaled 1,106.

Environmental sanitation activities included 14 wells drilled, another 12 protected, and hand pumps installed in all of them; 22 sanitary privies were also installed and parts for 5 more were distributed for installation by the persons concerned.

A course for 11 untrained midwives was given by a graduate nurse, in cooperation with nursing auxiliaries.

PAHO/R, WHO/UN-TA

UNICEF

HAITI-18 (-0300), Smallpox Eradication

Objective: To vaccinate 80 percent of the population against smallpox.

Probable duration: 1962-1965.

Assistance provided: Technical advisory services by personnel assigned to other projects in Haiti; and a limited amount of supplies and equipment with AMRO-60 funds. (The Governments of Brazil and Colombia provided lyophilized vaccine.)

Work done: 293,441 persons were vaccinated during the year, which brought the total vaccinated since 9 July 1962 to 847,109, or 58 percent of the midway target figure.

HAITI-20 (-4200), Nutrition

Objective: To develop a nutrition program; and to establish an agency to coordinate the nutritional functions of the Ministries of Health, of Education, and of Agriculture.

Probable duration: 1961-1969.

Assistance provided: 1 medical nutritionist.

Work done: The recently created Bureau of Nutrition of the Department of Agriculture established close cooperation with the corresponding Bureau of the Department of Public Health, at the national level as well as at the level of field work.

A nutritional rehabilitation center for severely mal-

VIII. PROJECT ACTIVITIES

nourished preschool children was opened in Fonds-Parisien. Center activities include dietary treatment of the children, education of their mothers, and complete evaluation of the results. Biochemical, clinical, and dietary surveys were conducted in order to evaluate the Fonds-Parisien Center.

The community of Guérin also established a center, on a voluntary basis. A successful agricultural project with community and 4-H clubs was implemented.

A nutrition section was put in operation at the National Public Health Laboratory.

A dietary survey was conducted in Les Cayes.

Training of personnel included a 1-week seminar for 38 social workers and courses on dietary surveys and on the administration of rehabilitation centers.

PAHO/R, PAHO/G ⁷

FAO, UNICEF

HAITI-22 (-2200), Water Supplies

Objective: To plan, design, and finance an extension to the water supply system of Port-au-Prince and, later, to plan accordingly for the rest of the country.

Probable duration: 1960-1966.

Assistance provided: Advisory services by staff of Headquarters and of other projects in the country; and a 1-month fellowship for sanitary engineering studies in México.

Work done: IADB approved a \$2,360,000 loan for construction of the first stage of the water supply system of Port-au-Prince. A law was enacted establishing in Port-au-Prince the Autonomous Metropolitan Water Supply Authority. A representative of the Organization is a member of the administrative council of this agency.

PAHO/CWSF

HAITI-24 (-3103), Emergency Health Services

Objective: To rehabilitate and strengthen the public services of the country, including the health services, in the areas affected by hurricane Flora.

Probable duration: 1964-1966.

Assistance provided: Advisory services by the staff of project Haiti-16.

Work done: A study was made of hospital needs

⁷ Williams Waterman Fund

in the disaster area, particularly with regard to equipment and materials needed.

ILO, UNESCO, UNICEF

HONDURAS-1 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1970, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist, 2 sanitation inspectors, and 1 entomologist; antimalarial drugs; and 1 vehicle.

Work done: The aggregate of the areas in consolidation phase embraced 86 percent of the total population of the originally malarious area, or 1.6 million persons. But 7 malaria outbreaks occurred in consolidation-phase areas, and one outbreak was of such magnitude that the area was returned to attack phase; the other outbreaks were controlled.

Because in 1964 there were fewer volunteer collaborators to collect blood samples and fewer supervisors to stimulate the collaborators than in the same period in 1963, only 207,000 blood smears, amounting to 10.9 percent of the population of the malarious area, were examined—a drop of 21.6 percent from the number examined in 1963. Smears examined from areas in consolidation phases totaled 131,714—the 1,281 found positive more than tripled the number of positives for the 12 months of 1963.

In 1964 the 10th six-monthly DDT-cycle was carried out (26,058 houses sprayed) and the 11th was begun (26,148 houses treated up to December). Malathion continued to be used, whenever it was financially possible, in the problem areas, where the 3rd and 4th cycles were carried out with 23,066 and 33,705 houses sprayed.

The difficulties in the campaign stemmed from financial problems. A request for a long-term loan from AID, to cover part of the expenses of the campaign for the next 3 years and ensure that the program can be run at an efficient level with adequate financing, was in preparation at the end of 1964.

PAHO/SMF

AID, UNICEF

HONDURAS-4 (-3100), National Health Services

Objective: To organize integrated public health services gradually, both at the central and local levels; and to train personnel.

Probable duration: 1955-1967.

Assistance provided: 1 medical adviser, 1 sanitary engineer, and 1 public health nurse; supplies and equipment; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Medical records	Venezuela	10½
1	Public health administration (hospital administration)	Brazil	15
1	Ditto (health education)	Chile	12
1	Sanitary engineering	Brazil	11

Work done: The following were organized at the national level: a Planning Unit; a Department of Ground Water Research and a Department of Rural Water Supplies, both attached to the Division of Environmental Sanitation; a Transport Department; and a Department of Veterinary Public Health. A 5-year health plan for the period 1965-1969 was prepared; the plan covers the entire country, which measures 112,088 km² and has an estimated population of 2,030,559. The country was divided into 7 Health Districts, 4 of which were organized, and placed in charge of medical officers with public health qualifications.

The integration of the services provided by the hospitals and health centers of Juticalpa and Choluteca was begun.

The country had 11 hospitals with a combined bed capacity of 3,106, or 1.5 bed per 1,000 population; 8 health centers and 23 subcenters; 24 maternal and child health clinics; and 12 health posts. Five additional health posts were established. The records of the general hospitals showed 40,278 separations, 624,282 patient-days, and an average stay of 15.5 days per patient. The outpatient departments of these hospitals handled 317,764 medical consultations, with an average of 7.9 consultations for each person hospitalized. The 9 mobile units gave service to 46 localities.

Basic studies were completed and plans were drawn up to improve and expand the water supply system of Tegucigalpa, Comayagua, and Catacamas. For the first of these, which will serve a population of 166,113 and will cost \$2,650,000, IADB approved a loan of \$2,150,000. The other two will together cost \$14,580.

A preliminary study was made for the expansion and improvement of the sewerage system of Tegucigalpa.

Three water supply systems for rural communities, which will serve a population of 1,950, were completed and put in operation. Studies for an intensive program of water supply for rural communities were completed; the initial 2-year project, which will serve 87 localities with a total population of 47,378, will be carried out by the National Autonomous Water Supply and Sewerage

Services (SANAA) with funds provided by the Government and by IADB.

A total of 1,680 sanitary privies was built, representing 28 percent of the target established for the year.

A dental education program was conducted for 20,273 pupils and 899 teachers in 54 schools.

Smallpox vaccinations were administered to 90,550 persons, or 43 percent of the planned target of 210,150; and 32,741 children, or 71.2 percent of the target of 45,994, were vaccinated with DPT.

Two training courses were conducted: one in basic public health for graduate nurses, which was attended by 14 students, and the other for nursing auxiliaries, attended by 36 students.

PAHO/R, WHO/UN-TA

UNICEF

HONDURAS-5 (-0400), Tuberculosis Control

Objective: To organize in the Departments of Morazán, Comayagua, and La Paz a demonstration area for the following purposes: to obtain epidemiological data, apply and evaluate practical methods of tuberculosis control, and train medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1962-1965.

Assistance provided: Consultant services by the adviser of project AMRO-246.

Work done: With the arrival of the equipment provided by UNICEF, and in view of the results already achieved in the area, the program was extended to the areas of Choluteca and Valle. The regular task of integrating antituberculosis activities within the general health services was continued in the original program area, and the concept of integration continued to be introduced into other local health services.

The number of cases of tuberculosis detected amounted to 2,095; 1,880 began ambulatory treatment, 206 were lost to control, 215 were hospitalized, and 1,674 completed 12 months of treatment. Photofluorographic examination was made on 82,277 persons, 175,818 tuberculin tests were read, and 105,617 persons were vaccinated with BCG; in addition, 2,063 sputum samples were examined by microscope and cultures were performed on 3,203.

UNICEF

HONDURAS-6 (-3101), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Medical librarianship	Colombia	6¼
1	Public health administration (administration methods)	Chile	4
1	Ditto (health planning)	Ditto	3½
1	Ditto (tuberculosis)	México	10½
1	Sanitary engineering	Colombia	2½
1	Vital and health statistics	México	10½

PAHO/R**HONDURAS-7 (-3102), Fellowships for Health Services**

One 11½-month fellowship for studies in public health administration (health education) in Puerto Rico.

WHO/R**HONDURAS-9 and -10 (-2200), Water Supplies**

Objective: To organize, plan, and carry out national programs for the provision of water supplies and improvement of existing services.

Probable duration: 1960.

Assistance provided: 1 short-term consultant and advisory services by staff of Zone III Office and of other projects in the country; and two 1½-month fellowships for attendance at the Course for Waterworks Operators held in Costa Rica (see AMRO-17.7).

Work done: A Department of Ground Water Resources Investigation was established, and PAHO/WHO cooperation was requested for its organization. A study was made with a view to establishing rates for piped water.

Three rural water supply systems which benefit 1,950 persons were completed, and studies were begun on 6 other projects. A plan to construct in 2 years water supply systems for 87 localities with less than 2,000 inhabitants was completed, and a \$500,000 loan to cover 50 percent of the cost was requested from IADB.

Basic studies were completed and projects prepared to improve and expand the water supply system of Tegucigalpa (for which IADB granted in 1963 a \$2,150,000 loan) and those of Comayagua and Catacamas, in both of which cities construction was begun with Government funds. Definitive studies for projects to improve and expand 6 urban water supply systems, for the construction of which IADB granted a loan of \$400,000, were begun.

A preliminary study was completed and a report prepared on the expansion of the sewerage system of Tegucigalpa, designed to benefit a future population of up to 300,000.

PAHO/R, PAHO/CWSF**HONDURAS-12 (-3103), Public Health Legislation**

Objective: To study the health legislation in effect and draft the necessary laws and regulations to fit the legislation to the advances of medicine and public health.

Probable duration: 1963-1965.

Assistance provided: 1 short-term consultant.

Work done: A draft Health Code, containing the principal legislation to be reviewed by all interested institutions, was prepared.

WHO/R**HONDURAS-14 (-6300), Nursing Education**

One 6½-month fellowship for studies in public health nursing in Guatemala.

WHO/R**HONDURAS-51 (-4200), Nutrition**

Objective: To develop an expanded nutrition program in a selected area of the country.

Probable duration: 1961.

Assistance provided: Advisory services by personnel of Headquarters, Zone III Office, and INCAP.

Work done: A short course on nutrition was given for medical students. Data were collected on mortality and weight in preschool-age children. Work was also done in connection with salt iodization, the commercial production and distribution of INCAPARINA, and the distribution of educational material.

FAO, UNICEF**JAMAICA-2 (-0200), Malaria Eradication**

Objective: To eradicate malaria.

Duration: 1957-1964.

Assistance provided: Consultant services by the malariologist assigned to Zone I (see AMRO-117).

Work done: The insect control program in operation between 1943 and 1957 had achieved a certain degree

of malaria control. The eradication-program operations were begun in 1958 with dieldrin, which was used until mid-1959, by which time the mosquitoes had developed resistance to that insecticide and it became necessary to change to DDT.

Five parishes entered into consolidation phase in July 1960, and by the end of 1961 the remaining originally malarious areas had reached the same progress level. Operations included the protection of 1,365,054 inhabitants (1963 yearend estimate) living in the program area, the spraying of 270,000 houses, and the examination of 1,123,162 blood smears between 1958 and 1964. One of the 134,824 blood smears examined in 1964 was found positive, but the epidemiological investigation showed it to be from a relapse.

The malaria eradication program was successfully completed in 1964.

AID, UNICEF

JAMAICA-4 (-6201), Department of Preventive Medicine, UWI

Objective: To improve the courses of the Department of Preventive Medicine of the University of the West Indies; and to expand the teaching of medicine in the Caribbean Area.

Probable duration: 1962-1965.

Assistance provided: Advisory services by personnel of Zone I Office; one 12-month fellowship to study organization of medical education (bacteriology) in Canada and one 3-month fellowship to study laboratory services (histology) in the United States of America.

Work done: The Department of Social and Preventive Medicine was established in place of the Preventive Medicine Unit. As a result of a special study, plans to introduce the teaching of medical statistics in the School of Medicine were made.

PAHO/R, WHO/R

JAMAICA-12 (-6300), Nursing Education

Objective: To improve basic education in the schools of nursing; and to organize advanced courses for instructors and supervisors.

Probable duration: 1960-1965.

Assistance provided: 1 nurse educator, beginning 1 June; and one 8-month fellowship for studies in public health nursing in Canada.

Work done: Plans were being developed for inserv-

ice education programs in all health services of the Island, and for courses for senior nursing personnel in administration and supervision. Two 1-week workshops were held for 20 officers of Staff Committees which advise on continuing inservice nursing education, and recommendations were formulated on the planning of nursing units and for the preparation of staff to take part in a survey of the Montego Bay area to determine needs to be considered in plans for a new Montego Bay Hospital.

PAHO/R

JAMAICA-13 (-2300), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1952-

Assistance provided: Advisory services by staff of projects AMRO-8 and AMRO-88.

Work done: The eradication campaign, interrupted in 1961, was not resumed. However, limited control operations were continued at the international airports and in the port areas of Kingston and Montego Bay.

JAMAICA-15 (-3101), Health Legislation

Objective: To revise the country's legislation and draft laws and regulations to adapt the legislation to progress in medicine and public health.

Duration: 1962-1964.

Assistance provided: 1 short-term consultant (2 visits), and one 12-month fellowship to study public health administration (epidemiology) in the United States of America.

Work done: Drafts of laws were revised and draft regulations were prepared on the following subjects: food and drugs; public health; pharmacy; mental health; paramedical, nursing, and midwifery personnel; and dental assistants.

WHO/UN-TA

JAMAICA-16 (-2200), Rural Water Supplies

Objective: To design and build, or improve, water supply systems in rural areas.

Probable duration: 1963-

Assistance provided: 1 sanitary engineer and advisory services by Headquarters, Zone I Office, and British Guiana-10 staff.

Work done: UNICEF approved an allocation for

VIII. PROJECT ACTIVITIES

the construction of 76 water supply systems in 14 parishes during a 3-year period. A review of localities suggested in the original plan of operation was made, but a final decision had not been reached.

WHO/R

UNICEF

JAMAICA-17 (-3100), Public Health Services

Objective: To study health problems, needs, resources, and cost of public health services; and to prepare and develop a national health plan within the framework of the plan for social and economic development of the country.

Probable duration: 1963-1966.

Assistance provided: 1 short-term consultant; and the following fellowships:

Awards	Field of study	Country of study	Months
2	Hospital administration	United States of America	6
1	Medical sciences and education (pathology)	England	12

Work done: With the assistance of the PAHO/WHO consultant, plans were prepared for a 400-bed hospital to serve as a health-care center in Montego Bay, Cornwall County. A survey to determine the health needs and resources of Cornwall County was carried out. The report took into consideration the findings of the survey, the public health services available, and the planned health-care and hospital center.

WHO/R

JAMAICA-19 (-4300), Mental Health

Objective: To prepare a national mental health program integrated within the general health services of the country and including curative and preventive services and training of personnel.

Probable duration: 1964-1966.

Assistance provided: 1 short-term consultant.

Work done: The consultant reviewed the general mental health situation in the country and made recommendations to improve the care and rehabilitation of the mentally ill, to promote better training of mental health personnel, and to prevent mental illness.

PAHO/R

JAMAICA-6401, Course for Sanitation Inspectors

Objective: To carry out an advanced training course for senior sanitation inspectors from countries and territories in the Caribbean.

Place and duration: Kingston; 27 July-30 October.

Assistance provided: 1 short-term consultant and advisory services by the sanitarian assigned to AMRO-95; and fellowships as follows:

Awards	Place of origin	Occupation	Weeks
1	Antigua	Sanitation inspector	11
1	Aruba	Ditto	11
2	Barbados	Ditto	11
1	British Guiana	Ditto	11
1	British Honduras	Ditto	11
1	Cayman Islands	Ditto	11
1	Curacao	Ditto	11
21	Jamaica	Ditto	11
1	Trinidad	Ditto	11
1	Curacao	Health educator	3
3	Jamaica	Ditto	3

Work done: The course was held according to plans—the sanitation inspectors attended the entire course and attendance by the health educators was limited to the last 3 weeks which were devoted to health education.

PAHO/R

UNICEF

MÉXICO-14 (-6300), Nursing Education

Objective: To improve basic nursing education; to prepare graduate nurses to serve as instructors; and to prepare nurses for the training of auxiliary nursing personnel.

Probable duration: 1958-1967.

Assistance provided: 2 nurse educators; and one 11½-month fellowship to study nursing education (psychiatric nursing) in Puerto Rico.

Work done: The 17 schools of nursing under this project graduated 187 students.

Two 6-month courses in advanced nursing education were conducted for 39 nurses, two 6-month courses in administration of nursing services were conducted for 21 nurses, and two 6-month courses in administration of regional nursing services were conducted for 42 nurses. Negotiations were underway with the Autonomous University of México to set up a permanent center for advanced nursing education.

Ten 6-month courses to train nursing auxiliaries were initiated in various States, and 206 auxiliaries were trained. (In the Federal District and the States of Chihuahua and Sonora 623 nursing auxiliaries were

trained in courses held independently of this project.)

Draft plans for a study of nursing needs and resources, prepared by the Mexican Nurses Association with PAHO/WHO collaboration, was approved in principle by the acting Minister.

The VIII Seminar for Directors and Instructors of Schools of Nursing was held in September, with 55 full-time participants (4 were directors) from 12 States and an average attendance of 25 observers from the Federal District. Discussions centered around administration of schools of nursing.

PAHO/R

MÉXICO-15 (-3101), State Health Services

Objective: To improve the organization and coordination of health services at the regional and local level.

Probable duration: 1954-1967.

Assistance provided: 1 medical adviser, 2 sanitary engineers, 1 public health nurse, and 1 sanitation inspector; and one 3-month fellowship for public health administration studies (integrated public health services) in Colombia, Chile, and Venezuela.

Work done: A Subdirectorate of Public Health Services of States and Territories and a Planning Office were established in the National Directorate of Public Health Services. The latter began studies to prepare a National Plan of Rural Water Supplies, and began to plan a health program for Tula, Hidalgo.

Eight urban health centers and 406 rural centers were built and began functioning, raising the number of health centers to 2,427. The number of beds in establishments under the Ministry of Public Health and Welfare was 29,077, including 1,449 beds installed during the year.

Smallpox vaccination was administered to 7,359,849 persons, or 18.6 percent of the population; 84,162 were vaccinated against tetanus; 692,868 against diphtheria and whooping cough; 3,150,000 against poliomyelitis; and 1,257,763 were vaccinated with BCG.

Hospitals under the Ministry of Public Health and Welfare hospitalized 410,751 persons; the outpatient services of these institutions handled 3,802,952 consultations, which added to the 3,178,489 recorded at the health centers totaled 6,981,450 consultations, or 16.7 for each person hospitalized.

During the first 10 months of the year, 40 water supply systems were built in rural localities, serving a population of 391,461 through public outlets also installed. Total cost of these programs was Méx\$58,500,000.

A study to provide potable water to 2 million persons living in 2,000 rural communities in 10 States was carried out. Garbage disposal demonstration programs were carried out in 2 States. Also, 1,682 houses were renovated, and 3,976 latrines were built.

In addition to the courses conducted at the School of Public Health and Welfare (*see* México-30), the following courses were held: three 6-month courses, in public health administration, for 61 physicians; two 6-month courses, on nursing care, for 25 students; two 6-month courses, on nursing education (instructors), for 39 nurses; two 6-month courses, in public health nursing, for 24 nurses; ten 6-month courses trained 229 nursing auxiliaries; two 3-month courses trained 48 nutrition auxiliaries; one 6-month course, on community development, for 20 students and one 6-month course, in sanitation practices, for 25 students—all together, 471 persons were trained.

PAHO/R, PAHO/CWSF, WHO/R UNICEF

MÉXICO-18 (-3102), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Food control	United States of America	5
1	Laboratory services (brucellosis)	Argentina	3
2	Sanitary engineering	Colombia	2½

WHO/R

MÉXICO-23 (-4200), Nutrition

Objective: To develop a nationwide nutrition program using the resources of the National Institute of Nutrition, including surveys to learn the situation in the different regions and training of professional and auxiliary personnel.

Probable duration: 1959-1965.

Assistance provided: Advisory services through Zone II Office staff.

Work done: Data from baseline-nutrition surveys was analyzed and the results published. Training activities were successfully continued.

FAO, UNICEF

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MÉXICO-24 (-3104), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Public health administration (epidemiology)	United States of America	12
1	Ditto (tropical diseases)	England	9

WHO/UN-TA

MÉXICO-25 (-3103), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Industrial hygiene	Perú	2
2	Public health administration (health planning)	Chile	3½
1	Ditto (vital statistics)	Ditto	16
1	Radiology (medical use of radioactive isotopes)	Ditto	7

PAHO/R

MÉXICO-26 (-2300), *Aedes aegypti* Eradication

Objective: To carry out the special investigation for certification of eradication.

Duration: 1959-1964.

Assistance provided: Separation expenses of sanitation inspectors.

Work done: This program was actually concluded in 1963, and only separation arrangements regarding international personnel were handled in 1964.

PAHO/R

MÉXICO-28 (-3300), Public Health Laboratories

Objective: To expand the services of the National Public Health Laboratory, with emphasis on the control of biological products, food, and drugs.

Probable duration: 1958-1964.

Assistance provided: Advisory services by personnel of Headquarters and Zone II Office, and the following fellowships:

Awards	Field of study	Country of study	Months
1	Production of pertussis vaccine	Canada, United States of America	3
1	Laboratory services (immunology)	United States of America	12

Work done: The reference services of control laboratories were used for various products manufactured in the country. Standard strains and reagents were

provided, as were materials for immunofluorescence tests and experimental animals for control tests. A serological study to determine the prevalence of rickettsioses in areas of exanthematous typhus was begun in cooperation with the University of Maryland, U.S.A.

PAHO/R

UNICEF

MÉXICO-29 (-0500), Leprosy Control

Objective: To develop a national leprosy control program based on modern methods and techniques.

Probable duration: 1960-1968.

Assistance provided: 1 leprologist, and advisory services by Headquarters staff.

Work done: The leprosy control activities in México were intensified in the first semester of 1964 as a result of the planning done in 1963 and of the reorganization of the zone units. In 3 zone units the technical guidance and supervision of field work was improved through the addition of 3 epidemiologists recently graduated from the School of Public Health. The area that includes the States of Querétaro, Guanajuato, and Michoacán, which has the highest leprosy prevalence in the country, was strengthened by the opening of an office in the Celaya Health Center.

Program leaders issued a monthly bulletin (on activities and technical information) which is distributed to all personnel and public health officers in endemic areas. Meetings were held with the medical officers and nurses of dermatology centers and mobile brigades for the purpose of discussing various aspects of working standards and procedures, preparing programs, and setting dates for visits to localities where there were patients. Several centers and brigades established target figures for their own programs.

During the first half of 1964, five new physicians who had completed dermatoleprology training at the Pascua Dermatological Center and 1 month of field practice were appointed chiefs of mobile brigades. A 6-day course in dermatoleprology was given at Morelia, Michoacán, for 10 medical officers in charge of health centers in that State. An additional 2 courses were given as follows: one in Guadalajara, for heads of health care centers in Jalisco State, and another in Celaya, for medical officers of the States of Guanajuato, Aguascalientes, Zacatecas, and Querétaro.

The 1,132 new leprosy cases detected raised the registered total, up to 31 December to 14,448, of which 9,150 (63.33 percent) were under control. Clinical forms of the disease and patient status as to control or not were

as follows: lepromatous, 5,096 and 2,416; tuberculoid, 1,828 and 1,437; and indeterminate, 2,226 and 1,445.

The health education of leprosy patients and their contacts was intensified. In the first quarter of the year, 626 interviews were held with key citizens in the communities, 220 talks were given to organized groups, and 155 lectures were given on various aspects of the disease and on the management of leprosy patients.

WHO/R

UNICEF

MÉXICO-30 (-6100), School of Public Health

Objective: To develop and broaden the scholastic and practice areas of the teaching program of the School of Public Health of the Ministry of Health and Welfare.

Probable duration: 1954.

Assistance provided: Advisory services by Headquarters and Zone II Office staff.

Work done: The School conducted five 11-month courses: 1 course on public health administration, leading to Master's degree, with 51 professionals attending; 1 on public health engineering, with 6 engineers; 1 on environmental sanitation, for 7 technicians; 1 on nutrition with 11 students; and 1 on statistics, for 12 statisticians.

MÉXICO-32 (-6200), Medical Education

Objective: To improve medical education, especially by providing the teaching staff with training in the preventive and social aspects of medical practice.

Probable duration: 1958.

Assistance provided: Advisory services by Headquarters personnel; publications on medical education; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Organization of medical education	Chile	½
1	Ditto (clinical training)	Brazil, Chile, Colombia	2
1	Ditto (biochemistry)	Argentina, Brazil, Chile, Costa Rica, Perú	1
1	Ditto (teaching of preventive medicine)	Brazil, Chile, Colombia	1½
1	Ditto (pediatrics)	Argentina, Brazil, Chile, Colombia, Guatemala, Perú, Venezuela	2¾

Work done: The School of Medicine of the University of Nuevo León, in Monterrey, began to reorganize the teaching of preventive medicine and public health and of clinical medicine. The possibility of the School serving as a center for the training of teaching staff in the basic sciences, a project which would be conducted in conjunction with PAHO/WHO and the W. K. Kellogg Foundation, was explored.

WHO/R

MÉXICO-34 (-6500), Teaching of Public Health in the School of Veterinary Medicine

Objective: To strengthen the teaching at the School of Veterinary Medicine and Zootechnics of the National Autonomous University of México, with special emphasis on the teaching of preventive medicine and public health.

Probable duration: 1958-1967.

Assistance provided: Advisory services by personnel of the El Paso Field Office and of Zone III Office.

Work done: A course on rabies epidemiology, held from 27 April to 7 May, was attended by Government officials and professors of several Schools of the University. In connection with this course, PAHO/WHO provided the School with biological reagents, films, and technical publications, including the final report of the Seminar on the Teaching of Preventive Medicine and Public Health at Schools of Veterinary Medicine (PAHO Scientific Publication 96).

MÉXICO-35 (-6400), Environmental Sanitation Training

Objective: To organize in the School of Sanitary Engineering of the National Autonomous University of México (Federal District) and in the School of Engineering of the University of Nuevo León (Monterrey) courses in sanitary engineering and in public health, for graduate engineers.

Probable duration: 1961-1967.

Assistance provided: Advisory services by personnel of Zone II Office and of other projects in the country.

Work done: Regular postgraduate as well as short courses continued to be held at the School of Engineering of the National Autonomous University of México and at the School of Engineering at the University of Nuevo León in Monterrey. At the National Autonomous University, 16 engineers completed the regular

VIII. PROJECT ACTIVITIES

sanitary engineering course. A short course to train waterworks operators was attended by 12 students; and a course on water chlorination techniques, by 31 students. At the University of Nuevo León a short course on water treatment plants was attended by 15 students; and a course for engineers, by 13 students.

MÉXICO-38 (-0400), Tuberculosis Control

Objective: To carry out a series of epidemiological surveys in selected areas of the country; and to establish in the State of Querétaro a demonstration area to show the applicability and effectiveness of tuberculosis control measures.

Probable duration: 1960-1968.

Assistance provided: 1 medical officer.

Work done: Activities in the localities of Pedro Escobedo, Huimilpan, and Villa Corregidora, State of Querétaro, within the demonstration area, were begun in September, but experience showed that the permanent health services were not sufficiently prepared to receive, treat, and supervise the tuberculosis patients referred to them. A complete list of forms and the technical and administrative operations manuals needed were prepared. The preparation of adequate plans of operation and the training of personnel took a certain amount of time because a model area was desired. By November, 28,481 tuberculin tests had been made, 4,079 X-rays taken, and 126 cases discovered. Follow-up of these cases had not been satisfactory because of the reason indicated. In the remainder of the country 377,120 persons and 40,613 contacts were examined, 455,896 photofluorograms were made and 256,919 persons were vaccinated with BCG.

WHO/R

UNICEF

MÉXICO-39 (-2200), Water supplies

Objective: To plan a national water supply program.

Probable duration: 1961-

Assistance provided: 1 sanitary engineer and advisory services by staff of Zone II Office and of other projects in the country.

Work done: 42 urban water supply systems were built and 23 were in progress; the 65 localities have a combined population of about 2 million. Of the \$23.3 million invested in these urban systems \$9.2 million came from an IADB loan for the construction of 12 water supply systems in Yucatán.

The Ministry of Water Resources built 49 water supply systems and had 13 others under construction, to serve a population of 69,124 at a cost of \$1,120,000.

Ten sewerage systems were built at a cost of \$2,170,000.

The Ministry of Water Resources was provided with advisory services on service administration in connection with its study of duties of members of the Guanaajuato State Water Board, which was being organized.

PAHO/CWSF

MÉXICO-53 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1970, year when the consolidation phase is expected to be completed.

Assistance provided: 1 medical officer, 2 malariologists, 1 sanitary engineer, and 2 sanitation inspectors; antimalarial drugs; and a grant, specifically for the treatment of malaria cases in an experimental area where transmission persisted despite the fact that the vector continued to be susceptible to the insecticide.

Work done: 51 percent of the malarious area, with 61 percent of its population, was in consolidation phase; an additional 14 percent of the population was living in areas undergoing focal or protective spraying and considered to be in consolidation phase.

The problem areas, however, still persisted, so during 1964 the Government and the Organization signed an agreement to initiate applied research activities on continuing transmission in México. The Pilot Plan of Integrated Attack begun in September in Oaxaca consisted of: investigation of the effects of thrice-yearly spraying of the entire surface of an interior wall, up to 6 meters if necessary, with 1 gram of DDT per square meter of surface; intensive monthly case-detecting; and radical treatment of cases and family contacts in the area. The radical treatment consists of administering primaquine on a 5-day plan for *P. vivax* and *malariae* infections and the usual chloroquine treatment for *P. falciparum* infections. Monthly blood smears will be made of all persons treated, beginning on the last day of treatment, to collect information of the percentage of relapses and reinfections. At the end of the year, the Government took over complete financing of activities.

