

INDEXED

ANNUAL REPORT



OF THE DIRECTOR

1959

PAN AMERICAN HEALTH ORGANIZATION

Pan American Sanitary Bureau—Regional Office of the

WORLD HEALTH ORGANIZATION

PAN AMERICAN HEALTH ORGANIZATION

**Official Documents
No. 34**

July 1960

INDEXED

**ANNUAL REPORT OF THE DIRECTOR
of the
PAN AMERICAN SANITARY BUREAU
REGIONAL OFFICE FOR THE AMERICAS
of the
WORLD HEALTH ORGANIZATION
1959**

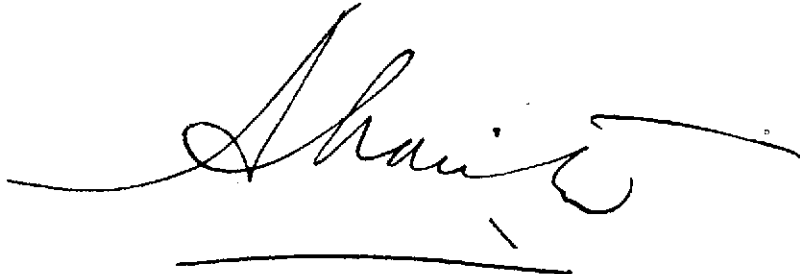
PAN AMERICAN SANITARY BUREAU

**Regional Office of the World Health Organization
1501 New Hampshire Avenue, N. W.
Washington 6, D. C.**

**To the Member States of the Pan American
Health Organization**

I have the honor to transmit herewith the Annual Report of the Pan American Sanitary Bureau, Regional Office for the Americas of the World Health Organization, for the year 1959. This Report covers the work of the Washington Office as well as a summary of the projects implemented in collaboration with the governments of Member States and with other international organizations. The Financial Report for the year is submitted separately.

Respectfully yours,

A handwritten signature in cursive script, appearing to read 'A. Horwitz', written in black ink. The signature is fluid and extends across the width of the page.

**Abraham Horwitz
Director**

**ANNUAL REPORT
OF THE
DIRECTOR
1959**

TABLE OF CONTENTS

	<i>Page</i>
Director's Introduction	ix
Public Health Administration	
Integrated Health Services	3
Health Statistics	8
Environmental Sanitation	13
Maternal and Child Health	19
Nursing Services	21
Nutrition	23
Dental Health	27
Health Education	28
Other Activities	28
Education and Training	
Professional Education	32
Fellowships	41
Disease Control and Eradication	
Malaria Eradication	51
Aedes aegypti Eradication and Yellow Fever.....	58
Smallpox	64
Rabies	68
Poliomyelitis	70
Leprosy	73
Tuberculosis	75
Treponematoses	76
Filarial Diseases	78
Plague	79
Public Health Laboratories	80
Food, Drug, and Biologics Control.....	81
Pan American Zoonoses Center.....	82
Pan American Foot-and-Mouth Disease Center.....	87
Mycoses	89
Information and Publications	90
Organizational Meetings and Transactions	93
Organizational Structure and Administrative Developments	97
Appendix	105
Index	127

ABBREVIATIONS

CDC	Communicable Disease Center
FAO	Food and Agriculture Organization
ICA	International Cooperation Administration
INCAP	Institute of Nutrition of Central America and Panama
OAS	Organization of American States
OAS/TA	Organization of American States—Technical Assistance
PAHO	Pan American Health Organization
PASB	Pan American Sanitary Bureau
PASC	Pan American Sanitary Conference
SCISP	Inter-American Cooperative Public Health Service
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
UN/TA	United Nations—Technical Assistance
USPHS	United States Public Health Service
WHO	World Health Organization
WHO/TA	World Health Organization—Technical Assistance