Despite great efforts by the Government, it was not possible to provide sufficient resources for a simultaneous attack; this endangers maintenance- and consolidation-phase areas. The protection afforded by spray residuals from the previous attack phase is disappearing progressively, and dense migratory move-

ments of rural population from areas still infected with malaria continuously introduce the seeds of new outbreaks into already cleared areas.

House spraying operations were as follows: complete 1st, 2nd, and 3rd 4-monthly spraying cycles, covering 631,321, 658,333, and 340,983 houses; and the 15th and 16th semiannual spraying cycles, covering 1,394,356 and 1,279,362 houses. (In some areas, BHC was added to the DDT to combat bedbugs.)

Blood smears examined totaled 1,595,323 of which 13,405, or 0.84 percent, were positive; 833,491 of the smears examined and 1,683 of those found positive were from areas in consolidation phase.

PAHO/SMF, WHO/MAP, WHO/UN-TA UNICEF

**NETHERLANDS ANTILLES-5 (-2100),
Environmental Sanitation**

One 10-month fellowship for studies in environmental sanitation in the United States of America.

WHO/UN-TA

NICARAGUA-1 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1957-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 2 malariologists, 1 sanitary engineer, 1 entomologist, 2 sanitation inspectors, and, for the first half of the year, 1 entomological aide; antimalarial drugs and supplies and equipment.

Work done: Spraying operations were as follows: complete 11th and 12th DDT cycles, covering 55,884 and 37,139 houses; and complete 1st, 2nd, and 3rd malathion cycles, covering 8,473, 10,163 and 10,387 houses. Blood smears examined totaled 247,611, and 13,016, or 5.3 percent, were positive; 1,819 of the positive smears were from areas in consolidation phase.

Programs of collective treatment were continued on a moderate scale in several areas, and spraying with malathion on a 4-month schedule continued to be carried out in several coastal areas and 1 inland city. Collective drug treatment was extended to selected localities with 2 of the original malathion-sprayed areas, malathion alone having proved insufficient to interrupt transmission. Drug programs were terminated in 290 localities with 46,000 inhabitants, and additional localities elsewhere were brought under new programs of collective treatment. Larviciding was also being carried

out in several localities suitable to this type of attack.

A request for a long-term loan from AID to cover part of the costs of an adequate program of spraying, collective drug treatment, and larviciding over the next 3 years was in preparation.

Administrative problems continued to hamper the program.

PAHO/SMF

AID, UNICEF

NICARAGUA-3 (-3100), Public Health Services

Objective: To plan and carry out a National Health Plan that will serve as a basis for the planning and execution of specific programs.

Probable duration: 1963-1970.

Assistance provided: 1 medical adviser and 1 public health nurse; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Public health administration	México	10½
1	Ditto	Puerto Rico	11½
1	Ditto (tuberculosis)	México	10½
1	Tuberculosis (laboratory techniques)	Ditto	3

Work done: As part of the planned reorganization of the Ministry of Public Health, a Technical Council was established composed of all technical directors at the central level and under the chairmanship of the Minister. The Ministry was reorganized, and 6 policy-making directorates, each with a full-time director, were established at the national level: Health-sector Planning and Evaluation, Administration, Health Promotion, Health Protection, Health Restoration, and General Technical Services.

Regional and local health services were also established as peripheral units of action. The health-sector diagnosis of the country was completed, and the Directorate of Planning began to prepare the National Health Plan.

The country has 3,589 hospital beds available for a population of 1,536,240; 2,587 of the beds (72 percent) belong to hospitals under the National Board of Social Welfare, 845 (23.5 percent) are in privately owned hospitals, and 159 (4.5 percent) are set aside for military personnel. Hospital records for the first 10 months of the year showed 47,514 separations and 555,570 patient-days. During the same period all the health institutions handled 238,618 outpatient consultations, of which 115,513 (48.4 percent) were made at health centers and the remainder in outpatient departments of hospitals.

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The following immunizations were given during the year: smallpox, 187,310; DPT, 41,800; poliomyelitis, 50,400; typhoid, 87,690; and rabies 5,336.

Studies to supply water to 1,340 rural localities with an aggregate population of about 200,000 were completed. Ground water will be used in this program, by drilling 1,400 wells. Studies for the installation of systems to supply water to communities with more than 1,000 inhabitants were also underway; this will be a separate plan.

Ten health centers were built in several Departments of the country—part of a program to build 100 in the 1963-1973 decade. A School of Public Health Technical Auxiliaries, which will be responsible for training this type of personnel, was established.

The following courses were held: one 10-month course on health education, which was attended by 9 teachers; one 6-month course for environmental sanitation inspectors, attended by 20 students; one 3-month course on nursing administration and supervision, attended by 13 graduate nurses; one 6-month course for nursing auxiliaries, attended by 20 students; one 3-week nutrition course for teachers, attended by 120 rural teachers; one 10-day course on health planning, for professional health personnel; and one 5-day seminar on rural water supplies, attended by 20 engineers.

PAHO/R, WHO/R

NICARAGUA-5 (-6300), Nursing Education

Awards	Field of study	Place of study	Months
1	Nursing education	Puerto Rico	11½
1	Ditto (psychiatric nursing)	Ditto	11½
2	Public health nursing	Chile	10
1	Ditto	Guatemala	6½

PAHO/R

NICARAGUA-7 (-3101), Fellowships for Health Services

Awards	Field of study	Place of study	Duration
1	Organization of medical education	Colombia, Puerto Rico	3 weeks
1	Sanitary engineering	Colombia	2½ months

PAHO/R

NICARAGUA-8 (-0400), Tuberculosis Control

Objective: To organize in Chinandega and León a demonstration area for obtaining epidemiological data,

applying and evaluating practical methods of tuberculosis control, and training medical and auxiliary personnel for the gradual extension of the program to other areas of the country.

Probable duration: 1964-1968.

Assistance provided: Consultant services by the adviser of project AMRO-246.

Work done: 163 tuberculosis cases were detected, all of whom began treatment; 8 were lost to control, and 6 were hospitalized. Photofluorographic examination was made on 8,183 cases and X-ray examination on 634 other cases. A total of 158,765 tuberculin tests were read, 115,073 persons were vaccinated with BCG, and 150 sputum samples were examined by microscope.

From September to November a course was held for 25 medical officers of the León-Chinandega area and the health centers of Managua, and a short training course in tuberculin testing and BCG vaccination was attended by 45 nurses and health educators.

NICARAGUA-10 (-2200), Water Supplies

Objective: To plan a national water supply program; and to establish a central agency responsible for water and sewerage services.

Probable duration: 1963-1967.

Assistance provided: 1 sanitary engineer and advisory services by staff of Zone III Office; and two 1½-month fellowships for attendance at the Course for Waterworks Operators held in Costa Rica (see AMRO-17.7).

Work done: Efforts to organize a central water supply and sewerage authority continued. A draft program to provide water to 65 rural communities with a population of 67,000 at a cost of \$1 million, half of which will be requested from IADB, was prepared. Work was continued on the expansion of the Managua water supply system, for which a \$3 million loan was obtained from the World Bank.

The First National Seminar on Rural Water Supply Systems, sponsored by the School of Engineering in cooperation with the Organization, was held in Managua from 8 to 13 June with the attendance of 25 engineers from the official agencies responsible for the water supply program. A 5-month course for sanitation inspectors was attended by 18 students.

PAHO/CWSF

NICARAGUA-11 (-4200), Nutrition

Objective: To conduct an expanded nutrition program in a selected area of the country, including education and training activities, promotion of the production of highly nutritious foods, and improvement of the nutritional status of pregnant women, nursing mothers, pre-school and school children.

Probable duration: 1962-

Assistance provided: Advisory services by personnel of Headquarters, Zone III Office, and INCAP.

Work done: A course was conducted for nutrition auxiliaries and another for nutrition education supervisors. Educational material was distributed.

FAO, UNICEF**PANAMÁ-1 (-3100), National Health Services**

Objective: To prepare and put into practice a national health plan; to train the professional and auxiliary personnel needed; and to reorganize, improve, and extend health services coverage as stipulated in the national health plan.

Probable duration: 1952-1970.

Assistance provided: 2 medical advisers, 1 public health veterinarian, and 1 sanitary engineer; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Public health administration (epidemiology)	Chile	10
1	Sanitary engineering	Puerto Rico, United States of America	2

Work done: As an initial step towards establishing a permanent health-planning agency at the national level, a Planning and Administration Working Group was appointed, headed by an expert specialized in health planning. The Group reviewed the targets for 1964 and the Rural Development Plan. A Short Course on Health Planning and Economic and Social Development was held for 6 officials of the Ministry of Labor, Social Welfare, and Public Health.

The National Directorate of Health was reorganized by grouping its 20 technical sections into 3 divisions: General Programs; Special Programs; and Local Health Services. A Division of Planning and Administration will be added later. The reorganization of the Food and Drug Section was continued, and training was given to its personnel.

Six health centers were established, 3 of them with

pediatric stations equipped with 2 beds each, and 1 with a pediatric and maternal station with 12 beds.

An evaluation was made of the applied nutrition program being conducted in the 4 central Provinces of the country. The program encompasses 41 schools with 480 teachers and 11,180 children as well as the communities in which the schools and the health units of the area are located.

As a part of the National Directorate of Statistics and Census and with the participation of the health authorities, the first vital statistics registration area in Panamá was established in the pilot area of Penonomé. The population of the pilot area was estimated at 72,023 inhabitants in 1964. During the year, there were 3,614 births of which 26.1 percent were attended by trained persons (21.8 percent in 1963); and 25.9 percent of all deaths had medical certification (15.8 percent in 1963). Five new health posts (with regular medical visits) raised the total number of health posts in the area to 11; and 6 mobile units were added, for a total of 8.

Also during the year, 4,758 persons were vaccinated against smallpox, representing 6.6 percent of the total population of the area. Of the estimated 35,933 children under 15 years of age, 5,186, or 14.4 percent, were given the DPT vaccine.

During the first 10 months of the year, 219 wells with hand pumps, and 617 latrines, were built, and another 369 latrines were improved.

The following courses were held: in nursing, for 52 students; in midwifery, for 10 students; in environmental sanitation, for 11 sanitation inspectors; for nursing auxiliaries, with 34 students; and for laboratory technicians, with 9 persons. Inservice training was given to 8 physicians, 5 nurses, 150 nursing auxiliaries, 2 laboratory technicians, and 1 nutritionist.

PAHO/R, WHO/UN-TA**UNICEF****PANAMÁ-2 (-0200), Malaria Eradication**

Objective: To eradicate malaria.

Probable duration: 1956-1970, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist, 1 sanitary engineer, 1 entomologist, 3 sanitation inspectors, and the services of 1 administrative methods officer (see AMRO-118; and equipment and supplies.

Work done: 128,741 houses were sprayed to finish the 4th cycle; the complete 5th cycle covered 203,054

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houses. Blood smears examined totaled 131,887; 1,804, or 1.4 percent, were positive.

Experimental spraying with dieldrin in semiannual cycles was undertaken on a pilot scale in one area in which the excito-repellency of the vector to DDT is considered to be the cause of transmission persistency.

Administrative and financial difficulties hampered field work and progress of the campaign.

PAHO/SMF

UNICEF

PANAMÁ-7 (-3101), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Clinical and social pediatrics	Chile	3
1	Food and drug control	Canada	1½
2	Ditto	Ditto	2½
1	Ditto	Brazil	3
1	Ditto	Ditto	2
1	Ditto (chromatography)	Canada	4¼
1	Public health administration (hospital administration)	Chile	16
1	Sanitary engineering	United States of America	3

WHO/R

PANAMÁ-8 (-3102), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Industrial hygiene	Chile	6
1	Public health administration (health planning)	Ditto	3½
1	Ditto (maternal and child health)	Chile	10
1	Public health nursing	Guatemala	8
1	Sanitary engineering	Colombia	2½

PAHO/R

PANAMÁ-9 (-2200), Water Supplies

Objective: To organize a national water supply and sewerage authority; and to develop a national water supply program.

Probable duration: 1960-

Assistance provided: Advisory services by staff of Zone III Office and of other projects in the country; and two 1½-month fellowships for attendance at the Course for Waterworks Operators held in Costa Rica (see AMRO-17.7).

Work done: The National Water Supply and Sewerage Institute studied the various aspects of the water

program, particularly a loan request for submittal to IADB for a program of water supplies in rural areas. The whole 6-year plan covers 100 localities with a population of 96,000; the initial 2-year phase, for 29 systems serving 35,000 persons, will be financed by the Government and an IADB loan of \$500,000. At David and Chitré, fluoridation equipment was installed in the water plants which serve populations of 26,000 and 16,000.

The first short course on water quality control given at the School of Engineering of the National University of Panamá was attended by 10 engineers of the Institute.

PAHO/CWSF

PANAMÁ-10 (-4800), Planning and Organization of Hospital Services

Objective: To study the operation of medical care services in the country; to establish a hospital network in the country; and to improve the administration of existing hospitals and other inpatient institutions.

Probable duration: 1962-1966.

This program was made part of project AMRO-303.

PANAMÁ-11 (-4200), Nutrition

Objective: To conduct an expanded nutrition program in a selected area of the country.

Probable duration: 1962-1966.

Assistance provided: Advisory services through INCAP personnel.

Work done: A comprehensive dietary and nutrition survey was made in 4 Provinces in the Central Region. Training in nutrition education activities was given for home economics supervisors. The production and distribution of INCAPARINA on a commercial scale was promoted, and pertinent educational material was distributed.

FAO, UNICEF

PANAMÁ-13 (-0500), Leprosy Control

Objective: To study the problem of leprosy in the country; and to organize, conduct, and evaluate a national leprosy control program based on modern methods and procedures.

Probable duration: 1961-1967.

Assistance provided: Consultant services by the advisers of projects AMRO-202 and AMRO-203.

Work done: Precise working standards were established and their application yielded a better control over patients and contacts, treatment, and active case-finding. Courses on leprosy were attended by 50 physicians and 56 medical students in their final year.

At 15 November the recorded leprosy cases numbered 178, of which 136 were under control. Records show that 118 cases were males and 174 were over 15 years of age. The clinical forms were: lepromatous, 59; tuberculoid, 82; indeterminate, 4; and other, 33. There were 103 hospitalized cases, 38 cases under ambulatory treatment, and 37 cases not receiving treatment of any kind. The number of registered contacts was 725, of which 613 were under supervision.

UNICEF

PANAMÁ-14 (-0400), Tuberculosis Control

Objective: To develop in the Provinces of the Central Region of the country a tuberculosis control program integrated with the local health services; and to expand and improve the control programs in the other two regions, insofar as it is justified by the progress of the Central Region program.

Probable duration: 1963-1969.

Assistance provided: Consultant services by the adviser of project AMRO-246 and by the Regional Adviser.

Work done: The program was extended beyond the initial working area to include the areas of La Chorrera and Colón, and during the second half of the year work was begun in the area of Chiriquí.

Of 1,997 cases of tuberculosis detected, 1,724 began treatment and 326 were lost to control. A total of 6,691 persons completed 12 months of treatment. X rays were made on 30,131 persons, 76,051 tuberculin tests were read, and 48,696 persons were vaccinated with BCG. The laboratory performed 6,947 sputum tests—3,125 of the samples were placed directly under the microscope, 2,578 were first centrifuged, and 1,244 were cultured.

UNICEF

PARAGUAY-1 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1961-1970, year when it is expected that the consolidation phase will be completed.

Assistance provided: 1 sanitary inspector.

Work done: A new plan of operations was completed; it includes the entomological mapping of the vectors present in the various parts of the malarious area. *Anopheles darlingi* was found in all Departments, and *A. albivittatus* was also present with high indoor density in some areas.

An intensive outbreak of malaria occurred in the Department of Caaguazú. The outbreak was controlled by mass drug treatment, implemented by house-to-house visits by evaluators distributing drugs. Geographical reconnaissance of the entire area carried out by the division of spraying operations marked the beginning of actual implementation of the new plan of operations.

Progress was slow and no date can be predicted for the completion of reconnaissance work and actual initiation of the attack phase. The volunteer-collaborator network established since before the program was interrupted in 1961 has been maintained. Blood smears collected and examined in 1964 totaled 103,169, among which 8,851, or 8.6 percent, were positive.

PAHO/SMF

AID, UNICEF

PARAGUAY-9 (-0500), Leprosy Control

Objective: To formulate and develop a national leprosy control program based on modern techniques and procedures.

Probable duration: 1957-1964.

Assistance provided: Consultant services by the adviser of project AMRO-305, by Headquarters and Zone VI Office staff, and by staff of other projects in the country.

Work done: This program was intended to detect 80 percent of the cases in the country; to provide regular control and treatment of 80 percent of all diagnosed cases long enough to achieve cure or at least render them bacteriologically negative; to maintain under surveillance and periodic control 80 percent of contacts, priority being given to contacts of open foci; and to promote the physical and social rehabilitation of patients so as to return them to community life.

Although the quantitative data available at the end of the year was incomplete, partial reports revealed that patient control in Health Area II ranged from 60 percent to 80 percent and that contact control was far below the expected figures. The percentage of patients under control in Health Area III exceeded the established target of 80 percent, except in 3 health centers. Contact control in the various health centers ranged from 8 percent to 47 percent. Among the 215 con-

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tacts examined, 4 new cases (2 percent) were detected, while the examination of 2,162 apparently healthy persons revealed 1 case (0.04 percent). In Health Area IV the patient control was excellent and in every case exceeded the target established by the area program; contact control had clearly improved and antileprosy activities had been extended to almost the entire Area. During the first half of the year, 5,340 apparently healthy persons were examined, and 2 cases (0.37 per thousand) were found; however, among 201 contacts examined, 6 cases (30 per thousand) were found.

To enable health centers to gradually take over leprosy control activities, cooperation was given in the training of auxiliary personnel. The regional leprologists centered their activities on personnel training, the search for cases and contacts who do not resort to health centers, and the differential diagnosis of doubtful cases.

UNICEF

PARAGUAY-10 (-3100), Health Services

Objective: To plan a ten-year health program as an integral part of the national plan for economic and social development of the country; to develop integrated health services throughout the country; and to train professional and auxiliary personnel.

Probable duration: 1955-1966.

Assistance provided: 1 medical officer, 1 sanitary engineer, and 1 public health nurse; and the following fellowships:

Awards	Field of study	Country of study	Months
2	Public health administration	Brazil	11
1	Ditto (maternal and child health)	México	10½

Work done: Emphasis was placed on the collection of basic data to formulate a diagnosis of the country's health situation; on this basis a 2-year health plan was formulated, setting targets and objectives for the 1965-1966 period. The targets for each health center were established through functional budgets. The Ministry of Public Health and Social Welfare had underway the preparation of a program budget, in accordance with guidelines provided by the National Planning Board. To this end, administrative personnel at the central level visited several countries to familiarize themselves with the practical aspects of this type of budget. In addition to the 2-year health plan, there are other specific plans for expanding the services to newly settled areas, especially in the Departments of Caaguazú and Alto Paraná. Studies were also concluded on the completion

and equipping of 16 health centers in different areas of the country.

At the central level, an office of International Affairs was established, as were several technical-adviser posts, and a Directorate of Health Regions Coordination; the Capital and its environs were designated Health Zone V. The Ministry of Public Health and Social Welfare and the Institute of Social Security reached an agreement aimed at preventing duplication of efforts and better utilization of resources in several localities in the interior of the country.

A plan of work was prepared for the communicable disease control program; training courses were given for the physicians, nurses, and administrative personnel who will participate in the program; and the system of data collection, tabulation, and presentation was established.

A poliomyelitis vaccination program with trivalent oral vaccine was conducted in Asunción, and 50,000 children under 6 years of age were immunized.

A national plan to improve vital and health statistics was prepared for submittal to the consideration of international cooperation agencies. The 1963 statistical reports of health centers and health posts, including hospital and communicable disease statistics, were published. The publication by health centers of a weekly bulletin on communicable diseases was begun.

As to environmental sanitation, an evaluation was made of the work performed during the 1959-1963 period, and on the basis of the findings a minimum program to be developed in 1965 and 1966 was prepared. The program includes such activities as the provision of water supply for small localities, including well-drilling, and construction and repair of latrines.

Efforts were continued to improve the organization of nursing services, especially those at the health centers. The time-study on the work of nursing auxiliaries and the estimates on nursing and midwifery needs for the next 10 years were completed. Chief nurses were appointed to Health Region V and to Health Center No. 1.

At the end of the year, a census of the existing medical care resources was underway and a plan for medical care in new settlement areas had been prepared.

The following courses were locally conducted: on communicable disease control, one course for 20 physicians and another for 20 nurses; one course on the administrative aspects of communicable disease control, for 14 statisticians; a refresher course on nursing, for 22 nurses and a similar one for 20 midwives; a training course for nursing auxiliaries was attended by 44 stu-

dents; and a course for personnel working in child care institutions, by 46 persons.

WHO/UN-TA**UNICEF****PARAGUAY-12 (-3101), Fellowships for Health Services**

Awards	Field of study	Country of study	Months
1	Clinical and social pediatrics	Chile	3
1	Public health administration (maternal and child health)	Ditto	10

WHO/R**PARAGUAY-13 (-3102), Fellowships for Health Services**

Awards	Field of study	Place of study	Months
1	Clinical and social pediatrics	Chile	1
1	Health education	Ditto	12
1	Medical librarianship	Colombia	6¼
1	Nursing education and midwifery	Puerto Rico	12½
2	Public health administration	Brazil	11
1	Ditto	Chile	10
1	Ditto	México	10½
2	Ditto (administrative methods)	Chile, Colombia, Perú	3
1	Ditto (health education)	Chile	12
1	Ditto (health planning)	Ditto	3½
2	Public health nursing	Ditto	10
2	Tuberculosis	Argentina	2
1	Vital and health statistics	Ditto	9¼

PAHO/R**PARAGUAY-18 (-4200), Nutrition**

Objective: To develop an expanded nutrition program in a selected area of the country, including education and training activities, promotion of the production of highly nutritious foods, and improvement of the nutritional status of pregnant women, nursing mothers, preschool and school children.

Probable duration: 1960-1966.

Assistance provided: Advisory services by staff of Headquarters, of Zone VI Office, and of project Paraguay-10.

Work done: Agricultural tools and wire fencing were distributed to 138 schools, each of which has a vegetable garden; carpentry tools were provided to 136 schools; chicks to 42; sewing machines to 127. The 138 schools have both school clubs and extracurricular clubs, as well as community committees; and 131

schools have well water. Vitamins A and D—366 boxes of 1,000 tablets each—and iron sulphate—794 bottles of 1,000 tablets each—were distributed.

Training courses were given for 30 agronomists, 132 home educators, 107 arts-and-crafts teachers, 291 community leaders, 320 elementary school teachers, and 90 headmasters of elementary schools.

Approximately 50 percent of the population is served by the program, including 200,000 school children.

The Nutrition Department of the Ministry of Public Health and Social Welfare prepared a work document on the diagnosis of the nutrition situation, which served as the basis for formulating the pertinent part of the two-year health plan of the country. The document describes the nutrition status of the population, summarizes the survey on nutrition and dietary habits, and analyzes the availability of foodstuffs.

FAO, UNICEF**PARAGUAY-19 (-2200), Water Supplies**

Objective: To plan and carry out a national water supply program.

Probable duration: 1961-1966.

Assistance provided: Advisory services by staff of Zone VI Office.

Work done: The National Autonomous Sanitation Service had in preparation a national water supply program, the first stage of which calls for the construction of water supply systems in 3 cities with a population ranging from 5,000 to 20,000 and for other systems to serve 30,000 persons living in localities with a population of from 100 to 5,000. A possible request to IADB to finance part of this program was also being studied by the Service.

During the year, 16,831 homes in Asunción were connected to the city's water supply service. The rate of sewer construction in Asunción averaged 2,000 meters per month up to 31 July, at which time 43 percent of the city's population had sewage disposal service.

PARAGUAY-20 (-6300), Education in Nursing and Midwifery

Objective: To strengthen and broaden the teaching of nursing and obstetrics at the Andrés Barbero Institute, in order to give nurses and midwives scholastic and practical training adequate for the development of the health services of the country.

Probable duration: 1964-1969.

Assistance provided: Consultation services by the nurses assigned to AMRO-294 and to Paraguay-10.

Work done: Two 3-month refresher courses were organized, one for 17 nurses and the other for 20 midwives. A manual of nursing procedures for the training of auxiliaries was prepared. Four nurses completed the postgraduate course in midwifery, 19 nurses were graduated, and 35 students were admitted to the first year; 44 nursing auxiliaries were trained.

UN, UNICEF

PERÚ-5 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1956-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 1 malariologist (and a second one during part of the year), 1 sanitary engineer, and 5 sanitation inspectors; antimalarial drugs.

Work done: Canta, Huarochirí, and Lima Provinces, in the Department of Lima, finished their 4th year in consolidation phase without the discovery of any autochthonous cases. But other areas in consolidation phase had 2 serious outbreaks—one was in the Yauca Valley, Department Ayacucho, on the western slope, with 110 cases in all; the other was in the San Lorenzo development in the Department of Piura where, including the cases that occurred in adjacent villages, the total reached 83. Insufficient or tardy surveillance operations may have been the reason why these outbreaks attained such proportions before they were brought under control.

An outbreak of 18 cases occurred in a consolidation-phase area on the eastern slope, in Ongay, Department of Madre de Dios. The population in this area is highly unstable, living mainly in nonmalarious areas in the neighboring mountains and visiting the malarious areas along the river beds only seasonally, to plant or harvest. Eleven of the 18 cases were discovered in nonmalarious areas. An additional focus was found near the city of Sandia, in the adjacent Department of Puno, but all 4 cases discovered were imported from Madre de Dios Department.

The officials in charge initiated administrative changes in an effort to improve program efficiency.

PAHO/SMF

AID, UNICEF

PERÚ-8 (-0900), Plague Control

Objective: To assist the Government in planning and carrying out an epidemiological study of the problem of plague in the country and in establishing a control program.

Probable duration: 1963-1967.

Assistance provided: 1 short-term consultant and advisory services by personnel from Headquarters.

Work done: One of the consultants assisted the national health authorities in the preparation of a plague control plan which was undergoing revision at the end of 1964. The other consultants studied with the health authorities a program for epidemiological studies regarding plague; a proposal was developed.

PAHO/R

PERÚ-15 (-6300), Nursing Education

Objective: To improve basic nursing education by organizing schools of nursing within the existing universities.

Probable duration: 1959-1968.

Assistance provided: 1 nurse educator, and one 3-month fellowship to study public health nursing (administration and supervision) in Brazil and Colombia.

Work done: Schools of nursing were created in 4 universities.

A 9-day seminar, on the organization and management of schools of nursing, was held for top university and health officials and nurses in charge of university programs in nursing. Forty-two participants and 2 observers from Colombia attended. The topics discussed included organization, budget, faculty, students, curriculum, and physical facilities.

WHO/R

PERÚ-18 (-6400), School of Engineering

Objective: To revise the curriculum of the School of Sanitary Engineering of the National University of Engineering; and to organize courses on subjects bearing on water supply and sewerage.

Probable duration: 1964-1967.

Assistance provided: Advisory services by personnel of Zone IV Office and of other projects in the country.

Work done: The first intensive short course on water supply projects was attended by 33 engineers from Perú and other countries.

PERÚ-21 (-3101), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Hospital administration	Chile, El Salvador, México, Venezuela	2½
1	Occupational health	United States of America	9
1	Organization of medical education (pediatrics)	México	12
1	Ditto (teaching of microbiology)	Brazil, Chile, Colombia	3
1	Organization of public health laboratories	Argentina, Brazil, Chile, Colombia, México, United States of America	1¾
1	Ditto	Brazil, Puerto Rico, Venezuela	4
1	Public health nutrition	Guatemala	2½
1	Sanitary engineering (observation of integrated health services)	Colombia, Puerto Rico, Venezuela	1¾

WHO/R**PERÚ-22 (-3100), National Health Services**

Objective: To improve health services at the national, regional, and local levels; and to organize health areas beginning with the Junín Health Area.

Probable duration: 1956-1967.

Assistance provided: 1 medical adviser, 1 sanitary engineer, and 1 public health nurse; supplies and equipment; and the following fellowships:

Awards	Field of study	Country of study	Months
1	Organization of dental education (public health dentistry)	Brazil	11
1	Public health administration (epidemiology)	Ditto	11
1	Ditto (industrial health)	Chile	13
1	Ditto (veterinary public health)	Brazil	11

Work done: The Junín Health Area has a population of 530,663, of which 47 percent live in urban areas and 53 percent in rural areas. The average population density is 11.1 persons per km².

The results of an evaluation of the work done in 1963 in the health units of Huancayo, Jauja, and Tarma served as the basis for revising the plan of operations of the Health Area for the 5-year period 1963-1967.

Three new health posts were established: one mobile, which serves 7 rural communities weekly, and 2 static, staffed with resident nursing auxiliaries who are periodically visited by the staff of the Health Center team to which they are attached. An obstetrical service was started at the Jauja Health Center Hospital.

In rural sanitation, 2 water supply systems were built (of a planned total of 15), work was begun on 3 more, and studies and plans for another 7 were completed; 11 wells were installed and work was begun on 12 more; it had been expected to benefit 14,500 persons, but only 1,900 were benefited, or 13 percent of the goal. The total rural population benefiting from these works was 0.6 percent out of an anticipated 4.5 percent.

Five thousand meters of sewer pipes were installed in Sicaya. Privies completed totaled 339, out of 2,060 planned; 2,200 persons were benefited, or 20 percent of the planned total of 11,100. This benefited 0.6 percent of the total rural population out of the established goal for the year of 3.5 percent. Work on another 557 privies was begun. The IADB approved a loan for \$1.65 million for water supplies for 150 rural localities in 6 Departments.

Out of 26,500 pregnant women, consultation services were given to 3,029, or 11 percent of the 12 percent target established for the year. The average number of consultations per pregnant woman was 1.7; the target was 2. Health service personnel attended 1,197, or 4.5 percent, of all births.

A 14.7 percent child checkup target was established for children in the 0 to 5 years of age group with an average of 2.7 consultations per child; the actual number of consultations was 14,909, or 14.2 percent, with an average of 2.6 consultations per child. Of the children checked, 6,925 were under 1 year of age, or 35 percent of the total of that age group.

Checkups were given to 9.4 percent, or 7,984 of all preschool-age children, with an average of 2.6 consultations per child. Of the schoolage children, checkups were made on 4,502, or 4.6 percent of the total; the established target was 3.9 percent, with an average of 1.2 consultations per school child.

There were 683 hospital beds in the area, or 1.3 per 1,000 population. The occupancy rate rose to 73.8 percent (from 60 percent in 1963), and the average occupancy was 24.5 days. The average number of consultations per inhabitant per year, which had been estimated at 0.17, was 0.21. The number of outpatient consultations per separation was 15.4.

It had been planned to vaccinate 22.6 percent, or 120,226 persons, against smallpox; the number vaccinated was 150,139, or 28.3 percent. The target for diphtheria and whooping cough vaccinations was 16 percent of all children under 6 years of age, or 16,611, but only 6,327 children, or 6 percent, were vaccinated. The plan called for 318 dogs to be vaccinated against rabies in Huancayo and Jauja (or 10 percent of the esti-

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mated total) but only 127, or 4 percent, were vaccinated. The target for dogs destroyed was 54 percent of the total 23,876, but the number actually destroyed was 17,983, or 40.7 percent.

A course on water supply was conducted for 30 engineers. Inservice training was planned and held for midwives in Tarma and for nursing auxiliaries in Huancayo. A summer course, including health practice and theory sessions, was held for rural teachers, in order to have them participate in the health plan of the Area. Chats on medical and health statistics were given at the Health Center Hospitals of Huancayo and La Oroya. A 3-month course for nursing auxiliaries was given for 20 students. The target for the year was to train 121 persons, but only 79, or 65 percent, were trained.

PAHO/R, WHO/UN-TA

UNICEF

PERÚ-23 (-3102), Andean Region Development Program

Objective: To promote the economic and social development and the health of the indigenous populations of the Andean Highlands so as to facilitate their integration into the national community.

Probable duration: 1955.

Assistance provided: 1 visit of the adviser of project Bolivia-11; and consultant services by the adviser of project Ecuador-22.

Work done: Premises for the Taraco health center and the Plateria health post were built; 12 sanitary posts (physician in attendance once a week) were equipped, and 3 health posts (physician in attendance every day) were established; and the construction of San Juan del Oro Hospital was begun.

A total of 57,917 persons, or 57 percent of the estimated population of the area, were vaccinated against smallpox. The construction of a workshop to facilitate environmental sanitation activities was begun. An expanded nutrition program was conducted in 61 of the 96 rural schools in the area.

Obstetrical services were not used as widely as expected; only 10 percent of the target for prenatal consultations was reached, and the figures for births attended and infant checkups were even lower.

WHO/UN-TA FAO, ILO, UN, UNESCO, UNICEF

PERÚ-25 (-3103), Fellowships for Health Services

Awards	Field of study	Place of study	Months
2	Clinical and social pediatrics	Chile	1
1	Medical librarianship	Colombia	6½
1	Organization of medical education (clinical radio-diagnosis)	Brazil	8
1	Ditto (plastic surgery and treatment of burns)	Ditto	8
1	Ditto (psychiatry)	Canada, United States of America	1½
1	Organization of veterinary public health teaching (radiation)	United States of America	3
2	Public health administration (health planning)	Chile	3½
1	Sanitary engineering (water supply)	México, Puerto Rico, Venezuela	1¾

PAHO/R

PERÚ-29 (-0401), Tuberculosis Control (Tacna)

Objective: To establish in the Tacna health area a demonstration area for the application and evaluation of practical methods of tuberculosis control and for training medical and auxiliary personnel, in order to extend the program gradually to other areas of the country.

Probable duration: 1961-1966.

Assistance provided: Consultant services by the adviser of project AMRO-316.

Work done: From January to June, 2,083 tuberculin tests were read, 7,258 X-ray examinations taken, and 338 cases discovered; 63 percent of the persons examined completed their tests, but followup of the cases under treatment was deficient due to administrative difficulties.

UNICEF

PERÚ-29A (-0402), Tuberculosis Control (Junín)

Objective: To develop a tuberculosis control program in the Province of Huancayo, Department of Junín, including the training of professional and auxiliary personnel.

Probable duration: 1964-1965.

Assistance provided: Consultant services by the adviser of project AMRO-316.

Work done: The Plan of Operations was signed in October and at year's end the arrival of laboratory supplies and equipment was expected, in order to begin activities.

UNICEF

PERÚ-30 (-2200), Water Supplies

Objective: To plan, organize, and develop a national program for the construction or extension of water supply and sewerage services, including their administration and operation.

Probable duration: 1960-1965.

Assistance provided: 1 sanitary engineer and advisory services by staff of Zone IV Office; and the following fellowships:

Awards	Field of study	Place of study	Months
1	Environmental sanitation	Colombia	2½
1	Sanitary engineering (water supply systems)	Colombia, Puerto Rico	¾
2	Ditto	Colombia, México, Puerto Rico	1

Work done: A draft for a national water supply program to benefit 69 communities at a cost of approximately \$4.5 million was prepared by the Ministry of Development and Public Works for submittal to the IADB. Specifications were prepared for invitations to bid on water supply and sewage disposal projects for 9 of the larger cities in the interior and the coastal area of the country. A draft of a law to create an Institute of Sanitary Works, an autonomous body which will be responsible for the water supply and sewerage services of the entire country, was sent to Congress.

PAHO/CWSF, WHO/UN-TA

IABD

PERÚ-31 (-6200), Medical Education

Objective: To improve the medical education programs of the Schools of Medicine through adequate planning, not only of teaching activities but also of scientific research, and by improving the organization and administration of the Schools.

Probable duration: 1964.

Assistance provided: 1 short-term consultant; publications on medical education; and 2 fellowships, of ½ month each, to study organization of medical education in Chile.

Work done: The authorities of the 5 Schools of Medicine in Perú were provided with advisory services on the organization and administration of medical teaching programs, in preparation for the First Seminar on Medical Education in Perú.

PAHO/R

PERÚ-32 (-4101), Infantile Diarrhea and Malnutrition

Objective: To study the nature of the water metabolism and electrolyte changes in children suffering from diarrhea and malnutrition and to determine the best therapy for such children.

Probable duration: 1960-1965.

Assistance provided: Management of administrative and financial aspects of the grant.

Work done: Research continued at the Anglo-American Hospital, in Lima, and in a group among a malnourished rural population. At the former, group metabolic and long-term followup studies were carried out; in the latter, a controlled trial of enriched noodles was underway. Findings were reported at 5 scientific meetings in North and South America and 4 reports were published in scientific journals.

PAHO/G: USPHS-NIH

PERÚ-33 (-6100), Training of Health Workers

Objective: To establish a School of Public Health in order to ensure adequate preparation of professional, technical, and auxiliary personnel for institutions that provide health services to the population.

Probable duration: 1963-1966.

Assistance provided: Consultant services by the nurse educator assigned to project Perú-15 and the adviser of project Colombia-24.

Work done: The School of Public Health was established and it conducted 4 courses for nursing auxiliaries (234 students), a course for sanitation inspectors (14 students), 2 courses in planning (15 students), a course for laboratory auxiliaries (18 students), a course in statistics at the intermediate level (21 students), a public health orientation course for social workers (13 students), a public health orientation course for rural interns (15 students), and a course in public health administration for physicians (26 students).

The following courses were begun: a 9-month course on advanced nursing, begun on 6 June (16 students); an 11-month course in nursing administration and supervision for hospital nurses, begun on 8 June (19 students); an 8-month course on hospital administration for physicians, begun on 1 September (8 students); a 6-month course for sanitation inspectors, begun on 14 September (17 students), and a 6-month course for nursing auxiliaries, begun on 1 November (40 students).

PAHO/R

UNICEF

VIII. PROJECT ACTIVITIES

PERÚ-35 (-2201), Rural Water Supplies

Objective: To provide water, during the current decade, to 50 percent of the country's rural population.

Probable duration: 1964-

Assistance provided: 1 short-term consultant.

Work done: An estimate was made of the population to be served. According to the estimate, 50 percent of the 1971 rural population will be 4 million inhabitants.

PAHO/G: IADB

SURINAM-1 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1957-1969, year when the consolidation phase is expected to be completed.

Assistance provided: 1 medical officer (who functions as director of the program), 1 health educator, 1 entomologist, 1 specialist in malaria, 2 sanitation inspectors, and advisory services by the Zone I malariologist (*see* AMRO-117); antimalarial drugs, and a limited quantity of imported supplies and equipment.

Work done: The coastal area, where 80 percent of the population lives, continued in consolidation phase.

Blood smears examined totaled 76,556; 1,681, or 2.2 percent, were positive.

Problems of refusals by the rural population continued to obstruct attack-phase operations in inland areas, and the death of an important chieftain temporarily interrupted activities over one large area. The creation of a new lake behind the recently constructed Brokopondo Dam gave rise to large population movements and increased hostility to Government operations, necessitating a halting of spraying in this region.

In an effort to increase rural acceptance of the program a pilot project made use of local inhabitants in each community to perform the required spraying. No technical problems arose, which augurs well.

A trial with medicated salt was under preparation as an alternative for areas with high rates of spraying-operation refusals.

PAHO/SMF

UNICEF

SURINAM-8 (-3101), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Laboratory services (medical technology)	Jamaica	4

1	Ditto (schistosomiasis)	Brazil, Puerto Rico, Venezuela	1
1	Ditto (virological serology)	Trinidad	6
1	Organization of medical education (maternal and child health)	Jamaica, Puerto Rico, Venezuela	2
1	Tuberculosis (BCG vaccination)	Venezuela	1

PAHO/R

SURINAM-10 (-2200), Water Supplies

Objective: To plan a rural water supply program for Surinam.

Probable duration: 1964-1966.

Assistance provided: 1 sanitary-engineering consultant and advisory services by personnel of Zone I Office.

Work done: The Public Works Department established a new rural water supply section and assigned an engineer with whom the PAHO consultant engineer works. A project proposal was prepared for a rural water supply program and was submitted to UNICEF for assistance with materials and equipment.

The situation regarding water supplies at the end of 1964 was as follows: urban population 130,000, of which 90,000, or 69 percent, had piped water; rural population 190,000, of which only 10,000, or 5 percent, received piped water. Considering the total 320,000 inhabitants, 100,000, or 32 percent, had piped water at the end of 1964.

WHO/R

SURINAM-51 (-2300), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1952-

Assistance provided: 1 sanitation inspector and technical orientation and supervision by the medical officer of project AMRO-8, and supplies.

Work done: Eradication operations were again limited to the city of Paramaribo where, despite repeated treatment, the infestation rate remained at about 15 percent. This was due to the fact that the technical and administrative difficulties existing since the beginning of the campaign, especially vector resistance to the chlorinated insecticides and deficiencies in field operations, have not yet been overcome.

WHO/UN-TA

TRINIDAD AND TOBAGO-3 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Duration: 1958-1964.

Assistance provided: Consultant services by the malarialogist assigned to Zone I (see AMRO-117).

Work done: Some anopheles control work had been done in Trinidad and Tobago since 1952 in connection with an insect control program, but malaria eradication, with total coverage operations, began in January 1958. The vectors were *Anopheles aquasalis* and *A. bellator*, the latter limited to a small area of the island of Trinidad. Chief measures of the malaria campaign were house spraying and mass drug treatment of the population residing in the area exposed to *A. bellator*. The number of houses sprayed was approximately 125,000 and the population protected 860,000. Dieldrin, the initial insecticide used, was abandoned in 1959 in favor of DDT. Some 40,000 persons were placed under mass drug treatment, using chloroquine and primaquine monthly in 1960 and 1961; and 522,099 blood films were taken and examined between 1960 and 1964.

No autochthonous case of malaria has been found in Trinidad since September 1960, nor in Tobago in more than 10 years. In 1964 surveillance was intensified, having examined 81,572 blood smears among which 4 were positive; after the epidemiological investigation, however, it was found that 2 were from relapses and 2 from cases imported from other countries. At year's end the registration certificate attesting to the eradication of malaria was in preparation.

UNICEF

TRINIDAD AND TOBAGO-5 (-3104), Sanitary Engineering

One 12-month fellowship for studies in sanitary engineering in the United States of America.

WHO/UN-TA

TRINIDAD AND TOBAGO-6 (-3101), Public Health Legislation

Objective: To review the international quarantine legislation in force, in order to adapt it to the advances made in the medical sciences and the progress achieved in the field of public health.

Probable duration: 1964.

Assistance provided: 2 short-term consultants.

Work done: The legislation bearing on international quarantine procedures and practices was reviewed, and a proposed law and supporting ordinances were drafted.

PAHO/R

TRINIDAD AND TOBAGO-9 (-4200), Nutrition

Objective: To develop a national expanded nutrition program; and to train professional and auxiliary personnel in the field of nutrition.

Probable duration: 1961-1966.

Assistance provided: Consultant services through the nutrition adviser assigned to project AMRO-269.

Work done: The Plan of Operations was revised and ready for signature by the Government and the international agencies concerned. The Trinidad Nutrition Center was established and functioning satisfactorily. The Center, which includes a nutrition library, provided field training for 3 students from Columbia University.

Two nutrition clinics were established and providing specialized service to the public. Nutrition programs were initiated in 10 pilot health centers and 22 pilot schools, and 10 additional schools and an equal number of health centers were selected for inclusion in the program in 1965.

Training activities conducted included: a 10-day course in basic nutrition for 30 public health nurses and 10 county health visitors and a 3-week course for 36 teachers, in Trinidad; and in Tobago, 3-day nutrition sessions for 20 senior nurses.

One nutritionist and 1 medical doctor received training, the latter in public health nutrition, at Columbia University.

See also project Trinidad and Tobago-11.

UNICEF

TRINIDAD AND TOBAGO-10 (-2200), Water Supplies

Objective: To create a central water authority; and to prepare plans to provide water to rural populations.

Probable duration: 1963-1967.

Assistance provided: 1 short-term consultant and advisory services through Headquarters, Zone I Office, West Indies-18 and AMRO-95 personnel.

Work done: The report prepared by a PAHO/WHO short-term consultant regarding the unification of the agencies involved in the operation and management of urban water supply systems in Trinidad was studied

VIII. PROJECT ACTIVITIES

by the Government and the recommendations made in the report were accepted. At year's end, by-laws to create the central water authority were under consideration by the legislative body of Trinidad and Tobago; the Government had requested PAHO to assign an engineer for 3 years, to act as director of the central water authority and to train a deputy director as the future director; and arrangements were underway to provide the services of a design engineer to assist the Government in preparing an islandwide water supply program for Tobago.

PAHO/CWSF

**TRINIDAD AND TOBAGO-11 (-4201),
Pathogenesis and Prevention of Anemias**

Objective: To study the pathogenesis and prevention of anemias in Trinidad and Tobago in order to identify the major environmental (including nutritional) and hereditary factors and qualify their relative importance, for the purpose of studying practical measures to reduce the prevalence of the anemias.

Probable duration: 1963-1965.

Assistance provided: Advisory services through the nutrition adviser assigned to project AMRO-269; and a full-time biochemist, assigned on grant funds.

Work done: A metabolic unit was established. Research on anemia in men was completed; similar research was initiated regarding women, particularly those pregnant, and nursing mothers. Also completed was a metabolic study on relative absorption of iron from vegetable and animal sources, which was being given to pregnant women and nursing mothers. Research on anemia in children was being conducted and included a metabolic study on absorption of iron and analysis of height and weight data.

PAHO/G: USPHS-NIH

TRINIDAD AND TOBAGO-12 (-3200), Nursing Services

Objective: To strengthen and improve the nursing services in Trinidad and Tobago.

Probable duration: 1959-1966.

Assistance provided: 1 nurse-consultant (February-July).

Work done: The status of the nursing service was reviewed in relation to recommendations made in previous

years by former PAHO/WHO consultants. A new report was prepared and submitted to the Ministry.

WHO/UN-TA

**TRINIDAD AND TOBAGO-13 (-3102),
Fellowships for Health Services**

Awards	Field of study	Country of study	Months
1	Environmental sanitation	United States of America	2
1	Laboratory services (virology)	Ditto	4 $\frac{3}{4}$
1	Public health administration	Canada	12
1	Sanitary engineering	Colombia, Venezuela	1

WHO/R

UNITED STATES OF AMERICA-10 (-3100), Consultants in Specialized Fields of Public Health

Objective: To obtain the services of short-term consultants for the study of special public health problems.

Probable duration: 1958-

Assistance provided: 2 short-term consultants.

Work done: One consultant gave advice to local officials on matters related to the diagnosis of leprosy; the other consultant visited several institutions in the country, in a 3-month period, to study and discuss recent developments on diabetes research.

WHO/R

**UNITED STATES OF AMERICA-11 (-3101),
Fellowships for Health Services**

Awards	Field of study	Country of study	Months
1	Environmental sanitation (composting)	Denmark, France, Israel, Italy, Netherlands, Soviet Union, Switzerland, United Kingdom	2 $\frac{1}{2}$
1	Hospital administration (chronic and geriatric care)	Czechoslovakia, Finland, France, Israel, Norway, Sweden, United Kingdom	2
1	Organization of medical education (environmental sanitation)	Ceylon, Ethiopia, Jordan, Lebanon, Libia, Taiwan, Thailand	3
1	Ditto (social work)	Denmark, England, Netherlands	2

1	Organization of public health teaching (industrial hygiene)	Belgium, England, Federal Republic of Germany, France, Netherlands, Switzerland	2
1	Ditto (maternal and child health)	Denmark, England, Netherlands, Sweden	2
1	Ditto (occupational health)	Japan, Malaysia, Philippines, Taiwan	2¼
1	Ditto (public health laboratories services)	Belgium, Czechoslovakia, Denmark, Federal Republic of Germany, Italy, Netherlands, United Kingdom	3
1	Ditto (public health nursing)	Chile, Colombia, Costa Rica, Perú	1½
1	Ditto	Denmark, Finland, Great Britain	2

PAHO/R

**UNITED STATES OF AMERICA-12 (-3102),
Medical and Public Health Training**

Three officers of the United States Public Health Services were provided with facilities to visit Latin American countries to obtain first-hand knowledge of local conditions and of the problems which recipients of fellowships must face.

PAHO/R

**UNITED STATES OF AMERICA-13 (-2300),
Aedes aegypti Eradication**

Objective: To eradicate *A. aegypti*.

Probable duration: 1964-

Assistance provided: Consultant services by the adviser of project AMRO-88.

Work done: A Department of *Aedes aegypti* Eradication was established at the Communicable Disease Center of the United States Public Health Service at the end of 1963 and assigned the task of eradicating this vector in the continental United States, in Puerto Rico, and in the U.S. Virgin Islands. After planning and organizing the program, preparing manuals, and selecting and training personnel, the Department initiated field operations in May 1964. In the initial phase of the campaign, eradication activities were limited to Texas, Florida, Puerto Rico, and the Virgin Islands, but plans were made to extend operations to the remaining infested areas in the country, which include all or part of the States of Alabama, Arkansas, Georgia, Louisiana, Mississippi, South Carolina and Tennessee.

**UNITED STATES OF AMERICA-200 (-3103),
Fellowships for Health Services**

Awards	Field of study	Country of study	Months
1	Mental health	Denmark, Netherlands, Sweden, United Kingdom	2
1	Organization of public health teaching (hospital administration)	Chile, Colombia, México, Perú	1½
1	Ditto (medical care administration)	Denmark, Finland, Norway, Sweden	2¼
1	Ditto (public health administration)	Great Britain	3
1	Ditto (sanitary engineering)	Federal Republic of Germany, Netherlands	2
1	Ditto	Federal Republic of Germany, France, Netherlands, United Kingdom	2½

WHO/R

URUGUAY-5 (-3100), National Health Services

Objective: To develop integrated health services in 5 Departments, and subsequently to extend equal services to the whole country.

Probable duration: 1955-1964.

Assistance provided: 1 medical adviser, 1 medical care adviser, 1 sanitary engineer, 1 expert in hospital administration, and 1 nurse; and one 10½-month fellowship for nursing education studies in Brazil.

Work done: Studies were made for the establishment of a school of hospital administrators for physicians, and for the extension of this training to nonmedical administrators, intendants, secretaries, and such other professional personnel as nurses and social workers. A study was begun at the Maciel Hospital, in Montevideo, both to identify the leading causes of hospitalization and to lay the groundwork for centralizing the clinical history files.

The consultant in medical care studied the medical care system in use and made recommendations for improving the system, for establishing the place medical care should occupy within the other health activities, and for intensifying personnel training.

An initial arrangement was made with the Medical School of the University of the Republic for the study and selection of a special region—containing urban, suburban, and rural areas—to use for field practice in medical teaching.

Descriptions of nursing posts for the Montevideo

VIII. PROJECT ACTIVITIES

Clinics Hospital, and statements of how to evaluate and audit work performance, were prepared; and modifications were introduced in the forms for monthly activity reports of the health centers and subcenters of Cerrito de la Victoria and under the Rural Health Plan. Work continued on planning a seminar on maternal and child health for nonmedical personnel, and for holding study meetings of the needs and resources in nursing and midwifery.

A study was made of possible ways of expanding the operations of the Department of Environmental Sanitation, which up to then was exclusively engaged in matters of occupational health and vector control.

As part of the well program, 49 wells were installed and 93 were improved. Selection was made of the localities in which the 4 available drilling machines will work. At the end of the year, the construction of an elevated water tank and the installation of distribution pipelines to 5 public outlets were nearing completion in Peralta, Tucuaembó, where a motor pump will be installed. Water distribution networks were extended by the addition of 1,942 meters of pipeline. Latrines built totaled 271.

In the first 9 months of the year, the following vaccinations were administered: smallpox, 46,760; poliomyelitis, 50,189; diphtheria, 31,636; whooping cough, 16,740; and tetanus, 21,776.

WHO/UN-TA

UNICEF

URUGUAY-8 (-3101), Fellowships for Health Services

Awards	Field of study	Place of study	Months
1	Clinical and social pediatrics	Chile	3
2	Hospital administration	Argentina	4
1	Ditto	Chile, Puerto Rico, Venezuela	1½
1	Medical librarianship	Colombia	6¼

WHO/R

URUGUAY-9 (-0900), Chagas' Disease

Objective: To develop a Chagas' disease control program.

Probable duration: 1964-1966.

Assistance provided: The assistance scheduled to be provided by a short-term consultant in 1964 was postponed to 1965.

Work done: The Government established a Service for the Control of Chagas' Disease which, with its own re-

sources, disinfested 2,040 houses and protected more than 8,000 persons against the vector.

URUGUAY-10 (-3102), Fellowships for Health Services

Awards	Field of study	Country of study	Months
2	Clinical and social pediatrics	Chile	1
1	Epidemiology (chronic diseases)	United States of America	4
1	Nursing education	Argentina, Chile	2
1	Organization of medical education	Chile, Colombia, Venezuela	2
1	Ditto (laboratories in human relations and medical teaching)	Venezuela	½
1	Public health administration (administrative methods)	Chile, Colombia, Perú	2
1	Ditto (epidemiology)	Chile	10
1	Ditto (hospital administration)	Ditto	16
1	Radiology (medical use of radioactive isotopes)	Ditto	7

PAHO/R

URUGUAY-13 (-6100), Training of Health Personnel

Objective: To strengthen the Dr. Carlos Nery School of Nursing; and to prepare the auxiliary personnel needed to carry out the health plans of the country.

Probable duration: 1960-1968.

Assistance provided: Advisory services by personnel assigned to other projects in the country; and supplies and equipment.

Work done: The course of studies of the School was reviewed and the clinical and community practice training were revised. The School had 159 students, and its teaching staff consisted of 1 nurse director and 11 part-time instructors.

PAHO/R

UNICEF

URUGUAY-16 (-4801), Chronic Diseases

Objective: To study the epidemiology of chronic diseases and plan and put into practice a program to control the most prevalent ones, using all resources and knowledge available.

Probable duration: 1961-1966.

Assistance provided: 1 short-term consultant.

Work done: The consultant made a study of prevalent chronic diseases in order to recommend a plan of action.

PAHO/R

URUGUAY-18 (-2200), Water Supplies

Objective: To plan and carry out national water supply programs.

Probable duration: 1962-

Assistance provided: 1 short-term consultant.

Work done: A study was made of the disposal of the Montevideo sewage into the ocean and of the problems posed by the contamination of the beaches.

PAHO/R, PAHO/CWSF

URUGUAY-24 (-6200), Medical Education

Objective: To develop courses on the methodology of medical teaching at the School of Medicine of the University of the Republic, using the services of visiting professors or specialized consultants.

Probable duration: 1964-1966.

Assistance provided: Consultant services by the advisers of project AMRO-247; and printed material on medical education.

Work done: One of the consultants advised the appropriate authorities and the faculty of the School of Medicine on teaching methods (*see also* AMRO-247).

VENEZUELA-2 (-4300), Mental Health

Objective: To review and evaluate the mental health problem in the country; and to plan a national mental health program integrated with the national health plan and providing for care and rehabilitation of patients, training of personnel, research, and prevention of mental disorders.

Probable duration: 1954-1966.

Assistance provided: 1 short-term consultant.

Work done: The consultant visited psychiatric hospitals and clinics throughout the country and had interviews with Government officials and psychiatrists and administrators in public health and private practice. At year's end the Government had the consultant's recommendations under study.

WHO/UN-TA

VENEZUELA-9 (-3101), Fellowships for Health Services

Awards	Field of study	Country of study	Months
2	Clinical and social pediatrics	Chile	1
1	Organization of public health teaching (health education)	United States of America	12½
1	Organization of medical education (preventive medicine)	Ditto	12
1	Public health administration (food technology)	Ditto	12
3	Ditto (health planning)	Chile	3½
2	Ditto (sanitary engineering)	United States of America	12
1	Sanitary engineering	Ditto	11½
2	Ditto	Ditto	12

PAHO/R

VENEZUELA-10 (-3102), Fellowships for Health Services

Awards	Field of study	Country of study	Months
1	Laboratory services	United States of America	1½
1	Mental health	England	17
2	Nutrition	Guatemala	2½
1	Organization of medical education (microbiology and immunology-leprosy)	United States of America	6
2	Pediatrics (clinical and social)	Chile	3
1	Public health administration (epidemiology of leprosy)	United States of America	12
2	Ditto (sanitary engineering)	Ditto	12
3	Sanitary engineering	Ditto	12

WHO/R

VENEZUELA-11 (-0900), Plague Investigation

Objective: To determine the nature and extent of the plague problem in the country.

Probable duration: 1963-1965.

Assistance provided: 1 short-term consultant.

Work done: The investigation was made between November 1963 and February 1964. According to the consultant's report, there has been a significant decrease in plague in recent years and the infection is apparently nearing extinction. At present it is nothing more than a mild sylvatic enzooty of no importance to man. The limits of the affected area have not changed in the past 5 years. Between 1960 and 1963 the most frequent rodent species, namely, *Sigmodon hispidus hirsutus* decreased by 75 percent. *Xenopsylla cheopis* is reported to have disappeared in the affected area.

PAHO/R

VIII. PROJECT ACTIVITIES

VENEZUELA-14 (-6300), Advanced Nursing Education

Objective: To establish at the School of Public Health advanced courses in nursing education and in administration of nursing services.

Probable duration: 1959-1966.

Assistance provided: 1 nurse educator, and one 10-month fellowship to study public health nursing (administration and supervision) in Chile.

Work done: The advanced course organized by the Nursing Department of the School of Public Health was completed in July, at the end of the regular university year, with 13 students receiving certificates.

The addition of one more nurse instructor to the Nursing Department of the School brought that staff to its full complement.

The Division of Mental Health of the Ministry of Public Health began offering a course in psychiatric nursing, which started in September with 6 students.

PAHO/R, WHO/UN-TA

VENEZUELA-16 (-2300), *Aedes aegypti* Eradication

Objective: To eradicate *A. aegypti*.

Probable duration: 1958-

Assistance provided: 1 medical officer and 2 sanitation inspectors.

Work done: Administrative deficiencies and technical problems such as the presence of strains resistant to the chlorinated insecticides and the reinfestation of negative areas continued to hamper campaign progress. Nevertheless, in the first 10 months, the initial survey was made in 173 localities, of which 154 were found to be infested; verification of 235 localities showed 91 to be positive; and 138 localities were treated. This work included inspecting 572,110 houses, of which 14,456 were found positive, and spraying 136,019 houses. In addition, 16,932 vessels were inspected in various ports of the country and 3 were found infested with *A. aegypti*.

PAHO/R

VENEZUELA-17 (-6200), Medical Education

Objective: To improve medical education in the Schools of Medicine stressing the development of preventive medicine activities and the teaching of basic sciences.

Probable duration: 1958-1966.

Assistance provided: 3 short-term consultants; teaching material and publications on medical education; and the following fellowships:

Awards	Field of study	Country of study	Months
2	Organization of medical education (administration of teaching hospitals)	Brazil, Chile, Colombia	1½
2	Ditto (preventive medicine)	Brazil, Chile, Colombia, El Salvador	1½
1	Ditto (nutrition)	Guatemala	2½
1	Ditto (medical teaching, human relations laboratory)	Perú	½

Work done: Two consultants cooperated with the appropriate authorities in organizing the Second National Seminar on Medical Education, which was held from 18 to 25 January with the participation of 100 professors from 7 schools in the country and 10 other schools in Latin America. One consultant provided the authorities of the Medical School of the Central University of Caracas with advisory services in medical education and discussed plans for organizing a course on medical teaching for professors of the 2 medical schools of that University.

PAHO/R

VENEZUELA-18 (-3301), National Institute of Hygiene

Objective: To broaden the Institute's viral studies and increase its production of lyophilized vaccines.

Probable duration: 1964-1966.

Assistance provided: 2 short-term consultants and one 1-month fellowship for studies in laboratory techniques (virology) in Trinidad and Tobago.

Work done: A Committee for the Study and Control of Venezuelan Encephalitis composed of scientists from the various health sectors was established, and recommendations were formulated on control measures and on ways to coordinate activities. The procedures followed by the preparation and control of biological products were reviewed and improved.

PAHO/R

VENEZUELA-19 (-6100), School of Public Health

Objective: To broaden the scope of the School of Public Health and improve its teaching; and to cooperate with the medical schools of the country in the teaching of social sciences.

Probable duration: 1961-1967.

Assistance provided: 1 health educator; and one 2-month fellowship to study organization of public health teaching (maternal and child health) in Colombia, Jamaica, and México.

Work done: The post of chief of the Department of Health Education was established at the School. The discipline of social sciences was integrated within the curriculum and teaching was increased from 25 to 100 hours. Courses related to social sciences included a 3-week course on social sciences (29 students), a 2-week course on social sciences in pediatrics (17 students), a 2-week course in health education (28 students), and a 2-week course in health education for dietitians (12 students). An orientation seminar on social sciences was conducted at the School for 8 professors of preventive medicine from the country's medical schools, and another seminar conducted for the same group was on health education and its implications to medical students.

WHO/R

VENEZUELA-27 (-2200), Community Water Supplies

Objective: To prepare long-range plans for urban water supply programs; to establish adequate water rates for financing the construction of new water supply systems and for expanding the existing ones; and to reorganize the management of the water supply service of Caracas.

Probable duration: 1961-1966.