ILLUSTRATIONS

	Page		Page
Number and Type of International Consultants in Integrated Health Projects, 1959, Table.....	1	Malaria eradication in the Americas, December 1959, Map	50
Location of Projects of Integrated Health Services, with Year Established, Map	2	Summary of testing for anopheline resistance by species and insecticide in the Americas, to December 31, 1959, Table	51
Plan of Organization for Integrated Health Services in Honduras, Figure	5	Anopheline resistance to dieldrin and DDT in the Americas to December 31, 1959, Table	52
Number and type of personnel completing courses in integrated health projects, 1959, Table.....	6	Status of the <i>Aedes aegypti</i> eradication campaign, December 1959, Map	59
Courses for public health nurses and for nursing auxiliaries completed in 1959 in integrated health projects, Table	7	Summary of the <i>Aedes aegypti</i> Eradication campaign in the Americas, from its start through December 1959 or latest reported month, Table	60-61
Courses for sanitary inspectors completed in 1959 in integrated health projects, Table.....	8	Reported cases of yellow fever in the Americas, 1950-1959, Table	62
Population (in millions) of the world, the Americas, and three regions of the Americas, 1920 and 1940, and estimated population 1960, 1980, 2000, Table....	9	Reported cases of jungle yellow fever in the Americas, and location, by major political divisions of each country, 1958 and 1959, Map	63
Percentage distribution of population in the Americas by region, 1920-2000, Table	9	Reported cases of smallpox in the Americas, by major political divisions of each country, 1959, Map.....	64
Growth of population in three regions of the Americas, 1920-1960, and estimated growth, 1950-2000, Figure	9	Reported cases of smallpox in the Americas, by country, 1950-1959, Table	65
Reported cases of quarantinable diseases in the Americas, 1959, Table	10	Number of smallpox vaccinations in the Americas, by country, 1958 and 1959, Table	66
Country of origin of students in courses on vital and health statistics, Chile, 1953-1959, Table.....	10	Production of smallpox vaccine in 20 countries in the Americas in 1957, 1958, and first half of 1959, Table	67
Country of origin of students in courses on classification, 1954-1959, Table	11	Rabies in man, 1958, Table	68
Per cent of total deaths that occur in infancy and early childhood in the three regions of the Americas, 1956, Figure	14	Reported cases of rabies in man in the Americas, 1958, Map	69
Deaths of children under 5 years of age per 100,000 population, by groups of causes, in the three regions of the Americas, 1956, Figure	14	Reported cases of rabies in animals in the Americas, 1958, Map	69
Per cent of Population without water service in cities with 2,000 or more inhabitants in countries of the Americas, Figure	14	Rabies in animals, 1958, Table	69
Estimated number and per cent of population lacking water service in cities of 18 Latin American countries in 1958, by country and size of cities, Table	15	Rabies materials purchased for countries, 1959, Table	70
Sanitation activities associated with public health services in Guanajuato (Mexico-22), Table.....	17	Reported cases of poliomyelitis per 100,000 population in the Americas, Canada and the United States, and the rest of the Americas, 1945-1959, Figure.....	71
Place of nursing unit in health services of 19 countries in Latin America, Table.....	22	Reported cases of poliomyelitis and rates per 100,000 population in the Americas, 1955-1959, Table.....	72
Fellowship awards in the Americas, by country of origin and type of training, 1959, Table.....	41	Prevalence of leprosy in Central America and Panama, 1958 and 1959, by country or area, Table.....	74
Fellows from other regions commencing studies in the Americas in 1959, by type of training, Table.....	42	Distribution of known cases of leprosy in Central America and Panama, by clinical form (cases recorded up to 1959), Table.....	74
Fellowships awarded in the Americas and arrivals from other regions, by country of origin and field of study, 1959, Table	43	Reported cases of plague in the Americas, 1955-1959, Table	79
Number of fellowships awarded in the Americas in 1959, by profession, Table	44	Reported cases of plague in the Americas, and location, by major political divisions of each country, 1958 and 1959, Map	79
Fellowships awarded in the Americas, by country of origin, field of study, and type of training, 1959, Table	45	Countries sending physicians and veterinarians to the Zoonoses Center training courses during 1959, Map	83
Fellowships awarded in the Americas by country of origin and by country or region of study, 1959, Table	46	Pan American Zoonoses Center, resumé of some technical activities during 1959, Chart	84-86
Fellowship funds in the Americas for 1958 and 1959, Table	47	Samples received at PAZC laboratories, by type, 1959, Table	86
Fellowships awarded for courses organized or assisted by PAHO/WHO in the Americas, by country of origin and field of study, 1959, Table.....	47	Publications issued in 1959, Table	91
Field of study, project number, names, places, and dates of courses organized or assisted by PAHO/WHO, Table	48	International professional personnel assigned to projects of the Pan American Sanitary Bureau in countries of the Americas, October 1959, Map....	96
Participants in seminars and working groups organized by PAHO, by region, country, or area of origin, 1959, Table	49	Budget of the Pan American Health Organization, 1959, Table	99
		PAHO and WHO expenditures in 1959, by source of funds, Table	99
		Source of funds for program of the Pan American Health Organization 1959, Chart	100
		Zones and zone offices of the Pan American Sanitary Bureau, Map	102

ACTIVITIES IN 1959

Director's Introduction

DIRECTOR'S INTRODUCTION

Accomplishments in 1959

This Report tells the story of what the governments in the Americas accomplished in 1959, with the collaboration of the Pan American Health Organization (PAHO) and the World Health Organization (WHO), for the health of their peoples.

The substantial progress shown throughout the Report may be better appreciated if one recalls that the functions of the Organizations are essentially of an advisory and not an executive nature, seeking only to counsel and not impose, and are directed toward bringing to a country the useful and productive experiences of other countries and helping to adapt these lessons to each environment. In other words, the objectives carried out are the work of the national authorities and health experts, reflecting at the same time the policy of the international organizations.

Looked at in total, the governments have shown a greater appreciation of health problems in the Hemisphere, their priorities, methods for solving them, and the great need for planning, on the basis of available resources. During the year, there continued to be emphasis on attempts to improve organization at national levels, expand local services, and put administration on a rational basis. Governments thus were reinforced in their appreciation of the importance of knowledge and experience so necessary for the personnel charged with responsibility to protect, promote, and restore health. An obvious corollary is the increasing interest of the governments in preparing and training personnel for the various functions of the health services. During 1959, 505 health workers received specialized training in different disciplines of public health and certain aspects of medical education. This was accomplished through fellowships awarded with funds of both Organizations. Today these persons are applying in their countries what they saw and learned in their spheres of action.