Assistance provided: 2 short-term consultants and advisory services by Headquarters and Zone I Office staff, and the following fellowships:

Awards	Field of study	Place of study	Months
1	Environmental sanitation (community development)	Puerto Rico	3½
1	Ditto	Ditto	1¾
1	Sanitary engineering (community development)	Colombia, México, Perú, Puerto Rico	2½

Work done: INOS continued the implementation of several water supply programs, completing, during 1964, 91 systems with a capacity to serve 1,211,130 persons. Another 27 systems were under construction. By December, 75 percent of the 5,121,000 urban population had piped water as compared with the 42 percent so serviced in April 1963. Most of the recommendations made in 1963 by the team of short-term consultants—concerned mainly with administrative organization, structure, and program for the management, operation, maintenance,

engineering, and financing of an expansion of the water supply system of Caracas—were implemented. Regarding the review of the water-rates structure contained in the same report, INOS studied it carefully and at year's end was negotiating its approval with the Municipalities of Caracas and Sucre. The planned expansion of the Caracas water supply system was estimated to take 5 years in building and cost \$86 million, and a loan application for \$28 million was submitted to the International Bank for Reconstruction and Development.

Eighteen sewerage systems serving 250,100 persons, 97 percent of the target for 1964, were constructed; 4 other systems were under construction. By December 1964, 32 percent of the 5,121,000 inhabitants living in urban areas had sewerage service.

PAHO/CWSF

IADB

VENEZUELA-28 (-4600), Industrial Hygiene

Objective: To strengthen the industrial hygiene and occupational medicine services of the Ministry of Health and Social Welfare, using the advice of specialized consultants in several aspects of the field.

Probable duration: 1962-

Assistance provided: Consultant services by the Regional Adviser in industrial hygiene.

Work done: The Regional Adviser made a 2-week visit to review the organizational structure of the Industrial Hygiene Section of the Ministry of Health and to evaluate the Section's work on regulations regarding the use of toxic insecticides for pest control in agriculture. About 60 percent of the recommendations presented in previous reports had been carried out; 18 new recommendations were presented.

VENEZUELA-29 (-4800), Medical Care Services

Objective: To study the problems, organization, resources, and cost of the country's medical care services.

Probable duration: 1964-1965.

Assistance provided: The services, for a short period, of the adviser assigned to project AMRO-304.

Work done: A study was made of the country's medical care services, and plans were formulated to integrate them into the general health services and to prepare professionals and train the needed auxiliary personnel.

WHO/R

VENEZUELA-35 (-2201), Rural Water Supplies

Objective: To develop plans to provide water to at least 50 percent of the rural population by 1971.

Probable duration: 1962-1966.

Assistance provided: 1 sanitary engineer and advisory services by Headquarters and Zone I Office staff and by the health educator of project Venezuela-19.

Work done: The Ministry of Health and Social Affairs has been implementing 2 rural water supply programs for the past 2 years. One of those programs, financed with a loan obtained from the IADB for \$10 million was designed to provide water for 343 localities, each with less than 5,000 inhabitants; 141 systems had been constructed by the end of 1964, benefiting 120,734 inhabitants at a cost of about \$6 million. An extension of this program was under negotiation with IADB for another loan of \$10 million to finance another 295 systems. The other program, assisted by UNICEF, will give service to 150 communities with less than 500 inhabitants in each; the construction of 39 of these units has been finished, serving a population of 9,632 persons. Another 20 units were under construction and 81 designs were ready for construction. The Government was negotiating with PAHO and UNICEF to extend this program to a total of 290 units.

PAHO/CWSF

UNICEF

VENEZUELA-37 (-4801), Rehabilitation

Objective: To provide rehabilitation services to the incapacitated, through the creation of a national rehabilitation institute and of rehabilitation units attached to the hospitals and health centers of the country.

Probable duration: 1963-1965.

Assistance provided: Advisory services by personnel of Zone I Office.

Work done: On completing his work at the beginning of the year a PAHO/WHO rehabilitation consultant who had worked in the country during the last 8 months of 1963 made several recommendations. The most important recommendations dealt with the functions of the National Rehabilitation Institute, and its corresponding services in hospitals and health centers, and with the establishing of a 21-month training course for physiotherapists.

VENEZUELA-38 (-2400), Rural Housing

Objective: To plan rural housing programs that include all factors necessary to protect health in Venezuela's

agricultural areas, in keeping with the Government's general plan of land reform and intention to build 45,800 rural houses in a 4-year period.

Probable duration: 1963-1966.

Assistance provided: 2 short-term consultants and advisory services by Headquarters and Zone I Office staff.

Work done: Coordination was established among the Ministries of Health and of Agriculture, the Community Development Service, and other services related to the physical planning of rural settlements. The 10,200 houses built in 1964 represented 98 percent of the year's target of 10,400 houses.

WHO/R

VENEZUELA-40 (-4700), Food and Drug Control

Objective: To improve and expand the national health services for the control of foods, drugs, and biological products.

Duration: 1963-1964.

Assistance provided: 1 specialized consultant, from 16 October 1963 to 22 February 1964 (1963 funds).

Work done: A comprehensive study of current control of foods, drugs, and biological products was carried out; and a plan to create a food and drugs department, including provision for training the necessary personnel, was prepared.

VENEZUELA-42 (-6400), Sanitary Engineering Education

Objective: To strengthen the teaching of sanitary engineering within the regular courses for civil engineers in 4 universities; to develop a postgraduate course at the Central University of Venezuela; and to establish laboratories for research and teaching practices.

Probable duration: 1964-1968.

Assistance provided: 3 temporary advisers and advisory services by the short-term consultant of project AMRO-1 and by Headquarters and Zone I Office personnel; and one 12-month fellowship for studies in organization of public health teaching (sanitary engineering) in the United States of America.

Work done: The UN Special Fund approved a contribution of \$736,400 and appointed WHO its Executing Agency; the Government will contribute \$936,275. The 3 temporary advisers conducted the first 10-week Course on Ground Water Development for graduate engineers. The course, which began in October, was attended by 25 engineers mainly from the Ministry of Health, the

National Institute of Waterworks, and the Ministry of Agriculture. This postgraduate course contributes 9 units toward a Master's degree. The consultant of project AMRO-1 assisted in the preparation of the Plan of Operations for this project.

PAHO/CWSF, WHO/UN-SF

VENEZUELA-2100, Garbage and Refuse Disposal

Objective: To make a study of garbage and refuse disposal systems and determine the one best suited to the topography and climate of Caracas.

Probable duration: 1964-1965.

Assistance provided: 1 short-term consultant and advisory services by staff of Zone I.

Work done: With the assistance of the consultant a study was made of the design of 2 large incinerators and of bids for construction of the incinerators, which will be used to dispose of the refuse of Caracas. The decision to use incinerators instead of sanitary fill or any other system of refuse disposal was an outcome of recommendations made in previous years by consultants provided by the Organization.

WHO/UN-TA

WEST INDIES-3 (-3200), Nursing Services

Objective: To improve the nursing services in Barbados, Dominica, Montserrat, and Saint Lucia; and, as soon as possible, to extend the project to other islands in the Eastern Caribbean.

Probable duration. 1959-1968.

Assistance provided: 1 nurse-consultant (the U.S. Department of Health, Education, and Welfare provided the services of 1 health educator, for 3 months); and the following 34 fellowships for studies in public health nursing:

Awards	Country of origin	Place of study	Months
3	Antigua	Barbados	2 ^a
3	Barbados	Ditto	2
1	British Virgin Islands (Tortola)	Ditto	2
1	Cayman Islands	Ditto	2
5	Dominica	Ditto	2
4	Grenada	Ditto	2
3	Montserrat	Ditto	2
3	St. Kitts	Ditto	2
4	St. Lucia	Ditto	2
4	St. Vincent	Ditto	2

1	Antigua	Jamaica	12
1	Montserrat	Ditto	12
1	St. Lucia	Ditto	12

^a 31 nurses attended the course conducted in Bridgetown, Barbados (see AMRO-373).

Work done: The groundwork for a staff education program was established in Barbados. In Dominica a study of nurse salary schedules was initiated and new records were under consideration for prenatal and child welfare clinics. Qualifications were established for the position of public health nurse superintendent. Several clinics were reorganized in Montserrat and, to provide for better continuity of care, patient records were developed to replace the daily log books. In St. Lucia a committee began to draft a procedural manual for nurses.

PAHO/R, WHO/R

UNICEF

WEST INDIES-4 (-3101), Fellowships for Health Services

Awards and place of origin	Field of study	Country of study	Months
1 (Antigua)	Environmental sanitation	Jamaica	10
1 (Barbados)	<i>Aedes aegypti</i> eradication	Venezuela	(days) 13
1 (Barbados)	Public health nutrition	Guatemala	2½
1 (Barbados)	Sanitary engineering	Colombia, Venezuela	1
1 (Grenada)	Public health nursing	Jamaica	12
1 (St. Vincent)	Nursing education	Canada	12

PAHO/R

WEST INDIES-5 (-3102), Fellowships for Health Services

Awards and place of origin	Field of study	Place of study	Months
1 (Antigua)	Laboratory services (medical technology)	Jamaica	6
1 (Bahamas)	Ditto	Ditto	6
1 (Barbados)	Ditto	Ditto	12
1 (Barbados)	Public health administration (health planning)	United States of America	12
1 (Grenada)	Laboratory services (medical technology)	Jamaica	11
1 (Grenada)	Sanitary engineering (rural water supplies)	Dominica	2
1 (St. Lucia)	Communicable diseases (schistosomiasis control)	Puerto Rico, Venezuela	1½

VIII. PROJECT ACTIVITIES

1	(St. Lucia)	Laboratory services (medical technology)	Jamaica	12
1	(St. Vincent)	Ditto	Ditto	12

WHO/R

WEST INDIES-12 (-6300), Nursing Education

Objective: To assess the nursing resources in the British islands in the Caribbean and develop a long-range plan to improve nursing services; to design a basic nursing curriculum to meet administrative and teaching needs; and to integrate educational, medical, social, and community health concepts in all areas of nursing education.

Probable duration: 1963-1965.

Assistance provided: 1 nurse educator and 1 short-term consultant specialized in surveys of schools of nursing.

Work done: In preparation for a Survey of Schools of Nursing in the English-speaking areas of the Caribbean, a seminar of nursing leaders was held at St. John's, Antigua, from 3 to 8 August. Participants included nurses from Antigua, Bahamas, Barbados, British Guiana, British Honduras, Grenada, Jamaica, and St. Kitts.

The questionnaire to be used in the collection of data from the 23 schools in the areas was reviewed and amended as necessary by the group. Schedules were set up for a visit by a survey team, composed of the nurse assigned to this project and a nurse (Regional Visitor) from a neighboring island or territory, to each school. The visits were made to approximately three-quarters of the area, and will be completed in the beginning of 1965 in the remainder of the schools. The survey was completed on 8 of the 23 schools.

WHO/R

WEST INDIES-17 (-0200), Malaria Eradication

Objective: To eradicate malaria.

Probable duration: 1958-1965, year in which the consolidation phase is expected to be completed in Dominica.

Assistance provided: 1 sanitation inspector, until the end of September when the entire island entered the consolidation phase, and the services of the technical advisory group assigned to Zone I (AMRO-117); and antimalarial drugs.

Work done: 16,154 blood smears were collected and examined; no positives were found.

No cases have occurred in Dominica since December

1961, and the consolidation phase began in 1963. Surveillance operations were carried out throughout the entire Island by evaluators who periodically visited houses, health centers, and schools.

PAHO/SMF

UNICEF

WEST INDIES-18 (-2200), Water Supplies

Objective: To plan water supply systems for several British islands in the Caribbean, preparatory to building the systems.

Probable duration: 1962-1968.

Assistance provided: 2 engineering consultants specialized in design were provided to Dominica and St. Lucia, and short-term consultants were provided to Barbados, Grenada, and St. Lucia.

Work done: The specialists in design, in conjunction with national counterparts, prepared islandwide water supply programs for St. Lucia and Dominica. The other consultants made studies for the creation of islandwide water authorities in Grenada and St. Lucia. St. Lucia passed legislation to establish a water board that will deal in a unified way with the construction of water supply units in the Island.

PAHO/CWSF, WHO/UN-TA

WEST INDIES-22 (-4200), Nutrition

Objective: To improve the level of nutrition in Antigua, Barbados, Dominica, Grenada, Montserrat, St. Kitts, St. Lucia and St. Vincent, through training courses for technical and local personnel, school gardens, and nutrition education through school and health centers.

Probable duration: 1962-1967.

Assistance provided: Consultant services through the nutrition adviser assigned to project AMRO-269.

Work done: Detailed plans and costs for the development of an applied nutrition program in Antigua, Dominica, Grenada, and St. Vincent were incorporated into a health survey report.

In Barbados, 3-day nutrition sessions were included in a training course for 30 District nurses, and a 10-day course in nutrition was conducted for 24 school teachers. Plans were made to extend feeding programs to more schools and to initiate nutrition education activities in 5 pilot schools.

A 1-day seminar for community education was conducted in Montserrat and followup seminars for nurses and public health inspectors were planned.

The nutrition education unit in St. Kitts was operating and was extending its activities to 5 schools and 10 health centers. Joint seminars for nutrition workers were being conducted once a month, and a 1-day seminar on malnutrition was conducted for 10 public health workers.

The nutrition education unit in St. Lucia was operating and was extending its activities to 5 schools and 5 health centers. A 1-week seminar on program evaluation was conducted for 20 public health workers, 15 teachers attended a 3-week course in basic nutrition, a 1-day seminar on nutrition and integrated health programs was held for physicians, nurses and others, and a 2-week course on nutrition was conducted for 20 public health inspectors, nurses, and teachers.

Detailed plans were made to initiate nutrition education activities in 5 pilot schools in St. Vincent.

FAO, UNICEF

WEST INDIES-29 (-4800), Medical Care Services

Objective: To organize the 500-bed Bridgetown Hospital, which is the medical center for Barbados and will be used for the teaching of medicine.

Probable duration: 1963-1966.

Assistance provided: 1 short-term consultant.

Work done: Following recommendations made by consultants in 1963, in 1964 the General Hospital of Barbados was built, in Bridgetown, and a study was made of its teaching affiliation with the School of Medicine of the University of the West Indies. Steps were taken to equip the hospital and provide it with the necessary staff.

PAHO/R

WEST INDIES-30 (-3200), Pediatric Nurses

Course

Objective: To provide opportunity for supervisory staff in children's wards of hospitals in the Leeward and Windward Islands to acquire new skills related to modern pediatric nursing procedures, principles of ward management, and techniques of health education.

Probable duration: 1964-1965.

Assistance provided: Advisory services by the nurses assigned to projects AMRO-289 and Jamaica-12.

Work done: Plans for a 6-month course in pediatric nursing were developed by a joint committee of staff of the University Hospital of the West Indies, at Kingston, Jamaica, and of PAHO/WHO. The course was begun at Kingston on 21 September with the attendance of 7 nurses

whose regular duty is the supervision of the pediatric wards of hospitals in Antigua, Dominica, Grenada, Montserrat, St. Kitts, St. Lucia, and St. Vincent.

UNICEF

AMRO-1 (-6400), Sanitary Engineering Training

Objective: To cooperate with the Governments in expanding the teaching institutions and revising the pertinent curricula, in order to improve the preparation of sanitary engineers.

Probable duration: 1952-1958; 1964-

Assistance provided: 1 short-term consultant and advisory services by personnel of Headquarters, of the Zone Offices, and of country projects.

Work done: The consultant visited the universities of Buenos Aires, Argentina; Rio de Janeiro, Brazil; Santiago, Chile; Lima, Perú; the West Indies, Trinidad; and the Central University of Venezuela (in Caracas) in connection with the sanitary engineering programs of the schools of civil engineering, as well as in connection with projects under consideration by the United Nations Special Fund, and assisted in the preparation of the Plan of Operations for project Venezuela-42.

The United Nations Special Fund approved 2 projects, which began operating, for improving the teaching of sanitary engineering, developing research centers, and training auxiliary personnel; one of the projects concerns 4 universities in Venezuela, and the other project concerns SURSAN and the University of Rio de Janeiro, Brazil. Advisory services were provided to Costa Rica and Panamá on teaching activities at their universities, and to the School of Sanitary Engineering of the University of Buenos Aires, Argentina, regarding a seminar on refuse disposal.

Collaboration with the universities of Buenos Aires, Argentina; São Paulo, Brazil; the National Autonomous University of México; and the University of Nuevo León, in Monterrey, México, was continued.

PAHO/R

AMRO-3 (-4807), Rehabilitation

Objective: To provide the countries with advisory services in the field of rehabilitation related to medical problems.

Probable duration: 1962-

Assistance provided: Consultant services by the Regional Adviser.

VIII. PROJECT ACTIVITIES

Work done: Efforts were made to foster the rehabilitation program in Argentina, Bolivia, Brazil, Chile, Paraguay, Perú, and Venezuela. Some of the Regional Adviser's visits were aimed at having the Governments establish special interministerial coordination committees under the Health Ministry, in view of the large number of private or philanthropic institutions that are engaged in rehabilitation activities.

PAHO/R

AMRO-8 (-2301), *Aedes aegypti* Eradication (Caribbean)

Objective: To advise Jamaica, Trinidad and Tobago, and the British, French, and Netherlands Territories in the Caribbean, on *A. aegypti* eradication.

Probable duration: 1950-

Assistance provided: 1 medical officer and 3 sanitation inspectors; supplies and equipment.

Work done: Technical orientation and supervision were provided to the British and French Guianas, Jamaica, Trinidad and Tobago, Surinam, and the British, French, and Netherlands Territories in the Caribbean Area.

WHO/UN-TA

AMRO-10 (-6700), Program for Biostatistics Education

Objective: To improve vital and health statistics in the countries of the Hemisphere by training technical and professional personnel in specialized centers.

Probable duration: 1952-

Assistance provided: Grants to the Schools of Public Health of Argentina, Chile, Colombia, and Perú; and the following fellowships:

Awards	Country of origin	Field of study	Country of study	Months
1	Bolivia	Health statistics	Chile	7½
1	Bolivia	Vital and health statistics	Colombia	6
2	Brazil	Health statistics	Chile	7½
2	Colombia	Ditto	Ditto	7½
1	Costa Rica	Ditto	Ditto	7½
2	Ecuador	Vital and health statistics	Colombia	6
1	El Salvador	Health statistics	Chile	7½
1	Guatemala	Ditto	Ditto	7½
1	Honduras	Ditto	Ditto	7½
1	Panamá	Ditto	Ditto	7½

Work done: At the School of Public Health of the University of Chile, 10 students finished the 15-month

course, 9 months of which were devoted to specialized instruction in biostatistics, in June; the 7-month technician course began in July with 35 students. The Schools of Public Health in Buenos Aires, Medellín, and Lima trained 31, 32, and 19 technicians. (Several members of the faculties of these new courses were prepared in the courses in Chile.) All but one of the 127 statisticians trained were from countries of the Americas (see Health Statistics, Chapter II. A).

WHO/UN-TA

AMRO-16 (-6100), Schools of Public Health

Objective: To cooperate with schools of public health in the Hemisphere, especially the newer ones, in order to strengthen and improve their organization, administration, and teaching.

Probable duration: 1953-

Assistance provided: 1 short-term consultant and 3 temporary advisers; equipment and supplies; and library material.

Work done: The consultant visited the schools of public health of Argentina, Brazil (Rio de Janeiro and São Paulo), Colombia, and Venezuela to assess the teaching of medical care and hospital administration. A study group composed of the directors of the Schools of Public Health of Argentina, Brazil, Chile, Colombia, Puerto Rico, Perú, Venezuela, and the Director General of Public Health Education of México met in Buenos Aires, Argentina, from 9 to 13 November to discuss desirable minimum standards for schools of public health in Latin America. The report was distributed to the schools and Governments concerned.

WHO/R

AMRO-17.7 (-2207), Waterworks Operators Course

Objective: To collaborate with the Governments in the training of waterworks operators.

Probable duration: 1960-1966.

Assistance provided: 1 short-term consultant and advisory services by project personnel; and supplies.

Work done: A Course for Waterworks Operators was held in San José, Costa Rica, from 28 September to 6 November, and was attended by 16 students who came from the following countries: British Honduras, 1; Costa Rica, 6; El Salvador, 2; Guatemala, 1; Honduras, 2; Nicaragua, 2; and Panamá, 2.

PAHO/CWSF

AMRO-18 (-6200), Medical Education

Objective: To cooperate with the Governments in their efforts to improve medical education in the Americas, including the teaching of the theory and practice of social medicine.

Probable duration: 1953-

Assistance provided: Consultant services by temporary advisers of projects in the various countries; and teaching supplies.

Work done: Advisory services on various aspects of medical education, such as teaching methods, organization and administration of medical schools, and course content, were provided to the authorities and faculty of 37 schools of medicine in 17 countries (Argentina, Brazil, Colombia, Costa Rica, Cuba, Chile, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, México, Nicaragua, Perú, Uruguay, and Venezuela.

With the cooperation of the Milbank Memorial Fund, 6 experts on the teaching of preventive medicine met to establish a method for analyzing the teaching programs of this subject in the medical schools of Latin America and assessing the progress made during the last 10 years. The meeting was held from 15 to 17 December.

Assistance was given to the organizers of the Annual Conference for Foreign Medical Scholars to enable foreign physicians pursuing graduate studies in the United States of America to analyze various concepts of medical education applicable to their respective countries. The Organization continued to provide the secretariat of the Medical Education Information Center and to collaborate with the participating institutions. Printed material relating to medical education was distributed to all the medical schools in the Hemisphere.

PAHO/R, PAHO/G,^s WHO/R

AMRO-35 (-3109), Fellowships for Health Services

Fellowship-termination expenses on a 1963 award were settled.

PAHO/R

AMRO-39 (-2100), Environmental Sanitation

Objective: To hold annual meetings of the Advisory Committee on Environmental Sanitation in order to evaluate sanitation work and plan future activities accordingly.

^s Milbank Memorial Fund

Probable duration: 1958-

Assistance provided: The organization of meetings of the Committee.

Work done: The Advisory Committee on Environmental Sanitation met from 25 to 28 February to review the program of rural water supply in the Region and to make recommendations in this regard. On that occasion the Committee was divided into two groups, one to study the technical aspects of the program, and the other to recommend social-action measures to improve community development in rural areas.

In addition to the 18 Committee members, 20 representatives of other international agencies and loan banks participated.

AMRO-45 (-3300), Laboratory Services

Objective: To cooperate with Governments in the improvement of public health laboratory services and in establishing new sections in existing laboratories, in the production and control of biological products, and in the expansion or establishing of animal colonies.

Probable duration: 1955-

Assistance provided: Advisory services by Headquarters personnel; and supplies and equipment.

Work done: Assistance was given to several Governments in connection with the planning of new laboratories, including the selection and purchase of equipment. Several laboratories were provided with 449 items including biological standards, microbial strains, and reagents; information on recent developments in laboratory techniques and methods, as well as laboratory animals, were provided.

PAHO/R, WHO/R

AMRO-46.10 (-6309), Seminar on Nursing Education

Objective: To hold a meeting of nurses experienced in the training of auxiliary nursing personnel in countries of South America for purposes of discussing the possibility of utilizing programmed instruction in this type of training.

Place and duration: Melgar, Tolima, Colombia; 6-16 December.

Assistance provided: 1 short-term consultant specialized in programmed instruction, and nurse advisers; cost of travel and per diem for 22 participants; and a small amount of supplies.

Work done: The 22 participants in the Seminar on the

VIII. PROJECT ACTIVITIES

Training of Nursing Auxiliaries were from Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Perú, Uruguay, and Venezuela.

After a general discussion of the numbers of untrained auxiliary nursing personnel now employed in the health services of the countries represented, a new method which might be used in the training of that personnel was explained by the specialist on programmed instruction. Programmed units on asepsis and on supplementary aids to diagnosis were studied and their adaptation for use of auxiliaries in Latin America was begun. A report of the seminar—including information on this new method of instruction—was prepared for printing and distribution in 1965.

WHO/R

AMRO-50 (-2208), Water Fluoridation

Objective: To furnish, upon request of interested countries, advisory services on methods of water fluoridation for the prevention of dental caries.

Probable duration: 1961-

Assistance provided: 1 short-term consultant.

Work done: A survey of fluoridation of public water supplies was carried out; data obtained from 10 countries showed that 114 localities with a population of 6,653,000 were using this preventive measure. In accordance with a resolution of the XV Meeting of the PAHO Directing Council a study on financing a program to promote water fluoridation in the countries of the Region was begun.

The consultant visited the water supply system of Medellín, Colombia, to advise on the installation of fluoridation equipment.

Three specialists were engaged for a symposium on water fluoridation held at the IX Congress of the Inter-American Association of Sanitary Engineering, in Bogotá, Colombia.

PAHO/R

AMRO-54 (-4203), Institute of Nutrition of Central America and Panamá

Objective: To cooperate in the increasing development of the Institute of Nutrition of Central America and Panamá in order to improve the nutrition services and programs of the countries of the area; to train professional and auxiliary personnel from those and other countries of the Hemisphere; and to carry out nutrition research in search of the most practical measures for

solving the urgent problems created by the inadequate nutrition status, particularly with regard to quality of food intake, of a large segment of the population of the Americas.

Probable duration: 1949-

Assistance provided: 1 medical director, 1 consultant director, 1 nutrition adviser, 1 medical officer, and 1 technical assistant.

Work done: The Institute continued to provide advisory services regarding nutrition in public health to its member countries.

Work was continued on the clinical and biochemical characteristics of protein-calorie malnutrition and its effect on mental development. Malnutrition in adults and its effect on work output was also studied. Investigation into new sources of vegetable protein and their incorporation into food products was continued.

In the training program, 12 participants from 7 countries of Latin America successfully finished the 11-month course for dietitians, the 3-month course for public health physicians was carried out with 21 graduates from 6 countries, and a 7-month course for education supervisors and home economists was conducted for 6 participants from Central America. Official academic recognition of INCAP-training activities was obtained from the University of San Carlos, Guatemala.

Preliminary studies were carried out regarding the establishment of a food standard-reference laboratory to be located in the Institute. Six serial nutrition surveys to be carried out in the member countries during the next 2 years were planned together with ICNND, who will provide financial support for the project.

See also under Nutrition, Chapter II. B.

PAHO/R, PAHO/INCAP/G⁹ Governments of Central America and Panamá

⁹ Grants received in 1964:

Association for the Aid of Crippled Children (U.S.A.)

English American School (Guatemala, Guatemala)

Interdepartmental Committee on Nutrition for National Defense (U.S.A.)

Massachusetts Institute of Technology (U.S.A.)

Milbank Memorial Fund

National Institutes of Health (U.S.A.)

The Nutrition Foundation, Inc. (U.S.A.)

The Rockefeller Foundation

United Nations Children's Fund

United States Army

WBZ Radio (Boston, Massachusetts, U.S.A.)

W. K. Kellogg Foundation

AMRO-60 (-0300), Smallpox Eradication

Objective: To cooperate with Governments in the production of smallpox vaccine and advise them on the organization, conduct, and evaluation of national smallpox eradication programs.

Probable duration: 1951-

Assistance provided: 3 temporary advisers and advisory services by Headquarters and Zone Office personnel; supplies and equipment; and vaccine testing services.

Work done: Laboratories in several countries were provided with advisory services on smallpox diagnosis techniques and the preparation of smallpox vaccine, especially the lyophilized type. The services of the Serum Institute of Copenhagen, Denmark, were made available to the countries for purity and potency testing of smallpox vaccine prepared in national laboratories.

The Organization continued to coordinate requests of nonproducer countries for vaccine with which to carry out their programs and deliveries by producer countries. Brazil, Colombia, México, Uruguay, and Venezuela contributed glycerinated and dried smallpox vaccines for use by the countries of Central America, the Dominican Republic, and Haiti.

Advisory services were provided to several smallpox vaccination programs. Two short-term consultants visited Brazil and Perú to study the possibility and advisability of using the jet injector, especially in house-to-house programs in rural areas.

A study was made of the manner of organizing an epidemiological surveillance service as a part of the Hemisphere-wide smallpox eradication program.

It is estimated that 28,567,237 vaccinations were performed in the Hemisphere from January to September. Vaccine production during the same period was approximately 65 million doses.

PAHO/R, WHO/R**AMRO-61 (-0708), Rabies Control**

Objective: To provide, at the request of Governments, the services of specialized personnel and supplies for the control of rabies epidemic outbreaks.

Probable duration: 1954-

Assistance provided: Consultant services by the Regional Adviser in veterinary public health and by the veterinarian in public health assigned to the El Paso Field Office.

Work done: The advisers collaborated with the School of Veterinary Medicine of the National Autonomous

University of México in conducting a course on rabies epidemiology, held during April and May in México City, which was attended by officials from several federal and State public health and agricultural institutions. The Rabies Control Committee of the States of Texas and New México (U.S.A.) and of Chihuahua (México) met in June to coordinate the rabies campaigns underway on both sides of the Border. Technical advisory services were given to the rabies campaigns and wild animal control programs being conducted along that Border area, and consolidated reports of cases of rabies notified in the area continued to be prepared.

A Regional Meeting on Rabies was held in Yuma, Arizona, U.S.A., in October, with the participation of health authorities of bordering States or of the federal health services of México and the United States of America and PAHO officers. The group examined the situation with regard to rabies particularly in the States of California and Baja California, where outbreaks of canine rabies have occurred, and formulated measures for immediate action.

The Organization collaborated with the Governments of Costa Rica, Dominican Republic, Guatemala, Honduras, México, and Perú in the acquisition of strychnine and 1080 for their respective rabies programs as well as in obtaining laboratory animals for the Palo Alto Livestock Institute of México which produces rabies vaccine. Through the Pan American Zoonoses Center the countries were provided with biologicals for rabies diagnosis and for vaccine production and control, and advisory services were provided in Uruguay where a human case of rabies occurred in the wake of an enzootic outbreak. The human case was the first in Uruguay in almost 16 years.

AMRO-62 (-2400), Public Health Aspects of Housing and Urbanization

Objective: To stimulate health authorities to participate in housing and city planning programs; and to advise the countries on the establishment of health standards for houses and urbanizations.

Probable duration: 1962-

Assistance provided: 1 temporary adviser and consultant services by staff of Headquarters and of the Zone Offices.

Work done: Relations were established and maintained throughout the year with ECLA for the purpose of collaborating with the missions this agency sends to the countries to assist in programs of housing and urbanization, and a housing and urbanization specialist was recruited to begin collaborating with ECLA in January

VIII. PROJECT ACTIVITIES

1965. The report of the First Inter-Regional Seminar on Public Health Aspects of Housing, held in Madrid, Spain, in 1963, was revised; and at the end of 1964 the original, English-language version was ready for reproduction and a copy of it was being translated into Spanish.

PAHO/R

AMRO-63 (-6300), Schools of Nursing

Objective: To provide advisory services in specialized areas of nursing education; to grant fellowships for selected members of nursing faculties to make observation visits; and to furnish nursing texts in Spanish to schools of nursing in Latin America.

Probable duration: 1962-

Assistance provided: Advisory services by the nurses assigned to AMRO-289 and to West Indies-12; transportation and per diem of 8 participants in the seminar held at St. John's, Antigua, from 3 to 8 August, and of Regional Visitors; and other seminar costs.

Work done: See West Indies-12.

WHO/R

AMRO-67 (-6500), Teaching of Public Health in Schools of Veterinary Medicine

Objective: To assist schools of veterinary medicine to incorporate the teaching of public health and preventive medicine into their curricula.

Probable duration: 1955-1968.

Assistance provided: 1 short-term consultant and advisory services by the Regional Adviser.

Work done: The Organization convened the first meeting of the Permanent Committee of the Association of Instructors in Public Health and Preventive Medicine in Schools of Veterinary Medicine in the Americas, which was held in Chapel Hill, North Carolina, U.S.A., from 19 to 21 October. The short-term consultant, 2 professors of schools of veterinary medicine from Santiago, Chile, and São Paulo, Brazil, professors of the School of Public Health of the University of North Carolina, and Headquarters personnel attended the meeting. Developments since the seminars held in Kansas City, Missouri (1959) and México City (1963) were reviewed, and recommendations were made on future activities under this project and on how the project could be better utilized by the countries. The Committee prepared a guide on minimum standards for teaching public health and preventive medicine in schools of veterinary medicine, which is to be distributed to the schools in the Hemisphere.

The Final Report of the Seminar on the Teaching of Public Health and Preventive Medicine in Schools of Veterinary Medicine (*PAHO Scientific Publication 96*) was distributed, together with other technical publications, to all schools of veterinary medicine in the Americas.

WHO/R

AMRO-72 (-4400), Dental Health

Objective: To collaborate with the Governments in the strengthening of dental services, through the provision of technical advisory services and fellowships for training in public health dentistry.

Probable duration: 1954-

Assistance provided: 2 short-term consultants, and a small amount of supplies and equipment.

Work done: Advisory services were provided to the Government of Colombia in connection with a study of available human resources and general aspects of dentistry in the country.

PAHO/R

AMRO-74 (-0900), Epidemiological Studies on Plague

Objective: To cooperate with Governments in anti-plague work and epidemiological studies in the plague-endemic areas of several countries of the Americas.

Probable duration: 1964-1967.

Assistance provided: 1 short-term consultant and advisory services by Headquarters staff.

Work done: The consultant visited Ecuador and Perú and assisted the national health authorities in preparing plans for a joint control program.

PAHO/R

AMRO-76 (-3307), Vaccine Production and Testing

Objective: To provide vaccine-testing services to vaccine-producing laboratories in the Americas, in order to enable the laboratories to maintain the high-quality of their products.

Probable duration: 1954-

Assistance provided: 1 short-term consultant.

Work done: The consultant visited Brazil, Chile, Guatemala, Panamá, Uruguay, and Venezuela and dis-

cussed with the health authorities recent advances in the preparation and control of biological products. Eighteen products manufactured in 6 countries of the Hemisphere were tested in reference laboratories.

WHO/R

AMRO-77 and -77.1 (-0800 and -0801), Pan American Foot-and-Mouth Disease Center

Objective: To make available to interested countries of the Americas technical advisory services for the control of foot-and-mouth disease, for laboratory diagnosis of the disease, and for the training of professional and auxiliary personnel; and to carry on research that will eventually result in the preparation of a modified live-virus vaccine for countries in need of it.

Probable duration: 1951-

Assistance provided: Costs for staff and for the Center's activities regarding training, research, information and publications, technical and advisory services, and general services; technical personnel assigned to various countries of the Hemisphere; supplies and equipment, including biological antigens for diagnosis and research; and the following fellowships:

<i>Awards and place of origin</i>	<i>Field of study</i>	<i>Country of study</i>	<i>Months</i>
1 (Chile)	Foot-and-mouth disease (laboratory services)	Argentina, Brazil	2¾
1 (Colombia)	Ditto (production of vaccine)	Brazil, Venezuela	4¾
1 (Colombia)	Ditto (production of vaccine)	Argentina, Brazil	4½
1 (Ecuador)	Foot-and-mouth disease and XIX Course	Brazil	3
1 (Panamá)	Veterinary public health (foot-and-mouth disease control)	Ditto	2
1 (Perú)	Foot-and-mouth disease	Argentina, Brazil, Colombia, Ecuador, Venezuela	1½
1 (Perú)	Ditto (vaccine production)	Brazil	4
2 (Argentina)	Foot-and-mouth disease (XIX Course)	Brazil	1
2 (Brazil)	Ditto	Ditto	1
2 (Colombia)	Ditto	Ditto	1

1 (Paraguay)	Ditto	Ditto	1
1 (Perú)	Ditto	Ditto	1
2 (Uruguay)	Ditto	Ditto	1
2 (Venezuela)	Ditto	Ditto	1

Work done: See under Zoonoses, Chapter I.A.

PAHO/OAS-PCT, AID Government of Brazil

AMRO-81 (-0700), Pan American Zoonoses Center

Objective: To provide interested countries with advisory services for establishing or improving veterinary services and zoonoses control programs; to carry out research on the most prevalent zoonoses; and to train technical personnel for zoonoses control work.

Probable duration: 1956-

Assistance provided and work done: See under Zoonoses, Chapter I.A.

PAHO/R, PAHO/G: USPHS, WHO/UN-TA Government of Argentina

AMRO-85 (-6707), Latin American Center for Classification of Diseases

Objective: To study problems related to medical certification of causes of death; to give instruction training on classification of causes of death, in accordance with the International Classification of Diseases; and to collaborate in the preparation of the decennial revisions of the Classification.

Probable duration: 1955-

Assistance provided: 3 short-term consultants; supplies and equipment; and a grant.

Work done: The Latin American Center conducted 5 courses and trained 177 students from 12 countries (1 course in Buenos Aires, Argentina, for 36 students; 1 in São Paulo, Brazil, for 49; 1 in Santiago, Chile, for 35; 1 in Medellín, Colombia, for 32; and 1 in San José, Costa Rica, for 25). The course in São Paulo was the first given in Brazil. The Center assisted in the technical editing of the Portuguese edition of the WHO *Draft Manual of Hospital Morbidity Statistics*, which originally planned for publication in late 1964 was later rescheduled for 1965. The Center translated from English, and adapted for Latin America, training material for use in hospitals, namely, *Instrucción sistematizada en el uso de la adaptación de la Clasificación Internacional de Enfermedades* (PAHO Scientific Publication 101) and the Manual de codificación para instructores de la Clasifica-

ción Internacional de Enfermedades, Adaptada, which it reproduced in mimeographed form.

PAHO/R, WHO/R

AMRO-86 (-3503), Health Statistics (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III for the purpose of improving their vital and health statistics systems; and to furnish technical advisory services on the use of statistical data in national health planning and on the statistical aspects of projects.

Probable duration: 1955-

Assistance provided: A statistical consultant, since June.

Work done: The hospital statistical system in Costa Rica was reviewed as well as the statistical organization and activities of the Ministry of Public Health. Recommendations were submitted for a 4-year plan to coordinate the activities of 3 independent statistical units, currently operating in the Ministry, and their eventual consolidation.

Discussions were held with the San Juan de Dios Hospital, which serves as teaching hospital for the University of Costa Rica's School of Medicine, on the possibilities of developing in it a regional training center for hospital statisticians of Central America and Panamá.

Following a review of the vital and health statistics systems in Guatemala, recommendations were made for the establishment of 2 pilot demonstration areas. Suitable municipalities were provisionally selected and the need for close cooperation between the civil register and the health services in the communities was stressed.

Procedures were developed in Honduras to make natality and mortality statistics in civil registers available to staffs of health centers. In January a Division of Biostatistics was established in the Ministry of Public Health and Social Welfare. The Division, which includes a section of mechanical tabulation, is responsible for compiling hospital, communicable disease, and health service statistics. Plans were being made to establish throughout the country legal regulations for medical certification of cause of death.

WHO/R

AMRO-88 (-2300), *Aedes aegypti* Eradication

Objective: To stimulate, coordinate, and evaluate *A. aegypti* eradication programs in the countries and

territories still infested with the urban vector of yellow fever.

Probable duration: 1954-

Assistance provided: 1 medical officer and 1 entomologist; supplies and equipment.

Work done: The medical officer assisted the U.S. Public Health Service in launching its *A. aegypti* eradication campaigns in the continental United States of America, Puerto Rico, and the U.S. Virgin Islands (see United States-13). The studies begun in 1962 on *A. aegypti* resistance to chlorinated insecticides were continued with the assistance of the entomologist, at the Kingston *A. aegypti* laboratory (established by the Organization in cooperation with the Ministry of Public Health of Jamaica and the University of the West Indies). Other 1964 activities included (a) continuation of research on the susceptibility of different strains of *A. aegypti* in the Caribbean Area to both DDT and dieldrin as well as to other insecticides that may be substituted for the chlorinated ones; (b) evaluation of insecticides for possible use against the mosquito in those countries and territories in which the vector has become resistant to both DDT and dieldrin; and (c) studies on the ecology of *A. aegypti* in the Caribbean Area.

PAHO/R

AMRO-90 (-0200), Malaria Eradication Advisory Services (inter-Zone)

Objective: To provide technical advisory services and local training in certain aspects of country programs that do not require long-term consultants.

Probable duration: 1955-1967.

Assistance provided: 1 parasitologist, 1 entomologist, 2 specialists in vehicle management and maintenance, and 1 clerk-typist; equipment and supplies.

Work done: The parasitologist advised the laboratories of the malaria services of Brazil, Colombia, and Guatemala and collaborated with the Strain Screening Center for Drug-Resistant Plasmodia (see AMRO-350). The entomologist collaborated with the Malaria Eradication Campaign in Brazil, in studies of the vectors of several regions, in the training of entomological personnel, and in the organization of entomological work. The specialists in automotive problems provided advice on vehicle management and maintenance and on the management of vehicle workshops to the Health Ministries of Argentina, Brazil, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Nicaragua, Panamá, and Perú.

PAHO/SMF, WHO/R, WHO/MAP

AMRO-94 (-4107), Diarrheal Diseases in Childhood

Objective: To clarify the epidemiological, clinical, and public health relationships between diarrheal diseases in childhood and the nutritional status of children suffering from the syndrome.

Probable duration: 1956-1964.

Assistance provided: 1 medical officer and 1 health statistician.

Work done: Analysis of data was continued. Several reports of these studies have now been published and additional reports are in preparation. The characteristics of weanling diarrhea have been described in considerable detail and many practical applications to public health program planning are evident from the findings. Although investigations will be continued in the areas under study and additional studies to follow up selected aspects of the findings are already underway, in the future the work will be carried on as part of the program of the Institute of Nutrition of Central America and Panamá.

PAHO/R

AMRO-95 (-2107), Environmental Sanitation (Caribbean)

Objective: To collaborate in environmental sanitation activities, through the investigation and evaluation of existing conditions and by providing technical advice during the development of extensive sanitation programs in the countries and territories of the Caribbean Area.

Probable duration: 1956-

Assistance provided: 1 sanitary engineer, 2 sanitarians, and advisory services by personnel of Zone I Office.

Work done: The latrine construction program showed the following results: Barbados: units planned, 10,000; construction began in October 1959; units built in 1964, up to November, 1,564; total latrines installed, 8,384, or 83.8 percent of global target. British Guiana: units planned, 12,000; construction began in November 1962; units built in 1964, up to November, 1,060; total latrines installed, 1,924, or 16.0 percent of global target. Grenada: units planned, 8,000; construction began in January 1964; units built up to November, 1,517 or 19.0 percent of global target.¹⁰ Montserrat: units planned, 3,000; construction began in September 1964; units built up to November, 151, or 5.0 percent of global target. St. Kitts: units planned, 10,000; construction began in

June 1956; units built in 1964, up to April, when the program was temporarily discontinued, 110; total latrines installed, 3,811, or 38.1 percent of global target. St. Lucia: units planned, 14,000; construction began in January 1964; units built up to July, 343, or 2.4 percent of global target.¹¹ St. Vincent: units planned, 10,000; construction began in March 1959; units built in 1964, up to October, 1,206; total latrines installed, 9,669, or 96.6 percent of global target. Trinidad: units planned, 80,000; construction began in August 1957; units built in 1964, up to September, 7,021; total latrines installed, 59,281, or 70.4 percent of global target.

The promotion of water supply programs resulted in requests for assistance by the Governments of Antigua, Barbados, Dominica, Grenada, St. Kitts, St. Lucia, and St. Vincent (see West Indies-18).

PAHO/R, WHO/UN-TA

UNICEF

AMRO-110 (-0400), Tuberculosis Control

Objective: To collaborate, at the request of Governments, in the planning and carrying out of tuberculosis control programs; and to stimulate technical meetings in order to foster and expand antituberculosis programs.

Probable duration: 1957-

Assistance provided: 3 short-term consultants and technical advisory services by the Regional Adviser.

Work done: Argentina, Bolivia, Chile, Costa Rica, Guatemala, Jamaica; México, Nicaragua, Panamá, and Uruguay were provided with advisory services. Two new information documents were distributed and 6 WHO documents translated into Spanish.

A meeting of all Bureau technical staff responsible for tuberculosis matters was held.

The 1964 Technical Discussions, on "Tuberculosis Eradication: A Task for Present Planning and Future Action," were held. The ensuing report was favorably received by the PAHO Directing Council which recommended that the Governments apply the guidelines contained therein.

In addition, the Regional Seminar on Tuberculosis was held from 29 November to 5 December, in Maracay and Caracas, Venezuela. Of the 63 participants, 2 were WHO and 6 were PAHO officials, while the remaining 55 came from the following 28 countries and territories: Argentina (5), Barbados (1), Bolivia (2), Brazil (6), British Guiana (1), British Honduras (1), Canada (1), Chile (3), Colombia (2), Dominican Republic (1),

¹⁰ Second 5-year program; in the first, 6,234 latrines were installed.

¹¹ Second 5-year program; in the first, 7,414 latrines were installed.

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Ecuador (1), El Salvador (1), Guadalupe (1), Guatemala (1), Haiti (1), Honduras (1), Jamaica (1), Martinique (1), México (1), Nicaragua (1), Panamá (1), Paraguay (1), Perú (2), Surinam (1), Trinidad and Tobago (1), United States of America (5), Uruguay (4), and Venezuela (7).

WHO/R **Government of Venezuela**

AMRO-112 (-3407), Community Development Training Center

Objective: To cooperate with the Community Development Training Center for Latin America (CREFAL) in the health aspects of the training.

Probable duration: 1951-1953; 1961-1970.

Assistance provided: 1 medical officer.

Work done: The usual 9-month course, held from March to November, was attended by 63 students from the following countries: Argentina, 6; Chile, 4; Colombia, 5; Costa Rica, 5; Ecuador, 4; El Salvador, 5; Guatemala, 4; Haiti, 4; Honduras, 1; México, 6; Nicaragua, 4; Panamá, 2; Paraguay, 2; Perú, 4; Switzerland, 1; United States of America, 1; and Venezuela, 5. The professions represented and the number of students were as follows: physicians, 2; nurses, 2; health educators, 2; health promoter, 1; social workers, 12; and other, 44.

A Research Committee on Latin American Community Development was established. It consists of 6 members, one of which represents the Organization. Toward the end of the year a 3-month course was held for 20 former CREFAL students who had graduated in the 1951-1960 decade and were engaged in national programs of community development or adult education in the Americas.

WHO/R **FAO, UN, OAS, ILO, UNESCO**

AMRO-117 (-0201), Malaria Technical Advisory Services (Zone I)

Objective: To provide technical advisory services to the countries and territories in Zone I and coordinate the respective malaria eradication programs; and to coordinate the research and training activities of these programs with those of the Hemisphere-wide malaria eradication program.

Probable duration: 1957-1970 or until all areas of the Zone complete the consolidation phase of their programs.

Assistance provided: 1 chief malaria adviser, 1 laboratory adviser, and 1 administrative assistant; some equipment, and laboratory supplies.

Work done: The chief malaria adviser visited the programs of the countries and territories in the Zone to supervise field operations and prepared the basic documents for the official declaration of the eradication of malaria in Jamaica and in Trinidad and Tobago.

The laboratory adviser provided supervisory services to the local laboratories of the countries and territories of the Zone and trained new microscopists for the laboratories in Trinidad and Tobago.

PAHO/SMF

AMRO-118 (-0203), Malaria Technical Advisory Services (Zone III)

Objective: To provide technical advice to the Governments of the countries in Zone III and coordinate the respective malaria eradication programs; and to coordinate the research and training activities of these programs with those of the Hemisphere-wide malaria eradication program.

Probable duration: 1958-1969 or until all the countries in the Zone complete the consolidation phase of their programs.

Assistance provided: 1 health educator, 1 administrative methods officer and 1 malariologist.

Work done: The health educator rendered services to the programs of British Honduras, Costa Rica, El Salvador, México, Nicaragua, and Panamá. The administrative methods officer rendered services principally to the program in Panamá. As the malariologist's post was filled only in the fourth quarter of 1964, the coordination and evaluation of the programs were carried out almost exclusively by Headquarters malaria eradication personnel.

PAHO/SMF

AMRO-119 (-0204), Malaria Technical Advisory Services (Zone IV)

Objective: To provide technical advice to the Governments of the countries in Zone IV and coordinate the respective malaria eradication programs; and to coordinate the research and training activities of these programs with those of the Hemisphere-wide malaria eradication program.

Probable duration: 1958-1971 or until all countries in the Zone complete the consolidation phase of their programs.

Assistance provided: 1 malariologist and 1 administrative methods officer.

Work done: The malariologist was primarily occupied with the program of Colombia, where he functioned concurrently as co-director and as chief consultant. The administrative methods officer provided advisory services to the 4 countries in the Zone.

PAHO/SMF

AMRO-134 (-0207), Malaria Eradication Training Center (Kingston, Jamaica)

Objective: To train English-speaking professional and auxiliary personnel in malaria eradication techniques.

Duration: 1958-1964.

Assistance provided: The services of the director of the Center, for 2 months, and of 1 secretary, for 3 months; and costs of transferring materials and equipment.

Work done: Activities were terminated in 1963 and the Center was definitely closed in early 1964. All materials and equipment not donated to the Government of Jamaica were transferred to other training centers and projects.

PAHO/SMF

AMRO-137 (Brazil-0202), Training Center for Malaria Eradication (São Paulo)

Objective: To train professional and auxiliary personnel for the malaria eradication programs of Brazil and other Latin American countries.

Probable duration: 1958-1966.

Assistance provided: A grant to cover costs of equipment, teaching materials, and auxiliary personnel directly connected with the courses.

Work done: 2 courses were held: one in malariology, for doctors and engineers, and the other in medical entomology primarily oriented toward malaria.

The course in malariology was attended by 11 Brazilian students; the course in entomology included, in addition to the Brazilian students, 1 PAHO fellow from El Salvador (see El Salvador-2).

PAHO/SMF

AMRO-140 (-0109), Investigation of Diseases Caused by Arboviruses

Objective: To carry out research on the ecology of hemorrhagic fever in order to establish procedures for its control.

Probable duration: 1963-

Assistance provided: Technical advisory services by Headquarters staff.

Work done: The MARU research team, in cooperation with the Organization, continued its studies in the Beni Department of Bolivia on the transmission mechanism of hemorrhagic fever. The Machupo virus (isolated from human specimens for the first time in 1963) was successfully cultivated in *Callomys callosus*. A program to control these rodents, which serological studies had shown to have a high antibody titer, led to a reduction of the infection in human beings. At year's end, studies aimed at obtaining an attenuated strain that could be used as a vaccine were still in progress.

USPHS

AMRO-142 (-4500), Health Aspects of Radiation

Objective: To stimulate national health services to adopt international standards and procedures for radiation protection connected with the use of X rays and radioisotopes and to develop regulations for the disposal of radioactive wastes; to promote the teaching of basic health physics, radiobiology, and radiation protection in medical, dental, veterinary public health, and other professional schools; to foster the use of radioisotopes for medical diagnosis, therapy, and research; and to collaborate with interested countries in establishing sampling stations for determining radioactive contamination of air, food, and water.

Probable duration: 1958-

Assistance provided: 1 short-term consultant and 3 temporary advisers.

Work done: The Organization translated into Spanish the USPHS Training Course Manual *Basic Radiological Health*. At year's end the translation was undergoing technical revision and was scheduled for publication (by USPHS) as *Manual del Curso Básico de Protección Contra las Radiaciones Ionizantes*.

The International Course on Radiation for Public Health Administrators, originally scheduled for 1962, was held in Santiago, Chile, with the cooperation of Chilean specialists in radiation protection, radiobiology, and radiation physics, from the National Health Service. The course ran for 3 weeks and was also attended by 6 fellows from the Health Departments of Brazil, Costa Rica, Guatemala, México, Perú, and Venezuela. In Chile, Perú, and Venezuela further steps were taken for the development of potential research programs involving the use of radiation or radioisotope materials.

Surveillance of air and milk in connection with radio-

VIII. PROJECT ACTIVITIES

active fallout as a result of atomic testing was extended to 2 additional stations, raising to 6 the number of stations in operation.

PAHO/R

USPHS

AMRO-143 (-3504), Health Statistics (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV for the purpose of improving their vital and health statistics systems; and to furnish technical advisory services on the use of statistical data in national health planning and on the statistical aspects of projects.

Probable duration: 1956-

Assistance provided: 1 statistical consultant.

Work done: 2 areas of applied research and demonstration to improve registration of vital events, of morbidity, of causes of death, and of statistics of health resources and activities in Perú were being developed. Similar areas were being organized in the Departments of Antioquia and Cundinamarca, in Colombia—one in the Rionegro health district, with 150,000 inhabitants in 13 municipalities and the other in Fusagasugá, with 100,000 persons living in 8 municipalities. The Rionegro area, near Medellín, will also serve for field practice of training courses of the School of Public Health of the University of Antioquia.

Courses for statisticians at the intermediate level were given at the schools of public health in both countries: in Colombia, the students of the first 7-month course, begun in July 1963, finished the field practice in March 1964 and in September 34 students enrolled in the second course; 18 students finished the first 6-month course in Perú, all health employees with no previous formal training in statistics.

A Statistics and Personnel Training Department was established at the National Institute of Hygiene of Ecuador.

WHO/R

AMRO-144 (-3502), Health Statistics (Zone II)

Objective: To collaborate with the Governments of the countries of Zone II for the purpose of improving their vital and health statistics systems; and to furnish technical advisory services on the use of statistical data in national health planning and on the statistical aspects of projects.

Probable duration: 1958-

Assistance provided: 1 statistical consultant.

Work done: The Division of Statistics of the Ministry of Health and Social Welfare of the Dominican Republic published data on mortality, with and without medical certification, for the first 6 months of 1963 and of 1964, and on cases of communicable diseases, up to October 1964. Statistical data was prepared to serve as basis for the poliomyelitis vaccination campaign, for the leprosy, yaws, and venereal disease programs, and for health planning. Work was continued to improve registration of vital and hospital statistics in San Cristóbal Province. Training in statistics was given to 22 nurses, 5 health educators, and 22 sanitation inspectors.

In México, a draft project to improve registration of vital statistics was drawn up.

WHO/R

AMRO-149 (-0500), Leprosy Control

Objective: To determine the prevalence and characteristics of leprosy in the Americas and assist the Governments in the planning, programing, and organization of leprosy control activities and in the training of professional and auxiliary personnel.

Probable duration: 1958-

Assistance provided: 2 short-term consultants and advisory services by Headquarters staff.

Work done: Efforts to organize suitable systems for registering leprosy data were continued. An instruction manual for recording leprosy data was prepared and was being tested in the leprosy control programs of Argentina and Venezuela.

At year's end a manual on leprosy control programs—covering not only the clinical aspects of the disease but also the planning, programing, and organization of leprosy control activities—was being prepared.

The first draft of a glossary of epidemiological terms in leprosy, and another on physical rehabilitation, were completed; consultations for the purpose of improving the definitions were also begun.

The information available on leprosy, covering 13 countries and 1 territory, indicated that, at 30 June, 114,080 cases were registered, of which 62,777, or 55 percent, were under control and 46,744 were under treatment; 145,520 contacts, or 52 percent of a total of 278,469, were also under control.

PAHO/R

AMRO-150 (-4700), Food and Drug Services

Objective: To provide technical advice, at the request of the Governments, to the national services responsible for the control of foods, drugs, and biologicals, whether of local origin or imported; and to cooperate with the countries in the improvement of their national control services.

Probable duration: 1959.

Assistance provided: 1 short-term consultant and secretarial and translating services; technical publications; and teaching materials.

Work done: The consultant made a study of regulations that should govern drug and biological products laboratories and food processing industries in Central America and Panamá. The report and recommendations were presented to the IX Meeting of Ministers of Public Health of Central America and Panamá, held in Managua, Nicaragua, from 16 to 18 July. At that meeting the Organization presented 80 food sanitation standards prepared with the assistance of the Adolfo Lutz Institute, of São Paulo, Brazil. The standards were discussed and approved, and subsequently sent to the pertinent Governments for incorporation into the legislation of each country.

The collection of health legislation and food and drug control regulations in the Americas was continued. In compliance with Resolution 36—on the clinical and pharmacological evaluation of drugs—of the XVI World Health Assembly, all countries of the Hemisphere were provided with information on precautionary measures for the sale and use of products known or presumed to be dangerous to health.

PAHO/R**AMRO-155 (-0901), Schistosomiasis Control**

Objective: To assist countries to appraise their schistosomiasis problem, plan and develop control programs, and plan research projects.

Probable duration: 1960.

Assistance provided: 1 temporary adviser and consultant services by Headquarters staff; a grant in support of the International Center of Snail Identification for the Study of Schistosomiasis established in 1963 at Belo Horizonte, Brazil.

Work done: The short-term consultant visited the Snail Identification Center as a temporary adviser to the Director of the Center. The draft of "An Introductory Guide for Intermediate Hosts of Schistosomiasis in the

Americas" was ready to be reproduced in mimeographed form.

PAHO/R**AMRO-156 (-6708), Training Program in Hospital Statistics**

Objective: To provide inservice training to personnel working on medical records and hospital statistics, in order to develop essential data for planning for health and medical services.

Probable duration: 1961.

Assistance provided: 1 medical records librarian.

Work done: The Ramos Mejía Hospital in Buenos Aires, Argentina, was developed as a training area and used as such not only for students from the School of Public Health of the national University of Buenos Aires who were specializing in hospital statistics but also for auxiliary personnel of the hospitals of the city of Buenos Aires. For these hospitals the procedures for collecting and elaborating data relating to inpatients were revised; the forms and procedures were subsequently adapted by the Ministry of Social Welfare and Public Health for use in all its hospitals (*see also* Argentina-38).

The Organization translated into Spanish and published the American Hospital Association's booklet entitled *A Guide to the Organization of a Hospital Medical Record Department*. To facilitate more widespread training, teaching materials were developed for the courses at the auxiliary level.

PAHO/R, WHO/UN-TA**AMRO-157 (-3501), Health Statistics (Zone I)**

Objective: To collaborate with the countries and territories of Zone I for the purpose of improving their vital and health statistics systems; and to provide technical advisory services on the use of statistical data for health planning and on the statistical aspects of projects.

Probable duration: 1964.

Assistance provided: 1 statistical consultant, since April.

Work done: The vital and health statistics systems used in Antigua, Barbados, St. Kitts, and St. Vincent were appraised by the consultant and recommendations were submitted to improve the registration of vital events and hospital statistics. As part of the general plan to expand the training of paramedical workers in the Caribbean Area, plans were initiated to conduct a 4-

month course in vital and hospital statistics for statistical personnel.

In Jamaica a study of the accuracy of civil registration was underway. In a Planning Committee meeting, the consultant brought into notice the duplication of statistical work in various departments, with different interpretation depending on the variety of the statistical data. Hence a central committee on statistics, with representation from every department dealing with any kind of statistics, was suggested and approved by the director of planning. A pilot survey of hospital morbidity and mortality was carried out in Cornwall County, for the use of the planning group for the Montego Bay Hospital; and 5 seminars on statistics were conducted for staff of the Faculty of Medicine of the University of the West Indies, at Mona, St. Andrew.

A statistical unit, with a trained statistician, was planned for the Ministry of Health and Housing of Trinidad and Tobago.

In Kingston, Jamaica; in Tobago, and in Barbados, the importance of medical records was emphasized in courses or seminars held for public health workers, including midwives and nurses.

PAHO/R

AMRO-159 (-3506), Health Statistics (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI for the purpose of improving their vital and health statistics systems; and to furnish technical advisory services on the use of statistical data in national health planning and on the statistical aspects of projects.

Probable duration: 1959-

Assistance provided: 1 statistical consultant.

Work done: The Federal Capital of Argentina and the Provinces of La Pampa, Mendoza, and Tucumán established systems of vital statistics similar to those in the Provinces of Buenos Aires and San Juan. The vital and health statistics system in the Province of Buenos Aires continued serving as demonstration area.

Several meetings of the National Committee on Vital Statistics were held, strengthening coordination between the several national agencies. The Committee suggested certain changes to eliminate duplication of statistical work among the various agencies.

The survey and registration of health establishments and resources was continued. This large-scale operation is an accounting of the personnel, facilities, equipment, operating budgets, and investments of all health establish-

ments in the country—national, provincial, municipal, semiprivate, and private—and will provide the Government with information necessary for health planning. The health team of the Federal Council on Investments carried out important methodological investigations relating to production functions of several hospital establishments and determination of unit costs of intermediate and final activities.

In Paraguay a system for reporting and recording cases of communicable diseases in relation to the plan for control of communicable diseases was planned, and a 2-week course trained the statisticians of the health regions in the new methods of collecting and recording reports of notifiable diseases.

In Uruguay a 4-week course on experimental design of medical research was conducted for 22 professors and instructors of the School of Medicine of the University of the Republic.

PAHO/R

AMRO-160 (-0600), Yaws Eradication and Venereal Disease Control

Objective: To meet requests from countries for advisory services on yaws eradication and venereal disease control.

Probable duration: 1961-

Assistance provided: 1 medical officer and 1 temporary adviser.

Work done: The cooperation of the USPHS was obtained to conduct in 1965 in Chile, under the auspices of the School of Medicine of the University of Chile and the National Health Service, 2 successive courses for physicians on new laboratory methods for diagnosing venereal diseases. Preparatory steps were taken and studies were made in connection with the organization of the Pan American Seminar on Venereal Disease Control, to be held in Washington, D.C., in November 1965, under PAHO/WHO auspices in cooperation with USPHS. At the request of the Governments of Colombia and Ecuador, a PAHO/WHO expert made a study of infectious yaws in the 2 countries and prepared a survey program for determining its prevalence.