All this progress, in final analysis, must be measured in terms of the health of the peoples of the Hemisphere. There is good reason to believe that the collaborative health efforts here reported have resulted in bringing more and better health services to more people, with consequent reduction in disease and death.

It is of interest to mention some facts relating to the general development of the Region and the impact of these

developments on health.

The year progressed with renewed efforts on the part of Latin American countries to promote general well-being of their populations and to increase and diversify their production of goods and services, in order to escape the rigid limitations of an economy based largely on the yield of a single product, a situation which leaves a country at the mercy of fluctuations in the world market. Existing serious imbalance between resources and needs in all the countries has been made further evident by steadily increasing demands of the people themselves for more and better services, demands which have been aggravated by rapid population growth, 2-1/2 to 3 per cent per year.

Without presuming to discuss exhaustively the economic implications of the present situation in Latin America, it may be worthwhile to note two factors of importance. First, there is urgent necessity for large investment of capital, an investment of particular urgency in connection with improvements of community water supply, as will be discussed later. Second, the idea of a common market, either region-wide or for a group of countries, has been discussed more and more in recent years and has gained many adherents. Such an enterprise has the purpose of diversifying production, increasing foreign commerce, and domestic consumption.

"In reality, the common market is an expression of the effort to create a new pattern for an intra-regional trade capable of meeting two exacting demands, namely, the requirements of industrialization and the need to lessen the external vulnerability of the Latin American countries."¹

The Pan American Sanitary Bureau, Regional Office of the World Health Organization, in accordance with its basic policy during 1959, emphasized the various inter-relationships between health, well-being, and economy. The guiding principle of PASB/WHO planning has been that without high quality human energy there can be neither efficient production nor sufficient consumption. At the same time, advances in health that are not in keeping with increases in goods and services will eventually have only limited effect. Infant mortality is a good example. The techniques of medicine are able to reduce infant mortality to a level which cannot be further reduced until

¹The Latin American Common Market. United Nations Department of Economic and Social Affairs, 1959, p. 6.

improvement is brought about in food intake, living conditions, education, sanitation, and average *per capita* income, in sum, all the things that contribute to well-being. From this account it can be seen that there is need for integrating health activities at local levels and coordinating them at national levels with all other activities having a direct or indirect influence on them.

The Pan American Sanitary Bureau had the opportunity to present some of these facts during the OAS Second Meeting of its Special Commission to formulate new measures of economic development, held in Buenos Aires in April 1959. A resolution (No. VII) passed by the Commission reflects these ideas. It resolved:

"1) To recommend to the governments that, in programming and negotiating the financing of economic development, they include public health programs, inasmuch as they are essential to, and supplement, economic programs; and

2) To recommend to the governments that they seek technical advice from the Pan American Sanitary Bureau for the formulation of the above-mentioned programs."

In order to make this recommendation a reality, which will be in keeping with economic and social progress, the countries need well-trained health experts, who are familiar with the way of life of the societies in which they apply their knowledge, and who can help develop rationally organized basic health services. These efforts will have greater chance of success once the major pestilences are eradicated and an effective communicable disease control program is in operation.

In keeping with the general program of the Organization, the Pan American Sanitary Bureau collaborated with the Member Governments in 1959 in a series of fundamental activities. The most salient results of the 220 projects developed during the year are described in this Report. An Organization which provides advisory services engages, of course, in a multitude of activities. These are derived from a daily interchange of opinions with national personnel, activities that cannot always be measured directly, but which have undeniable influence over time, and contribute toward molding a course of action that will surely result in more and better health services.

Some of these projects may be singled out for mention because, in addition to illustrating the general policy of the Organization, they show the direct connection of health with the processes of economic and social development.

* * *

Malaria eradication is one of the best examples of how health programs influence the well-being and progress of people. Disappearance of this disease not only permits individuals to return to their social environment more able and qualified to produce and contribute to their

societies, but also at the same time liberates extensive areas from a serious pestilence. These areas then, if wisely exploited, may contribute toward increasing the national wealth. It is a truism that any amount of investment made to clear areas of disease will bring results far in excess of the original cost of investment.

Because of this, however, there is need to establish a method of measuring the economic impact of malaria eradication. It is essential to determine with greater precision the economic significance of the disappearance of malaria in each country. Data thus obtained will complement knowledge already available of the gains in productive capacity resulting from elimination of mortality and morbidity. One must not minimize the complexities of this type of evaluation, for as the disease disappears, other variables come into focus and play their part in relation to living conditions and the economies in malaria areas. For example, it is frequently observed that a population will increase rapidly even when the risk of disease has decreased only partially. It is most important to find the most adequate method of revealing the influence of malaria eradication on well-being and progress in those areas.

In 1959 the continent-wide program continued to expand, and toward the end of the year had reached various stages of development in all the countries where the disease is prevalent. Thus, in six countries the first year of spraying had been completed; in six others the second year had been finished; and in one country, the attack phase had been terminated. In the remaining countries, either the surveys made prior to full-scale planning had been completed or spraying had begun. Furthermore, relatively extensive areas can now be shown where the disease has disappeared completely. In the continent as a whole, malaria patients are seen only exceptionally in the large urban centers.