PAHO/R, WHO/R

AMRO-163 (-0106), Epidemiology (Zone VI)

Objective: To stimulate the development and coordination of programs for the eradication or control

of communicable diseases in the countries of Zone VI; to advise the Governments on new control methods and techniques and on problems related to the application of the International Sanitary Regulations; and to foster better reporting of notifiable diseases.

Probable duration: 1958-

Assistance provided: 1 epidemiologist, beginning 1 September.

Work done: The adviser arrived in Montevideo at the end of the year, having first attended the Health Planning Course held at the Latin American Institute for Economic and Social Planning.

PAHO/R

AMRO-165 (-4200), Nutrition Advisory Services

Objective: To provide advisory services on nutrition, in answer to requests from Governments, to meet specific needs.

Probable duration: 1958-

Assistance provided: Advisory services through personnel of Headquarters, WHO headquarters, and INCAP.

Work done: Advisory services by means of visits and correspondence were provided to all countries of the Region. Liaison was maintained with other international agencies collaborating in applied nutrition programs. In addition to participating in scientific conferences and meetings relating to nutrition, the Regional Adviser organized and conducted a seminar for 8 Country Representatives, to orient them with regard to integration of nutrition in national health planning.

PAHO/R

AMRO-179 (-0704), Veterinary Public Health (Zone IV)

Separation expenses in connection with a former staff member assigned to this project, concluded in 1963, were settled.

PAHO/R

AMRO-183 (-4109), Nursing Midwifery

Objective: To provide to interested countries advisory services for improving their maternity care services and the services of institutions for the training of midwives.

Probable duration: 1962-1967.

Assistance provided: 1 nurse-midwife.

Work done: By the end of 1964 data on schools of midwifery had been collected in 8 Latin American countries (Argentina, Bolivia, Brazil, Chile, Ecuador, Paraguay, Perú, Uruguay).

The questionnaire tested in Perú and Paraguay in 1963, on the preparation and utilization of midwifery personnel in Latin American countries, was distributed and the data obtained was being analyzed.

In Perú, advisory services continued to be provided to the Department of Nursing and Midwifery, the Division of Maternal and Child Health, the University of San Marcos, the maternity services of several hospitals, and to the programs of Departmental and local health services. Advisory services were also provided to Argentina, Brazil, Paraguay, and Uruguay.

PAHO/R

AMRO-185 (-4800), Medical Care Services

Objective: To cooperate, upon requests from Governments, in studies associated with aspects of planning, organization, training, and applied research in medical care services.

Probable duration: 1961-

Assistance provided: 1 short-term consultant.

Work done: Advisory services were provided on medical care matters as much as on the relationship between the services of the Ministry of Health and the medical care services of Social Security institutions in Brazil, Ecuador, and El Salvador.

PAHO/R

AMRO-187 (-2200), Water Supplies

Objective: To advise interested countries on the planning, financing, and carrying out of national water supply programs and on the organization and administration of central and local water supply and sewerage authorities.

Probable duration: 1959-

Assistance provided: 1 consultant in water supply design, 1 consultant in administrative methods, 30 short-term consultants, and secretarial services; also advisory services through 2 Headquarters engineers and 35 sanitary engineers of Zone Offices and of projects.

Work done: The countries and territories of the Americas were provided with advisory services on the planning, financing, design, construction, operation, and administration of water supply systems. The administrative methods consultant gave advisory services to Argentina, Colombia,

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Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, México, and Venezuela. The meeting of the Advisory Committee on Environmental Sanitation, attended by 15 members, discussed the Hemisphere-wide water supply program. Cooperation was continued with the countries and IADB in the preparation and submission of loan requests to finance the improvement or construction of water supply systems, and at the end of 1964 it was estimated that more than \$500 million had been invested in the water supply programs of the countries of the Americas.

PAHO/CWSF

AMRO-188 (-0703) Veterinary Public Health (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in the development of veterinary public health services and activities, especially the study and control of zoonoses and the application of protective measures in food control; to promote the teaching of veterinary public health; and to collaborate in the evaluation of programs of veterinary public health and of other programs aimed at the satisfactory use of these services.

Probable duration: 1957-

Assistance provided: 1 veterinary public health consultant; and a limited amount of supplies and equipment.

Work done: The countries were provided with advisory services in the control of zoonoses, laboratory services, and food and drug control; and training activities covered professional and auxiliary public health personnel.

Collaboration in regional programs of rabies, brucellosis, and bovine tuberculosis control, which were intensified in view of greater financial support from the Governments, was continued. A study of the costs of production and control of biological products was made at the Biological Institute of the Public Health Directorate of Guatemala. In cooperation with the Pan American Zoonoses Center, antigens, diagnostic strains, and standard vaccines were sent to several laboratories, institutes, and teaching centers in Central America and Panamá.

The First Seminar on Veterinary Public Health was organized and held in Panamá from 9 to 12 August for the countries of Central America and Panamá, with the participation of 28 professionals from the countries of the area and of PAHO and FAO advisers. The Seminar gave special consideration to the use that should be made of the veterinarian in connection with public health programs, the notification of diseases, and health planning.

Courses on the infectious diseases and public health

were held at the School of Veterinary Medicine and Zootechnics of the San Carlos University of Guatemala; and 2 courses on food technology, at INCAP.

WHO/R

AMRO-196 (-0209), Insecticide Testing Team

Objective: To study the activity of new residual insecticides; and to develop larviciding procedures for use in malaria eradication programs.

Probable duration: 1959-1966.

Assistance provided: 1 senior entomologist, 2 additional entomologists, and 1 assistant entomologist; all equipment and supplies; and a grant to cover salaries of local auxiliary personnel.

Work done: The team continued doing research on OMS-33 (Bayer 39007) and OMS-43 (Folithion (R)), using both DDT-susceptible and DDT-resistant strains of anopheles bred at the testing laboratory in San Salvador. With DDT-resistant *A. albimanus*, bio-assays on the residues of the insecticides, applied to small experimental patches of wall surfaces in inhabited houses, were done weekly for as long as 1 year; the residues gave good results on wooden surfaces, but poor results on mud surfaces.

Tests were also carried out with 7 of the 8 insecticides approved by WHO in February 1964 for preliminary field testing. This work was limited to bio-assays on residues of the trial insecticides on small patches of mud and plywood surfaces in the experimental test huts that the team had constructed near La Libertad, in the humid coastal plain of El Salvador.

PAHO/SMF, WHO/MAP

AMRO-198 (-3600), Administrative Methods and Practices in Public Health

Objective: To cooperate with Governments in improving the administrative practices of national health services at all levels.

Probable duration: 1959-

Assistance provided: 1 temporary adviser and travel and per diem for 9 participants; and supplies and equipment for the seminar described below.

Work done: This project continued to serve as the coordinating element for the technical activities of: the consultants in administrative methods and practices assigned to Zones I, III, IV, and VI; the consultant serving the Ministry of Health in the Dominican Republic; the

specialists in administration assisting in the malaria eradication programs of Brazil, the Dominican Republic, and Panamá; and the administrative methods officer assigned to water supply projects (AMRO-187).

In addition, from 18 to 23 May, in collaboration with the UN Division of Public Administration, a Seminar on the Organization and Administration of Public Health Services was held in Antigua, Guatemala. This, the fourth in a planned series cosponsored by PAHO and the UN, was also the second such meeting for Zone III (see *Annual Report of the Director*, 1960) and was attended by high-echelon personnel of the national health services of Panamá and the countries of Central America.

The Seminar featured a general review of the state of administration in the Ministries of Health of those countries and a treatment in depth of personnel management. A 2-volume final report was issued on the last day of the seminar—the first volume contained the documentation prepared for, and reports issuing from, the deliberations; the second volume dealt with a review of personnel management activities and represents the first of a planned series of handbooks on administrative matters for use by personnel officers in Ministries of Health in Latin America. The report was later distributed to officers of Ministries of Health in the Americas, institutes of higher education, libraries, and professional societies.

PAHO/R

AMRO-202 (-0503), Leprosy Control (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in the study, organization, conduct, and evaluation of leprosy control programs, in the training of professional and auxiliary personnel in modern techniques of leprosy control, and in the integration of leprosy control activities into the general health services.

Probable duration: 1960-

Assistance provided: 1 leprologist and consultant services by the adviser of project AMRO-203 and by staff of Headquarters, Zone III Office, and country projects.

Work done: The leprosy control programs in Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panamá continued to advance under the direction of leprologists who are also public health specialists. The structure and organization of the control services were improved and coverage was expanded, especially in the rural sector. The work of organizing a suitable system of registering leprosy data was continued in each country

with a view to obtaining more accurate information on the extent of the problem, the epidemiological characteristics of the disease, and the administrative details of control activities. Ambulatory treatment was intensified; and the system of hospital treatment, now limited to special cases and for short periods of time, was improved. As a result of special emphasis on the detection of new cases and the training of medical and auxiliary personnel, there was an increase in the number both of patients recorded and of those under control.

In Honduras the tuberculosis control activities were combined with those of the leprosy control program, examining for leprosy the groups of people who seek to be tested for tuberculosis. Thus, 37 cases of leprosy were detected and confirmed in 4 months of work, and another 40 suspect cases were found, the diagnosis of which was under study.

During the year, the number of persons trained in leprosy was as follows: in Costa Rica, 35 physicians, 12 medical students, and 18 nursing auxiliaries; in El Salvador, 65 physicians; in Guatemala, 56 physicians, 40 medical students, and 124 nursing auxiliaries; in Honduras, 21 physicians, 26 medical students, and 24 nursing auxiliaries; in Nicaragua, 54 physicians, 42 medical students, 36 nursing auxiliaries, and 18 social service students; and in Panamá, 50 physicians, and 56 medical students.

At 15 November the leprosy situation in each country of the Central American Isthmus was as follows: in Costa Rica, out of 649 registered cases, 480 were under control and 430 of the latter were under treatment, and out of the 4,052 registered contacts, 2,111 were under control; in El Salvador, of the 213 registered cases, 146 were under control and treatment, and of the 912 contacts, 456 were under medical control; in Guatemala, of the total of 151 registered cases, 120 were under control and treatment, and of the 713 contacts, 327 were under control; in Honduras, out of 198 registered cases, 139 were under treatment, and out of 1,657 contacts, 478 were under medical control; in Nicaragua, out of 228 registered cases, 175 were under treatment, and out of 1,137 contacts, 300 were under control; and in Panamá, there were 178 registered cases and 725 contacts, out of which 136 cases and 613 contacts were under control. Thus, of the 1,617 cases and 9,196 contacts registered in the entire area, 73.97 percent and 46.64 percent were under control, and 70 percent of the patients were under treatment.

PAHO/R

AMRO-203 (-0103), Epidemiology (Zone III)

Objective: To stimulate the development and coordination of programs for the eradication or control of communicable diseases in the countries of Zone III; to advise the Governments on new methods and techniques of control and on problems related to the application of the International Sanitary Regulations; and to foster better reporting of notifiable diseases.

Probable duration: 1961-

Assistance provided: 1 epidemiologist.

Work done: Assistance was provided to the pertinent authorities of the countries of the Zone in the preparation of standards for the control of epidemic outbreaks of communicable diseases.

Efforts were made to call attention to the need for strengthening laboratory services for the diagnosis of communicable diseases. Special emphasis was placed on the organization of departments of epidemiology administered by the national health services of the countries of Central America and Panamá, including in some cases the preparation of rules for their operation.

Efforts were also made to improve the reporting of communicable diseases; to organize the data registration services; to train personnel in communicable disease control or eradication, as the case may be; and to plan and organize communicable disease control activities. Attention was paid to the advisability of fulfilling several purposes simultaneously, as was successfully done in Honduras, where, following a pre-established plan, a tuberculin-testing and Chest-X-ray survey was combined with smallpox and DPT vaccination and leprosy case-detection.

PAHO/R

AMRO-204 (-2101), Sanitary Engineering (Zone I)

Objective: To collaborate with the countries and territories of Zone I in improving the organization of the environmental sanitation services of the Ministries of Public Health; to give technical advice to the agencies responsible for water supply and sewerage services; and to cooperate with universities and other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and 1 secretary.

Work done: The sanitary engineer continued to promote and collaborate in all the sanitation and development programs in the countries and territories of Zone I.

In Venezuela, where collaboration with the Ministry of Health and Social Welfare was continued through INOS, at the end of 1964 it was estimated that 75 percent of the urban and 40.7 percent of the rural population had potable water. Collaboration was also continued with the university authorities of Venezuela regarding a project to improve the teaching of sanitary engineering in 4 universities in the country; the project, which involves an investment of more than \$1.7 million dollars, was approved by the UN Special Fund.

PAHO/R

AMRO-205 (-2102), Sanitary Engineering (Zone II)

Objective: To collaborate with the Governments of the countries of Zone II in improving the organization of the environmental sanitation services of the Ministries of Public Health; to advise the agencies responsible for water supply and sewerage services; and to cooperate with universities and other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and secretarial services.

Work done: The engineer advised the sanitary engineering projects which in cooperation with the Organization are underway in the countries of the Zone. He provided technical advice, specifically, on environmental sanitation, urban water supply, and personnel training in México; in Cuba, to the Ministry of Public Health on its environmental sanitation activities; in Haiti, to the National Health Service on its sanitation activities and on the establishment of the Autonomous Potable Water Supply Authority; and in the Dominican Republic, on water supply projects in rural and urban areas. The consultant also participated in the planning and conduct of training through regular postgraduate and short courses.

PAHO/R, WHO/R

AMRO-206 (-2103), Sanitary Engineering (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in improving the organization of the environmental sanitation services of the Ministries of Public Health; to advise the agencies responsible for

water supply and sewerage services; and to cooperate with universities and other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and secretarial services.

Work done: Assistance was provided in the establishment and organization of central water authorities in Costa Rica, El Salvador, Honduras, and Panamá, and a study was made of the organization of such services in British Honduras and Nicaragua.

In regard to the urban water supply program in the Zone, at the end of 1964 the prepared plans involved \$46,365,000, of which \$30,000,000 represented international loans and the remainder were allocations within the countries concerned. A proposal was made of a massive 2-year rural water supply program, to be financed by IADB, which would benefit 349,941 persons in 507 localities at a total cost of \$7,440,000.

Assistance was given in the preparation of submittals to the United Nations Special Fund for underground water research projects. El Salvador submitted a request for assistance in the amount of \$534,350; and, at the end of 1964, Costa Rica and Honduras were studying their respective submittals.

Cooperation was also given to training activities related to sanitary engineering and auxiliary personnel, specifically, 2 short courses on water quality control, one held in Costa Rica, attended by 15 engineers, and the other in Panamá, attended by 10 engineers; 2 courses for waterworks operators, in Costa Rica and Guatemala, with 16 persons attending each course; and 1 course on food control, in Guatemala, which was attended by 12 sanitation inspectors.

PAHO/R, WHO/R

AMRO-207 (-2104), Sanitary Engineering (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in improving the organization of the environmental sanitation services of the Ministries of Public Health; to advise the agencies responsible for water supply and sewerage services; and to cooperate with universities and other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and secretarial services.

Work done: In addition to giving advisory services to specific sanitary engineering projects in the countries of the Zone, the adviser cooperated with the Ministries of Public Health of Colombia and Perú in the reorganization of their sanitary engineering services and in the preparation of their national plans of water supply for rural areas. He cooperated with the National Institute of Municipal Development in Colombia, with the Quito and Guayaquil water supplies in Ecuador, and with the Subdepartment of Sanitary Works and the Sanitation Corporation of Lima in Perú in the solution of technical and administrative problems relating to the water supply and sewerage services for which these agencies are responsible. He further advised the pertinent authorities in Medellín, Colombia, on water fluoridation for that city to benefit a population of around 500,000.

The adviser also promoted the signing of agreements with schools of engineering in Bolivia, Colombia, and Perú for training sanitary engineers, and cooperated in the organization of 2 courses on water supply and sewerage systems held in Bogotá and Lima.

PAHO/R

AMRO-209 (-2106), Sanitary Engineering (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in improving the organization of the environmental sanitation services of the Ministries of Public Health; to advise the agencies responsible for water supply and sewerage services; and to cooperate with universities and other institutions in the education and training of professional and auxiliary personnel for sanitation work.

Probable duration: 1960-

Assistance provided: 1 sanitary engineer and secretarial services.

Work done: The engineering adviser collaborated with the Ministry of Public Health of Argentina in drawing up a national program of rural water supply and with the Environmental Engineering Research Center in a study on air pollution and a survey of the status of industrial health and safety in the area of Greater Buenos Aires. He also cooperated with the School of Sanitary Engineering of the University of Buenos Aires and with the School of Physical Sciences and Mathematics of the University of Chile to improve and expand training in sanitary engineering, and in the conduct of short courses on water supply services. In addition, he participated in the general environmental sanitation programs which are

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underway in the countries as part of the integrated public health programs being conducted in cooperation with the Organization.

PAHO/R

AMRO-210 (-6206), Medical Education (Zone VI)

Objective: To improve the medical education programs of the schools of medicine of the countries in Zone VI by means of correct planning of teaching and scientific research, of ascertaining the number of physicians and research workers needed in each country, and by the improvement of the organization and administration of the schools.

Probable duration: 1964-

Assistance provided: 1 short-term consultant.

Work done: The consultant made a study of audio-visual devices applicable to the teaching of medicine for the purpose of introducing their use in the medical schools in the Zone.

PAHO/R

AMRO-220 (-0210), Malaria Eradication Epidemiology Team

Objective: To determine the causes of the persistence of malaria transmission in spite of satisfactory application of residual insecticides and recommend additional eradication measures.

Probable duration: 1960-1966.

Assistance provided: 1 epidemiologist since July and another since September.

Work done: Assistance in training national personnel in up-to-date diagnosis of malaria problem areas and in treatment procedures was provided in Mexico.

PAHO/SMF, WHO/MAP

AMRO-234 (-2109), Sewage Disposal and Water Pollution Control

Objective: To advise the Governments in the planning of programs for the construction of sewerages and sewage treatment plants, and in the solution of specific problems regarding water-course pollution.

Probable duration: 1962-

Assistance provided: 1 short-term consultant and advisory services by personnel assigned to Zone Offices and to projects.

Work done: The consultant provided advisory services in San Pedro Sula, Honduras, on a problem of industrial waste and its contamination of a body of water. Arrangements were made to send, in early 1965, a specialist in ocean sewage disposal to Curaçao to make recommendations on a similar water pollution problem affecting the Island.

PAHO/R

AMRO-235 (-4707), Food Sanitation

Objective: To review the municipal food control practices; and to prepare a guide on the subject for the Latin American countries.

Probable duration: 1961-1965.

Assistance provided: 1 short-term consultant and advisory services by personnel of Headquarters, Zone Offices, and other projects; and supplies and equipment.

Work done: After visiting 7 countries in the Region the consultant prepared a draft of a guide on food hygiene, which is to be tried out in some countries. After distributing copies of this guide to the health authorities of the countries and to staff of the Organization, and receiving their comments, the consultant prepared, at the end of the year, the definitive text.

PAHO/R

AMRO-236 (-2110), Refuse and Garbage Disposal

Objective: To advise Governments, upon request, on appropriate methods of garbage collection and waste disposal, and on the organization and administration of the pertinent municipal services.

Probable duration: 1961-

Assistance provided: Short-term consultants.

Work done: One consultant carried out studies of the organization of garbage collection and disposal services in the cities of Mendoza, San Juan, and the metropolitan area of Buenos Aires, Argentina, and made pertinent recommendations. In Santo Domingo, Dominican Republic, advice was given on reorganizing the municipal services of garbage collection and disposal. At the request of the Ministry of Public Health of Venezuela a consultant was provided to advise the Municipality of Caracas on the selection and location of 2 incinerators for the final disposal of the city's solid refuse. In cooperation with staff of the PASB El Paso Field Office, in Texas, and jointly with health authorities of México

and of the United States of America, one consultant visited the localities along the Border, to determine the existing problems of garbage collection and disposal, with a view to possible joint action. Two consultants collaborated with the School of Sanitary Engineering of the University of Buenos Aires, Argentina, on a national seminar held on this subject from 30 November to 4 December which was attended by 70 officers and engineers from Buenos Aires and several municipalities of 7 Provinces.

WHO/R

AMRO-237 (-6203), Medical Education (Zone III)

Objective: To improve the medical education programs of the schools of medicine of the countries in Zone III by means of correct planning of teaching and scientific research, of ascertaining the number of physicians and research workers needed in each country, and by the improvement of the organization and administration of the schools.

Probable duration: 1960-

Assistance provided: 1 short-term consultant; and publications on medical education.

Work done: The pertinent authorities in Costa Rica, El Salvador, and Nicaragua were provided with advisory services on teaching methods and on the administrative organization of schools of medicine. The teaching of clinical medicine was discussed with the authorities of the School of Medicine of Guatemala. At the request of the Central American Higher University Council, the consultant made an on-the-spot study of the need for, and possibility of, establishing a school of public health for the countries of the Central American Isthmus.

PAHO/R

AMRO-240 (-3208), Seminar on Nursing Services

Objective: To bring together in a seminar nurses from Dutch- and English-speaking countries and territories of the Caribbean, for the purposes of determining priorities in planning for nursing services both in hospitals and public health and of providing for continuity of nursing care.

Place and duration: Tobago; 9-17 November.

Assistance provided: 4 short-term consultants and travel and stipends for 46 participants.

Work done: The group analyzed the ways in which

hospital and community nursing services cooperate, and stressed the need to provide for continuity of health care services, use of education techniques, and improvement of the administrative aspects of the services.

The participants were from: Antigua, 1; Aruba, 1; Bahamas, 2; Barbados, 3; Bermuda, 1; British Guiana, 3; British Honduras, 2; Cayman Islands, 1; Dominica, 3; Grenada, 2; Jamaica, 8; Montserrat, 2; St. Kitts, 2; St. Lucia, 3; St. Vincent, 2; Surinam, 2; Trinidad, 5; Virgin Islands (U. K.), 1; Virgin Islands (U. S. A.), 2.

PAHO/R

AMRO-241 (-3500), Regional Advisory Committee on Health Statistics

Objective: To make recommendations to the Organization for the implementation of a strong program to improve basic statistical data for use in health programs and for the extension of education and training programs and statistics research activities.

Probable duration: Biennial meetings, begun in 1960.

Assistance provided: 13 short-term advisers, statistical consultants from Zone Offices and other members of the field and Washington Office staff; costs of the third meeting and of publishing the Committee's report.

Work done: The third meeting of the Regional Advisory Committee on Health Statistics was held from 8 to 12 June. Two principal areas of discussion were Hospital Statistics and Indices of Evaluation. The importance given to the second subject stemmed from the specific recommendations made at the Second Annual Meeting of the Inter-American Economic and Social Council (São Paulo, Brazil, November 1963) for the evaluation of progress toward the goals specified in the Charter of Punta del Este.

In the field of hospital statistics the Committee devoted its attention to the development of medical records and reports in the individual hospital, to statistics relating to hospitals and patients, manuals on hospital statistics, indices for evaluation of hospital programs, and education and training of personnel working on medical records and hospital statistics.

The Committee made several recommendations for development of indices and indicators to measure progress in health programs.

The Third Report of the Regional Advisory Committee on Health Statistics was published in both English and Spanish (*Scientific Publications* 103).

PAHO/R

**AMRO-246 (-0403), Tuberculosis Control
(Zone III)**

Objective: To collaborate with the Governments of the countries of Zone III in the study, organization, conduct, and evaluation of tuberculosis control programs, in the training of professional and auxiliary personnel in modern techniques, and in the integration of tuberculosis control activities into the general health services.

Probable duration: 1963-1966.

Assistance provided: 1 medical adviser.

Work done: The plans of operation were completed for El Salvador and Nicaragua, and the Costa Rica plan was ready for signature; with this, in 5 countries of the Zone antituberculosis programs were underway or ready to begin. In all the countries of the Zone stress was laid on the need to incorporate antituberculosis activities into general health services. In relation to the process of incorporating both types of health services, Costa Rica, El Salvador, and Nicaragua trained auxiliary nursing personnel for their health centers and the general health services began using the trained personnel to initiate systematized tuberculin testing and BCG vaccination.

PAHO/R

**AMRO-247 (-6208), Teaching of Statistics in
Medical Schools**

Objective: To collaborate with interested Governments in the development of medical statistics courses in schools of medicine.

Probable duration: 1961-

Assistance provided: 2-short-term consultants.

Work done: From 20 July to 14 August the consultants conducted a course on the statistical design of medical experiments, for 22 professors and instructors of the School of Medicine of the University of the Republic and staff of institutes of the Ministry of Public Health of Uruguay. This course was conducted with full-time attendance.

One of the consultants also visited the Schools of Medicine of the national universities of Córdoba, Cuyo (Mendoza), La Plata, Litoral (Rosario), and Tucumán, in Argentina, where, in addition to giving lectures, he advised on the teaching of statistics and on technical problems related to research.

Requests for visiting professors in medical statistics were being increasingly met through the education and training programs and especially through professors from Latin America trained under project AMRO-10.

PAHO/R

**AMRO-253 (-3603), Administrative Methods
and Practices in Public Health (Zone III)**

Objective: To collaborate with the Governments of the countries in Zone III for improving the administrative methods and practices of their health services.

Probable duration: 1963-

Assistance provided: 1 consultant in administrative methods.

Work done: The consultant reviewed the preparation of the national health-program budget in El Salvador. In Guatemala he undertook a study of the structure, organization, staffing, operating cost, and work procedure of the Biological Laboratory of the Ministry of Public Health and Social Welfare, and at yearend the recommendations contained in the report were being put into effect by the Ministry. Assistance was also given in the preparation and conduct of the Seminar on the Organization and Administration of Public Health Services, held in Antigua, Guatemala, from 18 to 23 May, in collaboration with the UN Division of Public Administration (see AMRO-198).

Inservice training in administrative practices was given to 17 employees of the Ministries of Health in Zone III.

PAHO/R

AMRO-256 (-4600), Industrial Hygiene

Objective: To cooperate with Governments interested in organizing or improving the operation of national industrial hygiene services by providing technical advisory services and facilities for personnel training.

Probable duration: 1961-

Assistance provided: 1 short-term consultant and consultant services by the Regional Adviser.

Work done: The First Latin American Seminar on Occupational Health was sponsored by PAHO and held in São Paulo, Brazil, from 21 to 26 March with 17 participants from 8 countries (see AMRO-349). In Buenos Aires, Argentina, the Regional Adviser rendered consultant services to the Center of Environmental Sanitation Research, which has working relations with the local School of Sanitary Engineering, and as a result it was recommended that a plan for a study of air pollution in Buenos Aires be put into effect at once. He also spent 2 weeks in Venezuela reviewing the occupational health program of the Ministry of Health (see Venezuela-28). The consultant made a 2-month visit to Bogotá,

Colombia, to evaluate the industrial hygiene program of the Ministry of Public Health.

PAHO/R

AMRO-257.2 (-6607), Seminars on Dental Education

Objective: To examine the current state of dental teaching, discuss existing problems, and formulate recommendations for their solution.

Probable duration: 1962-1966.

Assistance provided: 4 short-term consultants, advisory services by Headquarters personnel, and secretarial services; cost of carrying out the Seminar and travel expenses of the participants; and supplies.

Work done: The Second Latin American Seminar on the Teaching of Dentistry was held in México City, from 18 to 24 October, with the participation of 38 delegates from 18 dental schools of Costa Rica, Cuba, the Dominican Republic, El Salvador, Guatemala, Haiti, Honduras, México, Nicaragua, and Puerto Rico; 75 observers from other Latin American countries and from the American Association of Dental Schools, the Brazilian Association of Dental Teaching, the Colombian Association of Dental Schools, the American Dental Association, the Latin American Association of Dental Schools, and the International Dental Federation were also present. Prior to the Seminar a survey on the teaching of dentistry was conducted in the participating schools; selected articles were translated into Spanish and distributed to the schools as were also distributed some 60 papers which later helped to orient the discussions. The following topics were considered: pre-dental education, physical facilities, correlation of the basic and clinical sciences, organization of the teaching staff, and teaching of preventive and social aspects of dentistry. At the end of the year, the final report of the seminar was being prepared for publication.

PAHO/R, PAHO/G:KF Government of México

AMRO-261, Regional Advisory Committee on the International Classification of Diseases

Objective: To develop Regional Proposals for the revisions of the International Classification of Diseases.

Probable duration: 1961-1964.

Assistance provided: Temporary advisers and costs of the 1961, 1962, and 1963 meetings.

Work done: During its period of operations the committee held 3 meetings. Field trials of terminology in use in Spanish in relation to diarrheal and nutritional deficiency diseases were carried out under the direction of the Latin American Center for Classification of Diseases. Proposals for the 1965 decennial revision of the Classification were developed for the Section on Infective and Parasitic Diseases, Nutritional Deficiency Diseases, and Nutritional Deficiency Anemias and, together with the comments of the Region, were submitted to WHO headquarters for consideration.

In 1964 the Regional Advisory Committee on Health Statistics (AMRO-241), which met in June, reviewed the WHO draft revision of the Section on Infective and Parasitic Diseases of the International Classification and recommended that the original PAHO proposal be used instead, a proposal which, except for the part on acute respiratory diseases, was accepted by the WHO Expert Committee on Health Statistics when it reviewed comments in October. Other results of Committee recommendations were the preparation of a Portuguese edition of the International Classification of Diseases, wider use of the Spanish-language adaptation of the Classification, and translation into Spanish and into Portuguese, and distribution, of the WHO *Draft Manual on Hospital Morbidity Statistics*.

The activities of the Regional Advisory Committee on the International Classification of Diseases will be taken over by the same-level Advisory Committee on Health Statistics until preparatory work is needed for the 1975 revision of the Classification.

AMRO-262 (-4204), Nutrition Advisory Services (Zone IV)

Objective: To provide advice to the countries of Zone IV on the development of nutrition programs (especially at the local health service level), on applied research related to nutrition programs, and on the training of personnel.

Probable durations: 1956-

Assistance provided: 1 medical nutritionist.

Work done: Advisory services to health agencies and institutes of nutrition in the 4 countries of the Zone were continued. The services emphasized the importance of integrating nutrition activities with national health plans, the selection of personnel for training, and the organization of research into local problems.

WHO/R

AMRO-263 (-0504), Leprosy Control (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in the study, organization, conduct, and evaluation of leprosy control programs, in the training of professional and auxiliary personnel in modern techniques of leprosy control, and in the integration of leprosy control activities into the general health services.