Despite delays, financial crises, and other unexpected obstacles, the campaign progressed in an ever-widening sphere. And what is outstanding among the accomplishments of 1959 is the fact that, as the incidence of the disease decreased, the problems that prevent or hinder malaria eradication became even clearer—a fact which is fundamental to the success of any enterprise. For, wherever transmission has not been interrupted, it must first be known whether all the details of the program were fully carried out. Few public health activities demand greater exactness than that of eradication of malaria. Acquisition of all possible knowledge and experience, and the methods to be used, must be adapted to the inexorable cycle of nature. If the technical and administrative functions have been properly carried out, and transmission has not been interrupted, then it is essential to make a detailed study of the habits of the vectors, of the way of life of the population groups, and the epidemiology and ecology of the disease.

The appearance of anopheles resistance to insecticides necessitated substantial increase in susceptibility testing in 1959. Toward the end of the year it was confirmed that

A. albimanus, *A. pseudopunctipennis*, *A. aquasalis*, *A. quadrimaculatus*, and *A. albicans* were resistant to DDT, dieldrin, or both, in eight countries. With the exception of one country, resistance is localized in foci to the extent that interruption of house-spraying is not justified. The Organization is convinced that this problem, as others, will be solved through investigation, to which so much talent and resources are being devoted.

In the Report proper will be found the details of intensive activities carried out in training technicians at the malaria centers in Brazil, Jamaica, Mexico, and Venezuela. Also described are the series of meetings of experts which took place during 1959, and which provided further opportunity for valuable interchange of ideas and experiences, in order to reach the best solutions to certain aspects of each program. Significant was the unanimous opinion of all malaria workers on the importance of the efforts of voluntary lay collaborators in the process of identification of cases. This idea was brought out forcefully in the Seminar on Epidemiological Evaluation Techniques, held in Brazil in November, where it was the consensus of the seminar participants that these collaborators, because of their constant presence in the communities and the confidence of their neighbors, constitute the best source of information with respect to malaria transmission. It seems justified, therefore, to have organized in the different countries even more teams of these collaborators to help in identifying each malaria focus.

Close coordination has been maintained with other agencies actively engaged in the continent-wide eradication campaign, particularly the United Nations Children's Fund (UNICEF) and the International Cooperation Administration of the United States (ICA). In addition to two formal meetings, there was frequent consultation for advisory services to each country program.

One concrete expression of interest shown by the countries in the malaria problem is reflected in the amount of funds invested during 1959. The governments jointly assigned 28.4 million dollars, and international collaboration, involving bilateral and multilateral programs, allotted over 11 million dollars. These figures alone reveal a deep awareness of the meaning of malaria to human well-being and progress, and portend the continuity of effort until the disease is totally eliminated. It could not be otherwise, for any interruption now would mean loss of efforts already expended. An additional contribution of two million dollars increased to 8.5 million dollars the total amount given voluntarily by the U.S. Government to the Special Malaria Fund of the Pan American Health Organization, the fund which has been the basic support for the Organization's malaria eradication program.

* * *

The year 1959 is outstanding too because of the reso-

lutions of the Twelfth World Health Assembly and the XI Meeting of the PAHO Directing Council concerning provision of community water supply—a program that is essential not only to health and well-being, but also to industrial and economic development. The decisions of both Governing Bodies demonstrated a realistic approach to the problem. Even incomplete statistical data show its magnitude.

In 19 Latin American countries there are 29 million inhabitants, or 39 per cent of the urban population, who are without community-piped water. In cities of 2,000-10,000 inhabitants, 70 per cent lack water service. It is estimated that in Latin America, at present, there are 100 million persons needing water supplies. The costs of such installations are far beyond available funds of governments.

Moreover, there is little awareness among the people of the need to pay the costs of distributing water to homes, commercial enterprises, and institutions. The fact that water is an element of nature should not imply that governments must defray *all* the costs of making generally available the water that people must have to live and progress. Primary dependence on government financing has led to the present situation, clearly presented in the above statistics. Simply stated, the governments do not possess the resources to cover water requirements of their present populations, much less populations that are increasing with unusual rapidity throughout the continent.

Governments could obtain the necessary capital through long-range, low interest loans by guaranteeing investment of this money in well-conceived projects within national programs. With efficient administration of water services, with water rates that facilitate amortization of the loan and payment of interest, and with proper maintenance of such an enterprise, plus provision for possible expansion, it is possible to solve the problem, the magnitude of whose financing should be evaluated only in terms of social consequences.

The willingness of the governments to undertake water-supply programs will certainly be a fundamental incentive for changing the policy of the international capital market toward granting loans in this field. The advisory function of international organizations may be of influence in the technical, administrative, legal, and financial aspects, as well as in the training and preparation of the national experts for planning and implementing the services.

Intensive activities were carried out in 1959 toward promoting these ideas, as well as in planning certain programs. The response of the governments was encouraging, and promises greater interest in this problem in the years to come, meaning, very simply—more water of good quality for more people.

In rural areas more sanitary installations were constructed in 1959 with the aid of the Organization than in any past year. This is a direct result of the intensified efforts to train sanitary inspectors in each country.

The year brought forth new hazards to the air, food, water, and general environment in which the peoples of the Region work and live. Among these were increasing numbers of reports of river and beach pollution by sewage and industrial waste; rapidly developing air pollution problems in the larger cities; problems of exposure to vapors, dust, liquids, ionizing radiation, and the other hazards that accompany the increase of industry and the application of new developments. Such risks are an inevitable consequence of progress in a region which is rapidly seeking economic improvement. Basic health problems have greater priority, to be sure, but it is likely that in some urban areas with large population concentrations it will be desirable to attack the above-mentioned risks when their importance in the particular locality justifies such an approach.

* * *

Within the general program of work of the Organization, all due importance is given to strengthening basic health services at both national and local levels. It is a logical consequence that, as the important pestilential diseases disappear, health functions should then be carried out in a manner more closely tied to the structure and normal social development of population groups. With this as an objective, countries should organize national plans, outlining both problems and priorities, and should develop specific programs to protect, promote, and restore the health of their people. This should be a continuous activity, subject only to variations that are germane to each nation's economic and social environment. As this becomes an uninterrupted function of the governments, so also does it become a preoccupation of the international organizations that were created by those governments.

The Pan American Sanitary Bureau provided advisory services in 1959 to national and local health organizations in 14 countries. These services were largely for purposes of demonstration and training. In the body of the Report will be found in detail the activities of the different governments, in such areas as reorganization of institutions; expansion of services; up-dating of health legislation; and establishment of a career service based on selection of personnel because of background, exclusive devotion to certain functions, stability in office, and adequate remuneration.

Only two countries, Honduras and Paraguay, have so far prepared a five-year plan which they are now carrying out by stages. It is anticipated that the other governments will soon consider drawing up long-range plans, which will facilitate the application of their resources to the major needs, as measured in terms of mortality, morbidity, and social progress.

In the integrated health programs at the local level, there was good progress in starting or consolidating

activities, with emphasis on sanitation, maternal and child protection, and control of communicable diseases. A demonstration service that operates efficiently and succeeds in arousing the interest of the communities in their health problems represents a stimulus to other areas requesting a similar organization from the government. But this makes long-range planning paramount in order to meet those requests in an orderly manner and as resources permit.

One further point must be stressed. Integration of public health activities, in its broadest sense, calls for a special attitude, a way of thinking and acting on the part of the experts responsible for each program. Without this, actions flow with variable rhythm, through isolated channels, uncoordinated, and without relation to other programs designed for the same family group. Thus, there is a demonstrable need to adapt experiences gained to the total requirements of each society in accordance with available resources. The health centers, operating as technical and administrative units in an integrated regime of activities, are able to fulfill this purpose.

* * *

The nutrition program merits a separate comment. Even though the levels of food production have increased in the Americas, the *per capita* production was in fact slightly lower in 1956-58 than in 1934-38. This is a consequence of increased populations. In addition, in the majority of the countries, the quality of the foodstuffs is deficient, particularly in proteins of animal origin. This situation makes the production of INCAPARINA all the more significant. INCAPARINA is a mixture of vegetable proteins, developed at the Institute of Nutrition of Central America and Panama (INCAP), which has a nutritive value similar to that of milk. Extensive trials with INCAPARINA were carried out during 1959 in Guatemala, and there is now evidence that the governments are interested in industrializing this preparation and incorporating it into the daily diet.

With respect to Bureau policy in matters concerning nutrition programs, special care was taken during the year to integrate this function in the regular public health programs, both on national and local levels. This is reflected in the Report not only in the operations of INCAP, but also in those of the Institute of Nutrition of Ecuador, and in the advisory services provided to other governments. For this purpose, a substantial increase in the numbers of technical personnel for health centers will be necessary and this, of course, means more training courses will have to be established.

* * *

Eighty per cent of the problem represented by the eradication of *Aedes aegypti*, urban vector of yellow fever, in

the Americas has been solved. Guatemala and Honduras were declared free of the mosquito this year; Cuba commenced its eradication campaign with \$800,000 annually provided by the government; activities were intensified in Venezuela; and in Mexico a preliminary evaluation showed that as a result of the malaria eradication campaign almost all the areas where *Aedes aegypti* was present were free of the vector.

In Haiti, a survey showed not more than 100 cases of yaws which, together with their contacts, received treatment. These are the last foci, and will permit the country to be declared free of the disease within the very near future. Yaws activities also continued with increased intensity in other countries of the continent where the incidence of the disease is important. Details appear in the appropriate chapter of the Report. As a whole, the situation is encouraging.

There were over 3,000 smallpox cases reported in the Americas in 1959; the known cases in 1958 numbered 3,600. Regrettably, there were two considerable outbreaks which were setbacks to the efforts of the majority of the governments to free themselves of this disease. The Organization continued to provide advisory services, both to the development of regular programs and during emergencies.

With the exception of a very few countries, the picture of the frequency of leprosy in the Americas was completed during 1959 and programs were drawn up to develop control activities. Progress was likewise made in those countries where programs were initiated in earlier years.