Probable duration: 1960-

Assistance provided: 1 medical officer and consultant services by the advisers of projects AMRO-143 and AMRO-316, and by the staff of Headquarters and of other country projects.

Work done: Advisory services were given to Bolivia, Colombia, and Ecuador on leprosy control, the organization of services, and personnel training (see Colombia-19 and Ecuador-18). In Bolivia a draft for a nationwide leprosy control program was prepared at the request of the Government.

WHO/R

AMRO-266 (-3507), Regional Development of Epidemiological Studies

Objective: To obtain, through special investigations, accurate and comparable data on causes of death of adults in selected cities of the Americas.

Probable duration: 1961-1966.

Assistance provided: 1 epidemiologist, 1 statistician, and 1 clerk stenographer; and funds for field investigators to defray local expenses in 11 of the cooperating cities.

Work done: Field work was completed in 9 of the 12 collaborating cities, and by the end of 1964 was nearing completion in the remaining 3 cities.

Processing of the material, including review by 2 medical referees, was approximately 65 percent complete. Tabulations of the data from the first year of the investigation in 11 cities had been received and were being analyzed. Population estimates, by age and sex, based on recent census data were available for 9 cities.

A paper giving preliminary results from 4 cities was presented at the 92nd Annual Meeting of the American Public Health Association, held in New York City from 5 to 9 October, and preparatory work for the Review Conference of Principal Collaborators, scheduled for February 1965, was well advanced.

PAHO/R, PAHO/G: USPHS-NIH

AMRO-268 (-4108), Clinical and Social Pediatric Courses

Objective: To assist in organizing yearly courses on social pediatrics for physicians interested in pediatrics or for pediatricians in charge of maternal and child health services in Latin America who wish to enlarge their experience in this field.

Probable duration: 1961-

Assistance provided: 10 medical fellowships respectively included in either the Health Service or the Fellowships for Health Services project of the pertinent country.

Work done: A course on social pediatrics was given at the School of Medicine of the University of Chile in Santiago from 7 April to 27 June. Among the pediatricians, professors of pediatrics, and medical officers in charge of maternal and child health services who attended the course, 2 came from Brazil, 2 from Ecuador, 1 from Guatemala, 1 from Panamá, 1 from Paraguay, 1 from Uruguay, and 2 from Venezuela; 2 Chileans also attended, without fellowships.

Some studies were made on the possibility of conducting similar courses in Brazil, Colombia, and México.

UNICEF

AMRO-269 (-4201), Nutrition Advisory Services (Zone I)

Objective: To collaborate with the countries and territories of Zone I in the study and evaluation of their nutrition problems and current needs; in planning, in close cooperation with national and international agencies, nutrition education programs and programs to foster the production of protein-rich foods; and in integrating nutrition programs into health services at all levels.

Probable durations: 1961-

Assistance provided: 1 nutrition adviser.

Work done: Several meetings were held in San Juan, Puerto Rico, to work out in detail the functions, staffing needs, and costs of the projected Caribbean Nutrition Center.

Three-day nutrition sessions were included in a training course for 35 public health inspectors in Jamaica, where a course in nutrition was held for 20 school teachers. In Surinam, the World Food Program was initiated in a rural community.

Papers on "Anemia in Malnutrition," "Anemia in Pregnancy," and "Anemia in Lactation" were published.

See also projects Trinidad and Tobago-9 and West Indies-22.

WHO/R

AMRO-270 (-2209), Courses on Design of Water Supply Systems

Objective: To organize and carry out short courses on problems of specific interest to Governments, in connection with water supply programs.

Probable duration: 1961-

Assistance provided: 5 short-term consultants; training supplies and equipment; funds for supplementary university-payment of local professors, coordinators, and auxiliary personnel, as well as to meet costs of preparation and publication of technical manuals referring to each course, and the following fellowships:

Awards	Country of origin	Country of study	Months
3	Argentina (2), Nicaragua	Chile	½
13	Bolivia (2), Colombia (4), Costa Rica (2), Dominican Republic, Ecuador, El Salvador, Nicaragua (2)	Perú	½
9	Bolivia (2), Costa Rica (2), Dominican Republic, Ecuador, Guatemala, México, Nicaragua	Colombia	½
7	Colombia (2), Dominican Republic (2), Nicaragua (2), Uruguay	Brazil	½
2	Dominican Republic, Nicaragua	México	½

Work done: 10 courses were planned (1 was later rescheduled for 1965). Places, dates, titles, and other details of the courses held follow:

México, D. F., México; 22 June-11 July; Operation of Water Treatment Plants; 10 national students and 1 each from Haiti and the Dominican Republic (all professional personnel).

México, D. F., México; 26 October-7 November; Water Chlorination Techniques; 31 national students (6 professional and 25 auxiliary personnel).

San José, Costa Rica; 9-20 November; Water Quality Control; 13 national students (9 professional and 4 auxiliary personnel).

Panamá, Panamá; 23 November-4 December; Water Quality Control; 10 national students (all professional personnel).

Lima, Perú; 30 November-12 December; Economic Criteria on Planning of Water Supply and Sewerage Projects; 16 national students and 13 from: Bolivia (2), Colombia (4), Costa Rica (2), Dominican Republic, Ecuador, El Salvador, Nicaragua (2) (all professional).

Bogotá, Colombia; 7-16 December; Economic Feasibility of Water Supply Projects; 15 national students and 9 from: Bolivia (2), Costa Rica (2), Dominican Republic, Ecuador, Guatemala, México, Nicaragua (all professional personnel).

São Paulo, Brazil; 7-19 December; Biological Waste

Treatment and Stream Pollution Control; 47 national students and 12 from: Argentina (2), Colombia (4), Dominican Republic, Ecuador, El Salvador, Nicaragua (2), Paraguay (all professional personnel).

Monterrey, México; 7-19 December; Water Treatment Plants; 13 national students and 1 each from Dominican Republic and Nicaragua (11 professional and 4 auxiliary personnel).

Santiago, Chile; 9-19 December; Water Quality and its Relation to the Chemical Treatment and Standards; 22 national students, 4 from Argentina and 1 from Nicaragua (all professional personnel).

A manual of operations to guide and coordinate teaching activities was prepared and distributed, and a technical manual on plastic pipes was printed in book format; 8 manuals corresponding to the above courses were reproduced in mimeographed form, and drafts of 2 books were reviewed.

PAHO/OAS-PTC

AMRO-272 (-6209), Study of Medical School Organization

Objective: To provide deans of faculty members who have administrative responsibilities in medical schools in the Hemisphere with an opportunity to visit similar institutions in order to study their teaching and administrative structure and ways of functioning.

Probable duration: 1962-1966.

Assistance provided: 1 short-term consultant; travel expenses of the participants; and publications concerning medical education.

Work done: A group of 12 deans or professors holding administrative responsibilities in medical schools of Brazil, Costa Rica, Chile, Ecuador, Honduras, México, Perú, and Venezuela, accompanied by a coordinator, visited the Schools of Medicine of Costa Rica, of the University of Minas Gerais, in Belo Horizonte, Brazil, of the University of São Paulo, Brazil, and of the Escola Paulista de Medicina, also in São Paulo. In those schools, the group studied the administrative structure and teaching programs, in particular: the need for pre-medical studies at the university level and the importance of the teaching of preventive medicine. As a part of the visits, discussion groups made up of the visiting deans and the faculty of the schools visited were organized for educational purposes.

PAHO/R

AMRO-273 (-4300), Mental Health

Objective: To introduce uniformity into the concepts of integrating mental health activities into public health practice.

Duration: 1963-1964.

Assistance provided: Cost of publishing the report of the Second Latin American Seminar on Mental Health (Buenos Aires, Argentina, 8-15 September 1963).

Work done: See *PAHO Scientific Publication* 99, 1964.

PAHO/R

AMRO-274⁰, Salt Fluoridation

Objective: To study the possibility of using common salt as a new vehicle for fluorine in the prevention of dental caries.

Probable duration: 1963-1967.

Assistance provided: Advisory services by personnel from Headquarters.

Work done: The School of Dentistry of the University of Antioquia, in Medellín, Colombia, reviewed the results of the clinical, nutritional, and dental investigations carried out in the 4 communities where the study is underway. Procedures for controlling the distribution, quality, and amounts of fluoridated salt were established, and the laboratories for future analyses connected with this project were installed.

USPHS-NIH

AMRO-275 (-0902), Chagas' Disease

Objective: To assist Governments in obtaining a better knowledge of the epidemiological characteristics of Chagas' disease, of its extent, and of practical measures to control the disease.

Probable duration: 1960.

Assistance provided: Advisory services by Headquarters staff; and supplies and equipment.

Work done: As a result of an agreement with the School of Medicine of the University of Chile, an antigen to be used with a standard technique in the complement fixation test to diagnose Chagas' disease was made available for distribution to countries upon request.

PAHO/R

AMRO-277 (-2111), Manual of School Sanitation

Objective: To advise the Governments on the planning and design of sanitary installations for schools; and to prepare a manual on this subject.

Probable duration: 1962-1965.

Assistance provided: 1 short-term consultant; and services for editing the Spanish-language Manual and for translating it into English.

Work done: Comments and suggestions were received on the first draft of the Manual of School Sanitation. The consultant prepared a second draft, and the revised text was sent to WHO headquarters for use in other Regions.

PAHO/R

AMRO-280 (-0108), Research Training Program in Virology (University of Minnesota)

Objective: To study the ecology of arboviruses, especially the role of migratory birds in the spread of arboviruses in temperate and tropical areas in the northern part of the Hemisphere; and to provide research training in this field.

Probable duration: 1961-1966.

Assistance provided: Advisory service by staff of Headquarters.

Work done: The Cornell University team, which was the first to isolate in México the virus of Venezuelan encephalitis at Sontecomapan, Veracruz, concentrated its studies on the ecology and distribution of this agent. A third training course on this subject was attended by 1 student from México, 1 from Iran, and 5 from the United States of America. Each of these students engaged in individual research in areas with varying ecology in Veracruz State. Such research included the collection of mosquitoes, the capture of birds (especially herons) and sylvatic mammals, a study of the role played by bats, the use of hamsters as sentinels, and the collection of human sera at a small *ad hoc* clinic.

USPHS-NIH

AMRO-281 (-3100), Planning

Objective: To assist the Governments, upon request, in the formulation of national health plans and the training of planners.

Probable duration: 1961.

Assistance provided: 2 short-term consultants and advisory services by personnel of Headquarters and of country projects; and supplies and equipment.

Work done: The Organization cooperated in the holding of a special health planning course at Johns Hopkins University (Baltimore, Maryland, U. S. A.) from 8 April

to 4 June. The course was attended by 1 health officer from Brazil, 1 from PAHO, and 3 from other WHO Regions.

One of the consultants acted as instructor in the special course on health planning held in cooperation with the Latin American Institute for Economic and Social Planning in Santiago, Chile, from 7 September to 4 December (see AMRO-322).

Assistance was given in the evaluation of the first 6 months' experience of the national health plan in El Salvador, and in the formulation of national health plans in Nicaragua and Perú.

PAHO/R **Inter-American Economic and Social Planning Institute**

AMRO-283 (-3110), Coordination of International Research

See Research, Chapter V.

PAHO/R, PAHO/G: USPHS-NIH

AMRO-284 (-6600), Dental Education

Objective: To assist university authorities of the interested countries in improving teaching in the schools of dentistry.

Probable duration: 1963-

Assistance provided: 1 short-term consultant and consultant services by the Regional Adviser; and supplies and equipment.

Work done: Advisory services were given in Colombia to the National University, in Bogotá, in studying the possible establishment of a department of preventive and social dentistry in its School of Dentistry, and to the University of Cartagena to supplement the activities of the recently created Department of Preventive and Social Dentistry; and in Panamá to the Government on the planning of a school of dentistry soon to be established. Assistance was given in setting up departments of preventive and social dentistry in the universities of El Salvador (San Salvador), Nuevo León (Monterrey, México), the National University of Nicaragua (Managua), and the Central University of Venezuela (Caracas).

There was also collaboration with the Latin American Association of Schools of Dentistry in carrying out its own reorganization, an intensive course on teaching of dentistry attended by Latin American professors, and a meeting of deans of Latin American schools of dentistry.

Advice was given to the Federation of Dentists of the Central American Countries and Panamá on a round-table meeting held in August on the teaching of dentistry.

WHO/R

AMRO-288 (-4210), Evaluation of Applied Nutrition Programs

Objective: To evaluate, jointly with FAO and UNICEF, the applied nutrition programs operating in 16 countries of the Americas.

Probable duration: 1964-1965.

Assistance provided: 1 nutrition adviser.

Work done: The adviser visited applied nutrition projects in Northeast Brazil, Colombia, Costa Rica, Panamá, Paraguay, and Trinidad. A working paper on "Current Practice in Personnel Supervision and Periodic Reporting as Related to Evaluation of Nutrition Programs" was prepared for the joint FAO/WHO seminar to be held in Rome, in January 1965.

PAHO/R

FAO, UNICEF

AMRO-289 (-3201), Nursing (Zone I)

Objective: To collaborate with the countries and territories of Zone I in the development of basic aspects of research, planning, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1959-

Assistance provided: 1 nurse-consultant.

Work done: Several visits were made with each of 4 PAHO/WHO nurses assigned to projects in Zone I. Assistance as follows was provided: in Antigua, in planning, organizing, and implementing the Seminar on the Study of Nursing Education in 12 islands (West Indies-12); in Barbados, in planning, organizing, and teaching the second Course in Orientation to Public Health Nursing for district nurses (West Indies-13); in Trinidad, in preparations for, and participation in, the Seminar on Nursing Services (AMRO-240), held from 9 to 17 November with 46 participants from the Dutch- and English-speaking areas of the Caribbean.

Consultant services were provided in Jamaica to the nursing committee responsible for the implementation of the Study of Functions of Public Health Nurses and Inspectors. Advisory services were continued to the principal nursing officer. In collaboration with the University of the West Indies Hospital and the Jamaica-12

VIII. PROJECT ACTIVITIES

nurse educator a course in pediatric nursing was started on 20 September with 7 students.

In Venezuela, the assistance to the Department of Nursing was continued.

Advisory services were also provided in those areas not covered by project nurses (Bahamas, British Virgin Islands, Cayman Islands, and Curaçao).

PAHO/R

AMRO-290 (-3202), Nursing (Zone II)

Objective: To collaborate with the Governments of the countries of Zone II in the development of basic aspects of research, planning, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1962-

Assistance provided: 1 nurse-consultant.

Work done: Advisory services in matters of public health nursing and education were provided to the 4 countries of the Zone. Nursing problems and activities underway in Cuba were discussed with PAHO/WHO nurses stationed in that country.

Meetings were held in the Dominican Republic to discuss the country's nursing service needs; and a study to measure nursing activities against community needs was carried out in the city of San Cristóbal, where the integration of the nursing services of the Health Center with those of the local hospital was begun.

In Haiti a nursing council appointed by the Ministry of Public Health began to plan the establishment of a national nursing unit. Plans were prepared for the orientation and supervision of recently graduated nurses, pursuant to a law which provides that nurses must serve in rural areas for 2 years. Preliminary plans for a nutrition seminar for nurses were discussed with the PAHO/WHO nutrition consultant and the national nurse in charge of nursing services.

A seminar on nursing services was held in México, as were several other meetings of nurses employed by the Social Security Administration, the Juárez Hospital, and other institutions.

PAHO/R

AMRO-291 (-3203), Nursing (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in the development of basic aspects of research, planning, organization of services,

and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1963-

Assistance provided: 1 nurse-consultant.

Work done: Advisory services to expand national health services and improve professional education and training were again provided to most of the countries in Zone IV. Advisory services were directly provided to nursing units or sections, in the integration of those services into general health plans, the training of auxiliaries, and the improvement and extension of programs.

PAHO/R

AMRO-292 (-3204), Nursing (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in the development of basic aspects of research, planning, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1952-

Assistance provided: 1 adviser in nursing and part-time services of nurses assigned to country health services project.

Work done: The studies on nursing needs and resources in Ecuador were completed and published, and those in Bolivia and Perú were continued.

Technical advice was contributed in Ecuador for the creation of a nursing division in the recently created office of the Under Secretary of Health. This unit completes the establishment of a nursing section responsible for overall planning and development of nursing within each of the Zone countries.

Ecuador prepared 30 auxiliaries for the Manabí Health Demonstration Area, 21 for the Rural Medical Services project (Ecuador-22), and 80 for the rest of the country.

In Bolivia, Colombia, and Perú periodic advisory services were provided to the Nursing Unit at the national level.

PAHO/R

AMRO-294 (-3206), Nursing (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in the development of basic aspects of research, planning, organization of services, and education of professional and auxiliary nursing and midwifery personnel.

Probable duration: 1963-

Assistance provided: 1 nurse-consultant.

Work done: Through local courses, 219 nursing auxiliaries were prepared in Argentina, 1,167 in Chile, and 44 in Paraguay. Inservice training was given to 411 nurses, 128 midwives, and 579 nursing auxiliaries in Argentina; to 91 nurses in Chile, and to 27 auxiliaries in Paraguay. Additional training was provided through supplementary courses to 19 nurses in Argentina, to 24 in Chile, 4 in Paraguay, and 14 in Uruguay; in addition, Paraguay trained 20 midwives and 20 social workers.

Local seminars were attended by 910 nurses in Argentina and 175 in Chile.

The countries of the Zone had the following numbers of students in their nursing schools: Argentina, 351; Chile, 910; Paraguay, 51; and Uruguay, 255.

In Argentina the consultant assisted in the establishment of intensive nursing care units in 4 hospitals in Buenos Aires; continued to assist nursing personnel in the organization and administration of nursing care services in 10 Provinces and in one of them collaborated in the preparation of a nursing services budget, salary schedules, and nursing personnel job descriptions; participated in the organization and carrying out of national seminars, round-table discussions, and workshops aimed to improve nursing education and nursing services, and in the organization of the first inservice training course for 128 midwives attached to Government services.

Collaboration in the preparation of program, budget, and salary scales for nurses assigned to Government services was provided to the national nursing section of Chile, where assistance in the implementation of inservice education programs, through which 87 nurses and 4 midwives were trained, was also provided.

In Paraguay, assistance was continued in the study of 10-year needs in nursing midwifery, the reorganization of nursing services in Asunción and other areas of the country, and the orientation to public health courses for midwives and nurse-midwives. The assistance provided in Uruguay concerned the organization of the national campaign against poliomyelitis. Assistance was continued to the nurses at the national level.

PAHO/R

AMRO-302 (-4308), Mental Health Information Center on Latin America

Objective: To establish an agency to receive and distribute information on mental health activities in Latin America, facilitate communication between men-

tal health workers, and stimulate scientific research in this field.

Probable duration: 1963-1965.

Assistance provided: 1 analyst, clerical personnel, and supervision and orientation of project development by the Regional Adviser in mental health.

Work done: An annotated bibliography of psychiatric literature published in Latin America during 1960-1962 was compiled; annotations made correspond to 24 books and 409 articles published in scientific journals. A provisional list of psychiatrists and their addresses in the Latin American countries was also prepared, and a questionnaire was sent to them with a view to preparing a directory in the future. Another questionnaire was prepared to collect information on mental health care and prevention services currently available in Latin American countries.

PAHO/G: USPHS-NIH

AMRO-303 (-4803), Medical Care Services (Zone III)

Objective: To collaborate with the Governments of the countries of Zone III in the integration of medical care services with the general health services and in the formulation of suitable standards for health care.

Probable duration: 1962-

Assistance provided: 1 medical officer; and a small amount of supplies and equipment.

Work done: Advisory services were provided to the Governments of El Salvador, Honduras, and Panamá on the integration of public health services with medical care services, which are usually separate.

In El Salvador also, 1 health unit and 1 rural health center were established, 120 nursing auxiliaries and 14 X-ray technicians were trained, and inservice training in pediatrics and nutrition was given to 44 nurses.

In Panamá, 1 health center and 4 others that include pediatric-service facilities, the latter with a total of 36 beds, were established; 36 nursing auxiliaries were trained and inservice training was provided to 150 nursing auxiliaries and 8 clinic aides.

PAHO/R

AMRO-304 (-4806), Medical Care Services (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in the development of medical

VIII. PROJECT ACTIVITIES

care programs, especially with regard to hospital planning and administration.

Probable duration: 1961-

Assistance provided: 1 adviser specialized in medical care.

Work done: Advisory services were provided to the Ministry of Social Welfare and Public Health of Argentina on various aspects of medical care, including rules and regulations for its Directorate of Hospitals and the administrative reorganization of the Directorate of Hospital Organization and Administration. Advisory services were also provided to the Ministries of Health of the Provinces of Buenos Aires, Chubut, El Chaco, Entre Ríos, Mendoza, San Luis, and Tucumán; to the Aeronautics Hospital of the Ministry of Defense; to the Municipal Hospital of Avellaneda, in Buenos Aires Province, in matters of organization; to the social institutions of banks, the Medical Service of the State Gas Company, and the Rofo Institute of Cancerology. The School of Public Health of Buenos Aires and the Directorate of Architecture of the Province of Buenos Aires also received assistance, in the conduct of courses.

The Governments of Chile, Paraguay, and Uruguay were provided with advisory services on various aspects of their plans regarding medical care and hospital organization and administration.

PAHO/R

AMRO-305 (-0506), Leprosy Control (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in the study, organization, conduct, and evaluation of leprosy control programs, in the training of professional and auxiliary personnel in modern techniques of leprosy control, and in the integration of leprosy control services into the general health services.

Probable duration: 1962-

Assistance provided: 1 leprosy adviser for 3 months and advisory services by Headquarters and Zone Office staff.

Work done: With the advice of PAHO/WHO and the financial assistance of UNICEF, the National Leprosy Service of Argentina conducted a course on leprosy which was attended by medical officers from Argentina, Paraguay, and Uruguay. Advisory services were again given to the Argentine authorities in the organization, maintenance, and evaluation of a system of data registration.

Technical advisory services were given to Paraguay

in the study and evaluation of the current leprosy control program, as well as in the preparation of a new program to meet technical requirements not heretofore contemplated.

WHO/R

AMRO-307 (-3108), Field Office at El Paso, Texas

Objective: To stimulate joint study and planning of health activities along the United States-México Border; and to facilitate the exchange of epidemiological information.

Probable duration: 1952-

See Zone and Field Offices, Chapter VII.

PAHO/R

AMRO-316 (-0404), Tuberculosis Control (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in the study, organization, conduct, and evaluation of tuberculosis control programs, in the training of professional and auxiliary personnel in modern techniques of tuberculosis control, and in the integration of tuberculosis control activities into the general health services.

Probable duration: 1962-1966.

Assistance provided: 1 adviser specialized in tuberculosis control techniques.

Work done: Activities were continued in the Bolivia program (Bolivia-7). In Perú, problems encumbered the Tacna program (Perú-29) and the Junín program (Perú-29A) was initiated only in the locality of La Oroya, which has 30,000 inhabitants. Efforts to coordinate tuberculosis control services with other public health services were continued in Colombia. In Ecuador the orientation of the tuberculosis control services improved on the appointments of a new chief of BCG vaccination and of a supervisor for the welfare services of the Ecuadorian Antituberculosis League. The average stay of patients in specialized hospitals was substantially reduced.

WHO/R

AMRO-317 (-4804), Medical Care Services (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in the integration of medical

care services with the general health services and in the formulation of suitable standards for health care.

Probable duration: 1963-

Assistance provided: 1 adviser specialized in medical care.

Work done: In Bolivia advisory services were provided to the National Directorate of Hospitals, of the Ministry of Public Health, and assistance was provided in conducting a national seminar on hospital administration, which was held in July.

In Colombia advisory services were provided in connection with the program of the Medical Care Division of the Ministry of Public Health and the improvement of existing facilities. Assistance to the Division of Vital Statistics concerned establishing hospital terminology and efficiency indices in hospitals. Advisory services were also provided to the School of Public Health, in relation with a course in hospital administration, and to the Hospital Accrediting Committee of the Colombian Association of Schools of Medicine.

In Ecuador the Guayaquil Division of Public Welfare was provided with advisory services in revising the plans for a health center hospital, and lectures on hospital administration and on concepts of integration and coordination were given during a postgraduate course on nursing administration.

In Perú advisory services in medical care were provided to the Hospital Division of the Ministry of Public Health and Social Welfare, and to the Superintendency of Hospitals of the National Social Security Fund. Several lectures were given in connection with a course on hospital administration held at the school of Public Health and with a similar course held at the Cayetano Heredia School of Biological Sciences. The consultant also served on the Committee appointed to plan the remodeling of the May 2nd and Arzobispo Loaiza Hospitals in Lima.

PAHO/R

AMRO-318 (-3104), Planning (Zone IV)

Objective: To collaborate with the Governments of the countries of Zone IV in the formulation of national health plans and the training of planners.

Probable duration: 1963-

Assistance provided: 1 medical officer (specialist in health planning).

Work done: The first semester was devoted to the provision of technical advisory services to the countries of Zone IV (principally Colombia and Perú) in the form-

ulation of health plans. In Colombia, as a first step in initiating a diagnosis of the health situation in the demonstration area of Fusagasugá, a short course on the methodology of health planning was given at the School of Public Health in Medellín. In Perú, assistance was given to the Sectoral Planning Office in formulating a methodology of health planning for the country.

The medical officer also served as co-director of the special course in health planning held from 7 September to 4 December in collaboration with the Latin American Institute of Economic and Social Planning, at Santiago, Chile (see AMRO-281).

PAHO/R

AMRO-319 (-3606), Administrative Methods and Practices in Public Health (Zone VI)

Objective: To collaborate with the Governments of the countries in Zone VI for improving the administrative methods and practices of the health services.

Probable duration: 1963-

Assistance provided: 1 consultant in administrative methods.

Work done: The studies initiated at the end of 1963 by the consultant, on the structure, organization, and administrative practices in the 4 countries of the Zone, were completed in early 1964.

The consultant service provided in Argentina was mainly directed towards the establishment of a training program. Twenty-one persons from the administrative corps of the Health Ministry participated in this program, conducted from May to September. The curriculum featured a review of the theory and application of the major areas of administration. Assistance also was rendered to the Health Ministries of the Provinces of San Juan and Tucumán, with emphasis on the establishment of an organization-and-methods program in the first and on the relationship of administration and planning in the latter. The consultant also took a leading part in the development of plans for the initiation of a program of assistance in the organization and administration of leprosy activities in several Provincial Ministries of Health.

Discussions were held in Chile on proposals for a training course in administration and, in addition, assistance was furnished to the Ministry of Public Health in a study of its records management system.

The advisory service provided in Paraguay concentrated both on the continued development of a system of program budgeting and the accounting machinery

on which such program budgeting is founded, and on development of personnel practices and statistics.

In Uruguay the service rendered concerned a review of, and recommendations on, the records keeping system of the Ministry of Public Health.

PAHO/R

AMRO-322 (-3106), Planning (Zone VI)

Objective: To collaborate with the Governments of the countries of Zone VI in the formulation of national health plans and the training of planners.

Probable duration: 1963-1966.

Assistance provided: 1 medical officer (specialist in health planning).

Work done: Approximately half of the year was devoted to providing technical assistance to the countries of Zone VI (principally Argentina and Chile) in the formulation of health plans, and to short-term consultation of similar nature in Zone I (Venezuela) and Zone III (El Salvador). In Chile, 30 executives were trained in a 7-week course as part of a plan to train 100 of them. During the remainder of the year the medical officer assisted in the special course in health planning held in collaboration with the Latin American Institute of Economic and Social Planning, in Santiago, Chile (see AMRO-281) and in a simultaneous course held for Chilean health officers at the School of Public Health in Santiago.

PAHO/R

AMRO-323 (-2210), Regional Conference on Rural Water Supplies

Objective: To gather an outstanding group of experts in the development of water supply programs and, in the light of their experiences, consider possible ways and means that would enable Ministries of Health to put into practice, with the greatest possible efficacy, national plans to supply water to rural populations.

Place and duration: Bogotá, Colombia; 29 June-4 July.

Assistance provided: Travel and per diem for 41 participants.

Work done: The meeting had the following participants: Argentina, 2; Barbados, 1; Bolivia, 2; Brazil, 3; British Guiana, 1; British Honduras, 1; Chile, 2; Colombia, 9; Costa Rica, 1; Dominican Republic, 1; Ecuador, 1; El Salvador, 2; Grenada, 1; Guatemala, 1;

Honduras, 2; Jamaica, 2; México, 4; Nicaragua, 4; Panamá, 1; Paraguay, 1; Perú, 3; Trinidad and Tobago, 1; United States of America, 1; Uruguay, 1; and Venezuela, 2. Others attendants were: 6 officers from AID, 2 from IADB, 1 from the University of North Carolina, U. S. A., and 27 from PAHO/WHO.

The Conference studied the problems connected with the provision of water to rural populations and made recommendations on the planning, financing, organization, and operation and maintenance required for this type of program. Emphasis was given to the necessity of having a special funding mechanism for financing water supply programs in rural areas as well as of establishing national revolving funds to assure the continuity of the programs.

WHO/R

AMRO-331 (-3510), Epidemiological Research on Cancer

Accounts pending in connection with one of the temporary advisers who participated in the Planning Conference on Epidemiological Research on Cancer (Lima, Perú, 1963) were settled.

PAHO/G: USPHS-NIH

AMRO-334 (-4110), Coordinated Research on the Etiology of Congenital Malformations

Objective: To obtain expert advice for the implementation of Resolution XIV of the XVI Pan American Sanitary Conference (Minneapolis, Minnesota, U. S. A., 1962) through a research program on the etiology of congenital malformations.

Probable duration: 1963-1965.

Assistance provided: Temporary advisers.

Work done: A meeting was held on 7 January to consider further the development of community-centered research on congenital abnormalities in the United States of America, in accordance with the interest expressed by health officials of New York City and California. The group recommended that projects be developed in Caracas, Venezuela, and in New York City and the State of Minnesota, U. S. A. A short-term adviser analyzed the possibility of developing the project in Caracas and a draft proposal has been received at Headquarters. An application for a research grant for work in New York City was submitted on 23 June to the National Institutes of Health. As regards Minneapolis,

the proposed plans were discussed with the staff of the State Health Department on 6 April, and research was begun.

On 22 May, at a meeting with the Dental Health Center of the U. S. Public Health Service, the coordination of dental research work and the possibility of research on cleft palate and lip in Latin America were considered.

One of the advisers developed a draft of a manual on standard definitions and procedures regarding congenital malformations, for review and discussion by a small informal working group scheduled to meet in early 1965.

PAHO/G: USPHS-NIH

AMRO-338 (-4100), Maternal and Child Health Program Planning and Service Norms

Objective: To prepare guidelines for establishing priorities and service standards in connection with maternal and child health program planning, including the carrying out of practical surveys, holding of seminars, and related activities.

Probable duration: 1964-1966.