The First International Conference on Live Poliovirus Vaccines took place in Washington in June. It was sponsored by the Pan American Health Organization and the World Health Organization, with financial assistance from the Elizabeth Kenny Foundation. The papers presented, and the discussions on the different aspects of this problem, compiled into a single volume, today represent a source of information of great value to those interested in studying poliomyelitis. The Conference also signified the importance of collaboration among international agencies in the knowledge and solution of a problem in which the public has such vivid interest.

The Pan American Sanitary Bureau collaborated with the Governments of Colombia, Nicaragua, and Costa Rica in vaccination programs using attenuated virus vaccines. In Costa Rica the work of immunizing all children under 10 years of age was started and should be completed in 1960. No deleterious effects due to the vaccine have been noted.

The information here presented demonstrates clearly, in very concrete terms, the accomplishments of the governments and their technical staff working in collaboration with PAHO staff in a field of great urgency. The progress in 1959 reveals a desire to continue toward the elimination of such diseases, wherever possible, and toward the reduction of risks represented by others.

* * *

It is an inherent part of all activities related to medicine and public health to have as an objective educating and persuading individuals, families, and communities to be concerned over their own well-being and that of others. If this education is not accomplished, the outcome of all programs may be in doubt. The recipients of benefits accruing from health programs must at the same time develop a clear awareness of the significance of these benefits. If one does not, he will not be inclined to arouse interest in other persons exposed to similar situations. When activities are directed toward groups, it is of even greater importance to educate them about the particular problem. Therefore, preparation and training of experts in the various disciplines of medicine and public health should be based on a sound knowledge of the customs and mores of the people among whom they are to perform their duties. Need for this determines the orientation of the Organization's policy in the field of training professionals and auxiliaries. Man, as a biological unit and a social being, is the objective of medicine and its allied disciplines. The curing of the ill is its immediate objective; health and well-being its permanent goal. The communities, which are the reflection of the subtle and unceasing adaptation of human beings to the environment, represent a field of action for the experts in public health. They are also indissoluble entities whose normal evolution is the concern of those experts, together with that of other experts who are engaged in other functions that lead to well-being.

On this premise, the Pan American Sanitary Bureau has collaborated with the governments in the complex process of training professional and auxiliary personnel. The Report shows what has been done in 1959 in medical, public health, sanitary engineering, statistics, nursing and veterinary medicine education, and in training auxiliaries. We have already pointed out that, through fellowships of the Organization, 505 persons received specialized training in various fields of public health and medical education. The number of auxiliaries who received training in the integrated programs reached 667. This represents an increase of some 50 per cent in comparison with the previous year. In view, however, of the magnitude of the problem in both quantity and quality even this progress is insufficient. Each expert who is trained arouses the interest of many others for whom training then becomes essential. The evolution of the communities, the variety of problems, and the application of new knowledge also create new needs for technical education. Viewed from afar, this is the most far-reaching task facing the countries and the international organizations providing advisory services.

* * *

Of great importance has been the opportunity of the Pan American Sanitary Bureau to work in close collaboration

with UNICEF to serve the governments of the continent. UNICEF's contribution to the various health programs has been and continues to be of fundamental value. In the eradication of malaria, in the basic health services, with special reference to maternal and child protection and rural sanitation, the joint action of both Organizations has undoubtedly produced beneficial results in the countries.

I should like to stress also the coordinated work in certain programs with the Food and Agriculture Organization of the United Nations (FAO) and the W. K. Kellogg Foundation. In the field of education, the work of the Rockefeller Foundation continues to be proverbial. And in the eradication of malaria we have already indicated the important collaboration given the governments by the International Cooperation Administration of the United States (ICA).

It is not a simple task to summarize the results of the 220 projects developed during 1959. In this Introduction comment has been made only on the major points in the work of the Organization without going into details. The latter make up the content of the Report proper, which, despite its extent, still does not cover everything that has occurred. There is much that cannot be expressed with respect to international collaboration, much less evaluate it. The daily interchange of opinions between national

experts and international advisers, the constant analysis of each problem within a project, the evaluation of partial results as the objectives are being achieved, the mutual trust that stimulates and renews efforts, identifying national and internationals with a single humanitarian purpose to serve, are activities whose results are revealed only with the passing of years.

"Yet modern man feels uneasy and more and more bewildered. He works and strives, but he is dimly aware of a sense of futility with regard to his activities. While his power over matter grows, he feels powerless in his individual life and in society. While creating new and better means for mastering nature, he has become enmeshed in a network of those means and has lost the vision of the end which alone gives them significance—man himself. While becoming the master of nature, he has become the slave of the machine which his own hands built. With all his knowledge about matter, he is ignorant with regard to the most important and fundamental questions of human existence: what man is, how he ought to live, and how the tremendous energies within man can be released and used productively."²

When public health is identified with moral health, fulfillment of this lofty purpose may be facilitated.

²Erich Fromm: *Man for Himself*, New York, Rinehart and Company, Inc., p. 4.

PUBLIC HEALTH ADMINISTRATION

Introduction

The Organization continued its collaboration with governments in the extension of their health services and gave particular emphasis to developments at the national level in 1959. Thus, advisory services were rendered at the national level in 10 of the 14 integrated health projects in operation. Most of these projects include pilot areas which have been developed for demonstration of local health services, to be extended throughout the country and to serve as training areas for health personnel.

The levels at which advisory services were furnished, as well as the number of international personnel assigned to each of the integrated health projects, are shown in Table I and the accompanying figure.

Efforts toward restructuration of ministries and health departments continued, giving due consideration to the economic and socio-cultural development of each country.

Planning Committees or Councils are now an established mechanism for study of over-all needed reorganization or for specific reorganization in certain parts of the health service in a large number of countries in Latin America. In 1959 there was very active planning for reorganization of the national health structures and extension of services, especially in four of the countries where integrated health projects are in operation, namely, Colombia, the Dominican Republic, Guatemala, and Honduras, as well as in Cuba, where a project is expected to be developed in 1960. In

TABLE I. NUMBER AND TYPE OF INTERNATIONAL CONSULTANTS IN INTEGRATED HEALTH PROJECTS, 1959

Project	Operational level	Medical officers	Public health nurses	Sanitary engineers	Sanitarians	Health educators	Laboratory specialists
Argentina-7	Provincial and local	1	1	1	—	—	—
Bolivia-10	National	1	—	—	—	—	—
Colombia-4	National and local	2	2(1) _a	1	—	—	—
Dominican Republic-4	National and local	1	1	1	—	(1) _a	—
Ecuador-4	National	1	1	—	—	—	—
El Salvador-5	Local	—	1	1	—	—	—
Guatemala-8	National and local	1	1(1) _a	1	—	—	—
Haiti-16	National	1	—	—	—	—	—
Honduras-4	National and local	1	2	1	1	—	—
Mexico-22	Local	1	1	1	1	1	—
Panama-1	National and local	1	1(1) _a	1	—	—	—
Paraguay-10	National	1(1) _a	1	1	—	—	1
Peru-22	National	(1) _a	1	1	—	—	—
Uruguay-5	Local	1	1	1	—	—	—

— None. _a Unfilled position in parenthesis.

other countries planning was concerned more particularly with specific aspects of the national plan, such as the process of decentralization in Panama and Paraguay.

Another important indication of progress in strengthening of national health services is the attention being given to improvement of health legislation. This was active in 1959 in Trinidad and Bolivia and in the Province of El Chaco in Argentina.

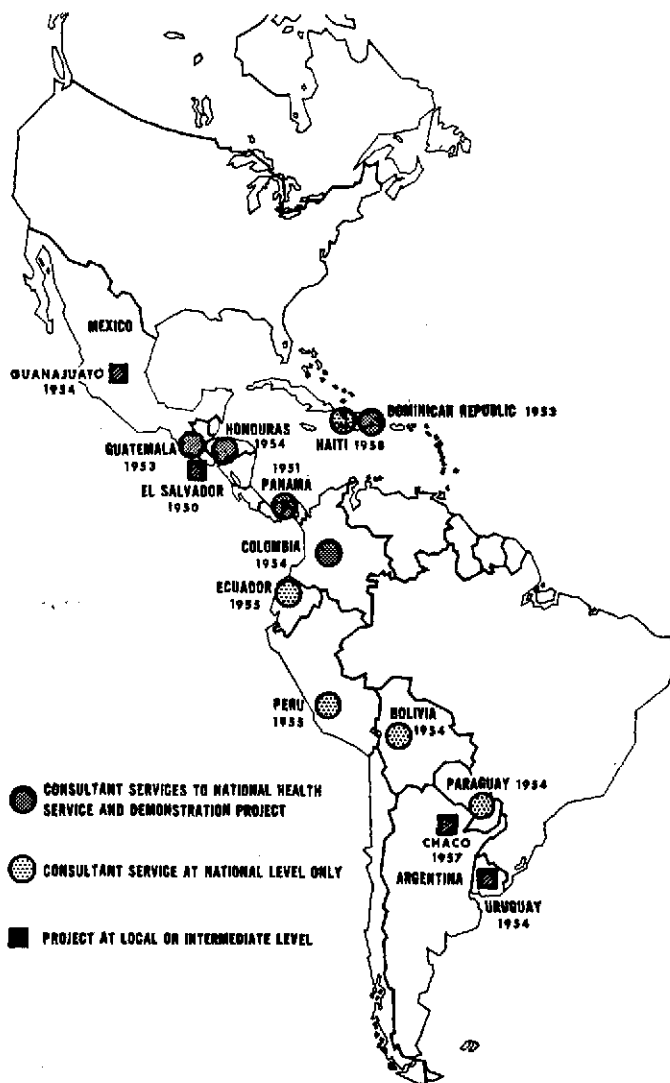
Some of the countries have stressed furthering of a career service, including establishment of full-time positions for personnel trained in public health.

In the same way, some countries have continued to study the budgetary implications of established or proposed reorganizations at the national level.

In those countries where demonstration areas at the local level are part of the integrated health project, there has generally been good progress in the initiation or consolidation of services. In these services, developed in the principle of integration, due attention was given to the important fields of environmental sanitation; family centered services, with special reference to MCH; and communicable disease control.