Assistance provided: Costs of translating and printing teaching and reference materials.

Work done: Project aims and implementation at Zones II and III were discussed at staff meetings. In Panamá's Penonomé District a pilot area was developed to try out new policies and procedures, planned in an effort to make better use of local resources and personnel in order to improve the maternal and child health services offered without increasing the cost.

PAHO/R

AMRO-339 (-4507), Radiation Health Protection

Objective: To cooperate with interested Governments in establishing protection against radiation hazards, by providing technical advisory services through a consultant stationed in Lima, Perú.

Probable duration: 1964.

Assistance provided: 1 health physicist.

Work done: The health physicist was recruited in November. After a period of orientation that included visits to several centers in the United States of America, the consultant departed in mid-December for Lima, Perú, which will be his permanent field base of operations.

PAHO/R

AMRO-341 (-4214), Training Center for Nutrition Education (Puerto Rico)

Objective: To train supervisory personnel engaged in applied nutrition programs to plan, conduct, and evaluate program activities and teach nutrition education.

Probable duration: 1963.

Assistance provided: Advisory services by Headquarters personnel and by the nutrition adviser assigned to Zone I; and the following fellowships to attend the course of the Center:

Awards	Country of origin	Months
3	Bolivia	3
4	Colombia	3
5	Ecuador	3
4	Paraguay	3
4	Perú	3

Work done: A multidisciplinary, 3-month training course stressing planning for applied nutrition programs was conducted by the University of Puerto Rico. The attendants represented teams of project directors of applied nutrition programs coming from the fields of health, agriculture, and education.

PAHO/R

FAO, UNICEF

AMRO-344 (-0211), Seminars on the Functions of Local Health Services in Malaria Eradication Programs

Objective: To study the participation of local health services in malaria eradication programs, through seminars where the authorities of the general health services and the directors of malaria eradication campaigns of the Hemisphere exchange views and experiences.

Probable duration: 1963-1965.

Assistance provided: 2 short-term consultants.

Work done: The first seminar was held in Poços de Caldas, Minas Gerais, Brazil, from 26 June to 4 July and was attended by 73 participants from Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Perú, and Venezuela and by officials from PAHO/WHO, UNICEF, and AID. A final report was issued immediately after the seminar.

PAHO/SMF

AMRO-346 (-3107), Public Health Administration (Caribbean)

Objective: To assist the Governments of the Caribbean Area in the analysis of current health problems,

VIII. PROJECT ACTIVITIES

Work done: 31 District nurses received intensive orientation in public health nursing (see West Indies-3).

UNICEF

AMRO-374 (-6210), Teaching Methods and Administrative Organization in Medical Schools

Objective: To cooperate with medical schools interested in revising their teaching methods and administrative procedures, by means of group discussions and seminars to determine the most adequate pedagogic techniques and administrative procedures for teaching in schools of medicine.

Probable duration: 1964-

Assistance provided: 1 short-term consultant; expenses of the participants in meetings on medical education; and distribution of publications relating to medical education.

Work done: The consultant, a specialist in medical education, assisted the School of Medicine of the University del Valle, in Cali, Colombia, with the School of Medicine, in Santiago, of the University of Chile, and with the School of Medicine of the University of Minas Gerais, in Belo Horizonte, Brazil, in organizing discussions of groups of the faculty on several pedagogical aspects of the teaching of medicine. The discussions were primarily aimed at analyzing the human relations between teachers and students in the learning process. Professors of other schools of medicine participated in these discussions for the purpose of learning the techniques employed and adapting them to their respective schools.

WHO/R

AMRO-376, Food and Drug Control (Zone III)

Objective: To assist the countries of Zone III to establish national food and drug control programs; to provide technical advisory services and facilitate personnel training; and to coordinate these activities in the regional reference laboratories of INCAP, for foodstuffs, and of the University of Panamá, for drugs.

Probable duration: 1964-

Assistance provided: 1 short-term consultant and advisory services by the consultant of project AMRO-188; and a grant to the Adolfo Lutz Institute, of São Paulo, Brazil.

Work done: The consultant and the chiefs of food

control laboratories of El Salvador, Guatemala, Nicaragua, and Panamá, together with personnel of ICAITI (Central American Investment and Industrial Technology Institute), INCAP, and Zone III Office, met in Guatemala in May to review the 80 food sanitation standards prepared by the consultant in cooperation with the Adolfo Lutz Institute (see AMRO-150).

The consultant cooperated with INCAP in the organization of laboratory services for food analysis and control at the Institute.

The laboratories of the University of Panamá were provided with a series of technical publications, international standards, and text materials for food and drug control and analysis.

PAHO/R

AMRO-377 (-2212), Rural Water Supply

Objective: To assist the countries to meet the goal set by the Charter of Punta del Este, by providing them with advice (a) on the planning, financing, and carrying out of national plans for rural water supply programs, emphasizing community organization and participation and the establishment of national revolving funds; and (b) on the development of the administrative structure needed for carrying out accelerated programs to meet the growing needs of people in the rural areas.

Probable duration: 1964-

Assistance provided: 1 community organization specialist, 1 health educator, and advisory services through technical staff from Headquarters, Zone Offices, and country projects.

Work done: Assistance provided under this project varied all the way from (a) laying the ground work for the development of the revolving fund as a method for financing the smaller water supply systems to (b) helping develop a more favorable climate for the acceptance of requests for loans to finance rural community water supply programs and to (c) stimulating requests from several countries for such loans.

IADB approved and implemented loan requests for Venezuela (for 300 communities), Chile (300 communities), Perú (150 communities), and for a number of small communities in El Salvador. Loan requests were under negotiation for Costa Rica, Guatemala, Honduras, Panamá, and Venezuela (2nd phase). Assistance was given to Argentina and Brazil in the preparation of national plans and loan requests for future presentation to IADB. In Central America, assistance was being

the proposed plans were discussed with the staff of the State Health Department on 6 April, and research was begun.

On 22 May, at a meeting with the Dental Health Center of the U. S. Public Health Service, the coordination of dental research work and the possibility of research on cleft palate and lip in Latin America were considered.

One of the advisers developed a draft of a manual on standard definitions and procedures regarding congenital malformations, for review and discussion by a small informal working group scheduled to meet in early 1965.

PAHO/G: USPHS-NIH

AMRO-338 (-4100), Maternal and Child Health Program Planning and Service Norms

Objective: To prepare guidelines for establishing priorities and service standards in connection with maternal and child health program planning, including the carrying out of practical surveys, holding of seminars, and related activities.

Probable duration: 1964-1966.

Assistance provided: Costs of translating and printing teaching and reference materials.

Work done: Project aims and implementation at Zones II and III were discussed at staff meetings. In Panamá's Penonomé District a pilot area was developed to try out new policies and procedures, planned in an effort to make better use of local resources and personnel in order to improve the maternal and child health services offered without increasing the cost.

PAHO/R

AMRO-339 (-4507), Radiation Health Protection

Objective: To cooperate with interested Governments in establishing protection against radiation hazards, by providing technical advisory services through a consultant stationed in Lima, Perú.

Probable duration: 1964-

Assistance provided: 1 health physicist.

Work done: The health physicist was recruited in November. After a period of orientation that included visits to several centers in the United States of America, the consultant departed in mid-December for Lima, Perú, which will be his permanent field base of operations.

PAHO/R

AMRO-341 (-4214), Training Center for Nutrition Education (Puerto Rico)

Objective: To train supervisory personnel engaged in applied nutrition programs to plan, conduct, and evaluate program activities and teach nutrition education.

Probable duration: 1963-

Assistance provided: Advisory services by Headquarters personnel and by the nutrition adviser assigned to Zone I; and the following fellowships to attend the course of the Center:

Awards	Country of origin	Months
3	Bolivia	3
4	Colombia	3
5	Ecuador	3
4	Paraguay	3
4	Perú	3

Work done: A multidisciplinary, 3-month training course stressing planning for applied nutrition programs was conducted by the University of Puerto Rico. The attendants represented teams of project directors of applied nutrition programs coming from the fields of health, agriculture, and education.

PAHO/R

FAO, UNICEF

AMRO-344 (-0211), Seminars on the Functions of Local Health Services in Malaria Eradication Programs

Objective: To study the participation of local health services in malaria eradication programs, through seminars where the authorities of the general health services and the directors of malaria eradication campaigns of the Hemisphere exchange views and experiences.

Probable duration: 1963-1965.

Assistance provided: 2 short-term consultants.

Work done: The first seminar was held in Poços de Caldas, Minas Gerais, Brazil, from 26 June to 4 July and was attended by 73 participants from Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Perú, and Venezuela and by officials from PAHO/WHO, UNICEF, and AID. A final report was issued immediately after the seminar.

PAHO/SMF

AMRO-346 (-3107), Public Health Administration (Caribbean)

Objective: To assist the Governments of the Caribbean Area in the analysis of current health problems,

evaluation of resources, and preparation of plans of action to insure maximum results from the economic and social resources available; and to assist in the integration, implementation, and evaluation of public health programs within their development plans.

Probable duration: 1963-1967.

Assistance provided: 1 public health administrator specialized in planning, and advisory services in administrative methods.

Work done: Health needs and resources surveys were completed in Antigua, St. Kitts, and St. Vincent, and were carried out in Dominica, Grenada, Montserrat, and St. Lucia.

For the first time the medical officer of health in Dominica began working on a full-time basis.

As a followup of the recommendations of the Seminar on Organization and Administration of Public Health Services held in late 1963 in Kingston, Jamaica, a preliminary review was made in St. Lucia of the structure and organization, staffing and operation of the administrative establishment in the Ministry of Health.

PAHO/R, WHO/R

AMRO-349 (-4607), Seminar on Industrial Hygiene and Occupational Medicine

Objective: To hold a seminar on industrial hygiene and occupational medicine in order to review and study the present situation in the countries of the Hemisphere; and to stimulate the development of industrial hygiene and occupational health programs, especially in countries undergoing industrialization.

Place and duration: São Paulo, Brazil; 21-26 March.

Assistance provided: Travel and per diem for 15 participants and cost of the meeting.

Work done: The 15 participants were from Argentina, Bolivia, Chile (4), Colombia (2), México (2), Perú (4), and Venezuela; 2 participants from Brazil also attended the Seminar. The group discussed the extent and characteristics of problems related to industrial hygiene and occupational diseases, the organization and functions of public and private services and their relationship with social security agencies, and the evaluation of the pertinent programs. The Seminar recommended that in order to standardize epidemiological investigations a manual of procedures should be prepared.

PAHO/R

AMRO-350 (-0212), Resistance of Malaria Plasmodia to Drugs

Objective: To study the plasmodia strains of human malaria which are resistant to the antimalarial drugs at present in use.

Probable duration: 1963-1965.

Assistance provided: 1 parasitologist; a grant for general expenses and salaries of local personnel; and equipment and supplies.

Work done: The parasitologist gave consultant services to the Strain Screening Center for Drug-Resistant Plasmodia, at Ribeirão Preto, Brazil, which continued research to determine: (1) the extent and importance of the problem of drug resistance and the degree of susceptibility of these strains to new antimalarial drugs, (2) the usefulness of new drugs or combinations of old drugs against resistant strains, and (3) the behavior of infections with *Plasmodium falciparum* and the characteristics of individual species in the peripheral blood. To date, strains of *P. falciparum* have been tested and found to be resistant in 5 localities in Brazil, 3 in Colombia, and 1 in Venezuela. A combination of pyrimethamine and sulfadiazine was found to be effective in treating *P. falciparum* cases resistant to multiple drugs, and the combination was under study to ascertain the proper dosage.

WHO/MAP

AMRO-352 (Perú-3104), Studies on Promotion of Rural Health and Agriculture

Objective: To study, in cooperation with the Inter-American Development Bank, ways and means to foster the development of agriculture, livestock breeding, and rural welfare, as part of a common policy to incorporate the protection and promotion of health in the overall process of socioeconomic development.

Probable duration: 1963-

Assistance provided: 1 specialized consultant.

Work done: The consultant collaborated with the Government of Perú in the preparation of draft plans for the new National Institutes of Health. The Government approved the construction of new buildings for the Institute of Animal Biology. These Institutes will carry on research, serve as reference laboratories, and manufacture biological products. A central library, animal colonies, and other services will aid in the coordination of activities and facilitate the common work. Better understanding was obtained in the relations of the Insti-

tutes and the Ministry of Agriculture regarding health problems arising in new settlements in areas recently put to agricultural uses.

Advisory services were also given on several aspects of the manufacture of biological products to laboratories in Bolivia, Brazil, Colombia, and Ecuador. The production of diphtheria-pertussis vaccine in Perú rose to 1 million doses, so that the needs of the country were met.

A training program for laboratory technicians was begun.

PAHO/R, PAHO/G: IADB

AMRO-356 (-4608), Manganese Poisoning and Metabolic Disorders

Objective: To coordinate research on the dynamics of the mental syndrome produced by chronic inhalation of dust containing manganese.

Probable duration: 1964-1966.

Assistance provided: 2 short-term consultants; equipment and supplies; and contractual services.

Work done: Controlled studies on a number of Chilean miners who had exhibited signs of manganese toxicity were begun. In addition to full evaluation of the individuals' neurologic condition, specimens of fluids, hair, skin, etc., were sent to the Brookhaven National Laboratory, at Long Island, New York, U. S. A., for neutron activation analysis to determine their manganese content. Additional studies were also carried out in Chile to help elucidate the uptake mechanisms involved in manganese metabolism.

PAHO/G: USPHS-NIH

AMRO-359 (-4207), Nutrition (Caribbean Area)

Objective: To coordinate nutrition activities in the Caribbean Area in order to develop a program including scientific research and personnel training.

Probable duration: 1963-1966.

Assistance provided: 1 short-term consultant.

Work done: The consultant toured the Caribbean Area to determine the need for a nutrition center to coordinate existing activities and carry out intermediate level training and applied research studies. A report was presented to the Governments for comments and suggestions.

PAHO/R

FAO

AMRO-364, Course on Social Pediatrics

Objective: To provide to Latin American pediatricians some orientation toward the health and social problems of preschool children and the organization of programs and services for their health.

Place and duration: Santiago, Chile, 9 November-6 December.

Assistance provided: Advisory services in the planning and carrying out of the course, by means of Headquarters personnel; and 17 fellowships, shown under the Health Services or Fellowships for Health Services projects of the corresponding countries.

Work done: The course was attended by 51 physicians—Argentina (2), Bolivia (2), Brazil (2), Colombia (2), Ecuador (2), Paraguay (1), Perú (2), Uruguay (2), and Venezuela (2); plus 25 Chileans and 9 other Latin Americans who attended without fellowships.

International Children's Center Inter-American Children's Institute

AMRO-365 (-3401), Health Education (Caribbean Area)

Objective: To cooperate with the countries and territories of Zone I in the development of health education activities and the training of personnel, in order to improve and extend public health services.

Probable duration: 1963-

Assistance provided: 1 short-term consultant.

Work done: The consultant dictated health education courses for nurses in Barbados.

WHO/UN-TA

AMRO-373, District Nurses Course

Objective: To hold, for District nurses of English-speaking territories in the Caribbean, an orientation course to public health nursing, including subjects related to the role of the nurse in health planning and the organization of general services.

Place and duration: Bridgetown, Barbados; 31 August-23 October.

Assistance provided: Consultant services by Headquarters and Zone II staff, (the U. S. Department of Health, Education, and Welfare provided the services of 1 health educator, for 2 months.)

Work done: 31 District nurses received intensive orientation in public health nursing (see West Indies-3).

UNICEF

AMRO-374 (-6210), Teaching Methods and Administrative Organization in Medical Schools

Objective: To cooperate with medical schools interested in revising their teaching methods and administrative procedures, by means of group discussions and seminars to determine the most adequate pedagogic techniques and administrative procedures for teaching in schools of medicine.

Probable duration: 1964-

Assistance provided: 1 short-term consultant; expenses of the participants in meetings on medical education; and distribution of publications relating to medical education.

Work done: The consultant, a specialist in medical education, assisted the School of Medicine of the University del Valle, in Cali, Colombia, with the School of Medicine, in Santiago, of the University of Chile, and with the School of Medicine of the University of Minas Gerais, in Belo Horizonte, Brazil, in organizing discussions of groups of the faculty on several pedagogical aspects of the teaching of medicine. The discussions were primarily aimed at analyzing the human relations between teachers and students in the learning process. Professors of other schools of medicine participated in these discussions for the purpose of learning the techniques employed and adapting them to their respective schools.

WHO/R

AMRO-376, Food and Drug Control (Zone III)

Objective: To assist the countries of Zone III to establish national food and drug control programs; to provide technical advisory services and facilitate personnel training; and to coordinate these activities in the regional reference laboratories of INCAP, for foodstuffs, and of the University of Panamá, for drugs.

Probable duration: 1964-

Assistance provided: 1 short-term consultant and advisory services by the consultant of project AMRO-188; and a grant to the Adolfo Lutz Institute, of São Paulo, Brazil.

Work done: The consultant and the chiefs of food

control laboratories of El Salvador, Guatemala, Nicaragua, and Panamá, together with personnel of ICAITI (Central American Investment and Industrial Technology Institute), INCAP, and Zone III Office, met in Guatemala in May to review the 80 food sanitation standards prepared by the consultant in cooperation with the Adolfo Lutz Institute (see AMRO-150).

The consultant cooperated with INCAP in the organization of laboratory services for food analysis and control at the Institute.

The laboratories of the University of Panamá were provided with a series of technical publications, international standards, and text materials for food and drug control and analysis.

PAHO/R

AMRO-377 (-2212), Rural Water Supply

Objective: To assist the countries to meet the goal set by the Charter of Punta del Este, by providing them with advice (a) on the planning, financing, and carrying out of national plans for rural water supply programs, emphasizing community organization and participation and the establishment of national revolving funds; and (b) on the development of the administrative structure needed for carrying out accelerated programs to meet the growing needs of people in the rural areas.

Probable duration: 1964-

Assistance provided: 1 community organization specialist, 1 health educator, and advisory services through technical staff from Headquarters, Zone Offices, and country projects.

Work done: Assistance provided under this project varied all the way from (a) laying the ground work for the development of the revolving fund as a method for financing the smaller water supply systems to (b) helping develop a more favorable climate for the acceptance of requests for loans to finance rural community water supply programs and to (c) stimulating requests from several countries for such loans.

IADB approved and implemented loan requests for Venezuela (for 300 communities), Chile (300 communities), Perú (150 communities), and for a number of small communities in El Salvador. Loan requests were under negotiation for Costa Rica, Guatemala, Honduras, Panamá, and Venezuela (2nd phase). Assistance was given to Argentina and Brazil in the preparation of national plans and loan requests for future presentation to IADB. In Central America, assistance was being

provided in community organization and participation in rural water supply programs.

PAHO/CWSF

AMRO-378, Seminar on Social Services (Zone III)

Objective: To bring together planners and social welfare administrators from Central America and Panamá, in order to exchange experiences and seek to define the role of social welfare programs and their relationships to national planning.

Place and duration: San José, Costa Rica, 25-29 May.

Assistance provided: Consultant services by the PAHO Country Representative assigned to Costa Rica and by the Regional Adviser in maternal and child health.

Work done: The Seminar was attended by 3 representatives each from Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panamá. They were joined in the deliberations by representatives of the United Nations Bureau of Social Affairs, UNESCO, UNICEF, CEPAL, FAO, PAHO/WHO, and the Inter-american Children's Institute of Montevideo.

UNICEF

AMRO-379 (-4211), Research in Protein-Calorie Malnutrition

Objective: To review existing research in protein-calorie malnutrition and to define areas in need of further investigation.

Probable duration: 1964-

Assistance provided: Costs of the meeting and travel and per diem of attendants.

Work done: A conference was held from 16 to 20 March in Bogotá, Colombia, on research in protein-calorie malnutrition in Latin America. Investigators from 11 countries attended. The group reviewed current research in this field, considered the standardization of research methodology, and defined future priorities for investigation.

PAHO/G¹²

AMRO-381, Common Market for Biological Products

Objective: To gather a working group to study the recommendations of the Task Force on Health at the Ministerial Level (Washington, D. C., 15-20 April 1963) on the possibility of developing a Latin American common market of biological products.

Place and duration: Washington, D. C., 3-6 August 1964.

Assistance provided: Travel and per diem for the members of the Working Group and costs of the meeting (funds of AMRO-376).

Work done: The Working Group brought together experts from: Brazil, 2; Canada, 1; Chile, 2; Colombia, 1; México, 1; Perú, 1; United States of America, 3; Venezuela, 1. Present also were observers from the IADB, the OAS, and the Pharmaceutical Manufacturers Association (U.S.A.). Six PASB officers were in charge of secretarial duties.

The Group drafted recommendations for the establishment of procedures to control quality and increase the quantity of available biologicals and recommended that a permanent solution for the free interchange of biological products among the countries should be established.

AMRO-393 (-4301), Mental Health (Zone I)

Objective: To enable 10 physicians and 10 nurses from the English-speaking countries and territories in the Caribbean Area to attend an intensive mental health training course organized by the Mental Health Federation of the Caribbean Area.

Place and duration: Barbados; 26 April-2 May.

Assistance provided: Travel and per diem for 20 participants and 3 instructors.

Work done: The course was attended by 20 physicians and nurses engaged in mental health work in Anguilla, Antigua, British Guiana, Dominica, Grenada, Montserrat, Nevis, St. Kitts, St. Lucia, St. Thomas, St. Vincent, and Trinidad and Tobago.

PAHO/G¹³

AMRO-0213, Study on Morphologic Variations Among Mosquitoes

Objective: To investigate cytogenetic and morphologic variations of mosquitoes involved in malaria transmission.

¹² Williams Waterman Fund

¹³ Foundation for International Medical Services, Inc.

VIII. PROJECT ACTIVITIES

Duration: 17 June-29 August 1964.

Assistance provided: A grant to the University of Illinois.

Work done: A zoology professor of the University of Illinois studied 12 species of anophelines in México and the Central American countries and prepared 4,000 smears of the chromosomes in the salivary glands of larvae. (Detailed studies will be carried out at the University laboratories).

PAHO/SMF

University of Illinois

AMRO-0507, Course on Rehabilitation and Prevention of Deformities (Leprosy)

Objective: To carry out a course on prevention of deformities in, and on physical rehabilitation of, leprosy patients, stressing nonsurgical methods.

Probable duration: 1964-1965.

Assistance provided: 1 short-term consultant, and advisory services by Headquarters staff.

Work done: Preparatory work was completed for the course to be held from May to July 1965 under auspices of the Government of Venezuela and PAHO/WHO and in cooperation with the American Leprosy Mission, the Institute of Physical Medicine and Rehabilitation of New York University, the World Rehabilitation Fund, Inc., and the International Society for the Rehabilitation of the Disabled. The preparations included a complete program of training, plans for discussions and demonstrations, the training of instructors, and administrative and financial aspects of a program for the prevention of deformities and the physical rehabilitation of leprosy patients.

PAHO/R

AMRO-0707, Typhus (Zone IV)

Objective: To investigate whether domestic animals are reservoirs of epidemic typhus.

Probable duration: 1964-1965.

Assistance provided: 2 consultants, each for 3 weeks, and some supplies.

Work done: The consultants visited several areas where typhus is endemic in Perú and took blood samples from domestic animals and from ectoparasites. The serological studies made later at the Rocky Mountains Laboratory of the National Institute of Allergy and Infectious Diseases in Hamilton, Montana, U. S. A., have so far been negative.

PAHO/R

USPHS-NIH

AMRO-2203, Rural Water Supplies (Zone III)

Objective: To study the effect of the provision of water supply services on rural community development.

Probable duration: 1964-

Assistance provided: The services of the Community Development Foundation Inc.

Work done: The Foundation began studies on the effect of community development in relation to the provision of water among rural populations of the countries of Central America.

PAHO/CWSF

AMRO-3512, Second Inter-American Seminar on Civil Registration

Objective: To include representatives of health services in the Seminar, organized by the United Nations in order to examine the difficulties that hamper the efficiency and effectiveness of civil registration services, in an effort to find possible solutions to recommend to Governments, for the improvement of the services.

Place and duration: Lima, Perú; 30 November-11 December.

Assistance provided: Travel and stipend for 8 statisticians from health services of the same number of countries and the participation of 1 Headquarters and 3 field staff members.

Work done: The Seminar made recommendations on basic principles of a model service of civil registration and on a Regional program for the improvement of civil registration in the period 1964-1969, including data necessary for planning and organization of health services and programs.

PAHO/R

AMRO-6213, Health Sciences Research-Training Institutions

Objective: To establish in Latin America institutions for the training of health-sciences research workers.

Probable duration: 1964-

Assistance provided: Partial cost of obtaining the services of 2 temporary advisers.

Work done: The temporary advisers collaborated in the preparation of a plan to establish in Rio de Janeiro, Brazil, a Center for Microbiology Research Training.

PAHO/G: AID

AMRO-6214, Faculty Training for Medical Schools

Objective: To plan faculty-training centers for Latin American medical schools.

Probable duration: 1964-

Assistance provided: 2 short-term consultants.

Work done: The consultants visited the Schools of Medicine of the Universities of Antioquia, in Medellín, Colombia, and of Nuevo León, in Monterrey, México, and studied the possibilities of using them for the training of faculty for medical schools. The recommendations of the consultants will be reviewed by the Organization, together with representatives of other organizations interested in financing this project.

PAHO/G: KF**INTER-REGIONAL-18, Exchange of Scientific Workers (Malaria Eradication)**

Awards	Country of origin	Country of study	Weeks
1	Argentina	Ceylon, India, Indonesia, Jordan, Spain, Switzerland, Syria, Taiwan	9
1	Brazil	England, India, Malaysia, Panamá, Philippines, Switzerland, United States of America	7
1	México	Ceylon, India, Indonesia, Jordan, Spain, Switzerland, Syria, Taiwan	9

WHO/MESA**INTER-REGIONAL-91.2, Traveling Seminar in Obstetrics and Gynecology**

Awards	Country of origin	Country of study	Weeks
1	Chile	Soviet Union	3
1	Ecuador	Ditto	3
1	Guatemala	Ditto	3
1	Perú	Ditto	3

WHO/UN-TA**INTER-REGIONAL-113, Training Course on Epidemiology and Control of Tuberculosis**

Awards	Country of origin	Country of study	Months
1	Brazil	Czechoslovakia, Denmark	5
1	Honduras	Ditto	5
1	México	Italy, Tunisia	4
1	Uruguay	Ditto	4

WHO/UN-TA**INTER-REGIONAL-120.1, Anaesthesiology Training Course**

Awards	Country of origin	Country of study	Months
2	Argentina	Denmark	12
1	Colombia	Ditto	12
1	Costa Rica	Ditto	12
1	Guatemala	Ditto	12

WHO/UN-TA**INTER-REGIONAL-140, FAO/WHO International Danish Training Center on Abattoir Management and Operation**

One 7-week award for a fellow from Panamá for studies in veterinary public health in Denmark.

WHO: Government of Denmark**INTER-REGIONAL-178, Training Course on Nursing Service Administration**

One 6-week fellowship for a nurse from Barbados to attend a training course on nursing service administration in Denmark.

WHO/UN-TA**INTER-REGIONAL-198, Traveling Seminar on the Organization of Epidemiological Services and their Role in the Control of Communicable Diseases**

Awards	Country of origin	Country of study	Weeks
1	Argentina	Soviet Union	3
1	Colombia	Ditto	3
1	México	Ditto	3

WHO/UN-TA**INTER-REGIONAL-208, Traveling Seminar on the Public Health Component in the Training of Medical Personnel**

Awards	Country of origin	Country of study	Weeks
1	Argentina	Soviet Union	3
1	Chile	Ditto	3
1	Colombia	Ditto	3
1	Costa Rica	Ditto	3
1	Venezuela	Ditto	3

WHO/UN-TA

VIII. PROJECT ACTIVITIES

INTER-REGIONAL-209, Traveling Seminar on Scientific Work of Undergraduate Medical Students

<i>Awards</i>	<i>Country of origin</i>	<i>Country of study</i>	<i>Weeks</i>
1	Argentina	Soviet Union	3
1	Colombia	Ditto	3
1	Cuba	Ditto	3
1	Jamaica	Ditto	3
1	Venezuela	Ditto	3

WHO/UN-TA

INTER-REGIONAL-243, Course on Recent Advances in the Application of Basic Sciences to Surgery

<i>Awards</i>	<i>Country of origin</i>	<i>Country of study</i>	<i>Months</i>
1	Jamaica	Denmark	3
1	Venezuela	Ditto	3

WHO/UN-TA

INTER-REGIONAL-254, Seminar and Training Course on Rabies

<i>Awards</i>	<i>Country of origin</i>	<i>Country of study</i>	<i>Months</i>
1	Chile	Soviet Union	1/2
1	Perú	Ditto	1/2
1	Venezuela	Ditto	1/2

WHO/UN-TA

INTER-REGIONAL-272, Seminar on Community Sanitation

<i>Awards</i>	<i>Country of origin</i>	<i>Country of study</i>	<i>Weeks</i>
1	Brazil	Soviet Union	4
1	Colombia	Ditto	4
1	Perú	Ditto	4
1	Venezuela	Ditto	4

WHO/UN-TA

INTER-REGIONAL-289, Post Graduate Course in Child Dental Health

<i>Awards</i>	<i>Country of origin</i>	<i>Country of study</i>	<i>Months</i>
1	Brazil	Denmark	3
1	Colombia	Ditto	3

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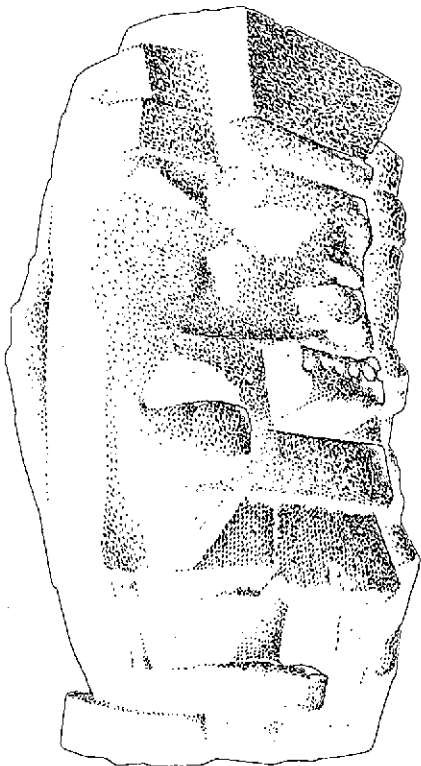
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"Among the various cultures that flourished in the East and West Highlands, one of the principal deities was Tlaloc, who represented the element Water and was God of the Rains and Storms, symbolizing the fertility and productivity of the fields."

National Museum of Anthropology, Mexico