As in the past, the local services of the demonstration areas have been utilized for training of basic health personnel both through formal courses and in-service education. In 1959, the number of persons completing courses was approximately 50 per cent higher than in the year before. Also, the trend toward greater use of in-service education for certain groups of professional and auxiliary workers has increased. As one form of refresher training, seminars and discussion groups are being increasingly used as part of the over-all training effort. Examples of these were the seminars for MCH personnel of Argentina, held in the Province of El Chaco, and the seminar held for sanitary inspectors in Guatemala.

LOCATION OF PROJECTS OF INTEGRATED HEALTH SERVICES WITH YEAR ESTABLISHED



Integrated Health Services

National Level

Salient activities at the national level included developments in decentralization and changes in structure of the health services.

In Bolivia studies went forward toward organization of a National Health Service based on the new Sanitary Code. Health Legislation, begun with the Code, was completed during the year, and steps were taken to include the necessary appropriations in the 1960 budget in order to implement a new structure. Two main developments in the country included the setting up of a National Health Council and studies to establish a career-service system for technical personnel. Since its establishment in September, the Council has been very active.

In Colombia a National Planning Committee was appointed by the President to study the reorganization of the entire public administration. The Committee decided to study the reorganization of the Ministry of Health as the pilot project. The proposed reorganization includes basic changes in the policy with regard to health personnel including the establishment of a career service with full-time employment.

The Government of Cuba requested PAHO assistance to study a complete reorganization of the Ministry of Health and all health services. A consultant of the Organization worked with the Cuban authorities for six months, and a comprehensive plan has been proposed. Based on these proposals, a project for integrated health services is expected to be implemented in 1960. The plan involves reorganization of the Ministry of Health as well as of the provincial and local health services, with a demonstration area in one of the provinces.

In the Dominican Republic a National Committee was appointed to study the reorganization and expansion of health services.

In Ecuador a department of epidemiology was created within the General Directorate of Health. The department was established for two zones, one for the central zone in Quito and one for the coastal area in Guayaquil.

In Guatemala a plan was developed to reorganize the health services, contemplating the organization of a General Directorate of Health with five main divisions: sanitation; epidemiology; local services; general technical services; and administration. The decentralization process continued with a system of health regions developed.

Seven of these regions will be organized in successive steps to cover the whole country.

A national health plan was prepared for Honduras and will entail the reorganization of the national health services, including decentralization and development of local health services in a five-year program.

The decentralization plan for Panama was strengthened and a long-range program for the health regions suggested.

The gradual reorganization of the Ministry of Health of Paraguay, which began in 1957, continued throughout the year. Departments of mental health, scientific research, and medical care were organized. Decentralization also progressed following the division of the country into five health regions as recommended in 1958. The health authorities continued sponsoring the system for a career service with full-time employment. In all, 98 professional health workers were included in this group compared to 80 in 1957. A new publication, *Salud y Bienestar*, appeared as the official informative organ of the Ministry of Public Health, and was published regularly during 1959.

In Peru decentralization continued with slow but steady organization of new health areas with full-time personnel. Toward the end of 1959, the government contemplated a further reorganization of its national health structure.

A significant step toward decentralization in the Province of El Chaco, Argentina took place with the transfer of the medical care services from the national to the provincial level. Simultaneously, reorganization of the health services in the Province commenced and a Sanitary Code was drafted and presented to the local Congress. This is the initial step in the country on this matter and is expected to influence the health services of other provinces. Several requests for assistance from other provinces have already been received.

Worthy of mention too is a continuing trend in several countries toward increasing budgetary provisions for health activities. A marked increase in full-time personnel employed by health services is another characteristic of the growing interest in public health among the countries.

Local Level

Local activities have been maintained and expanded in the demonstration areas to show what can be accomplished through modern techniques and methods. Nine of the projects for integrated health services have demonstration

areas. Special attention has been given to making these demonstration services consistent with the economic and social development of the respective countries, in order to be able to repeat the program elsewhere in the country.

The Chaco Province in Argentina has structurally been divided into health districts, the first of which was developed in 1959. At the province level, units in maternal and child health, medical care, communicable diseases, sanitation, and administration were created, and several local health centers began operation in the first district. Among them were Villa Libertad and Villa Alvear in Resistencia, capital of the Province; Puerto Villelas; and Puerto Tirol. All these centers have full-time directors and an adequate staff. Eleven sanitary posts were created in the Province, and two new health centers are being constructed. One of the most important developments in this program has been the establishment of a satisfactory salary scale which will make public health positions more attractive.

The sub-department of statistics has been one of the most active during the year with several accomplishments. The chief and two assistants received specialized training (AMRO-10). An individual death certificate, with the internationally recommended form of medical certification, was introduced in the entire Province with marked success. Certificates for live births and foetal deaths have been designed and will be placed in use shortly. A census was made of the demonstration area and a department of statistics in a hospital was organized.

Plans are under way for the organization of the central laboratory and a course for training of personnel has been organized. Also, plans are developing in the field of health education.

In Colombia the local pilot areas of the Departments of Norte de Santander and Boyaca continued their progress and three new Departments (Cundinamarca, Nariño, and Magdalena) began operations during the year, utilizing recently trained personnel, all on a full-time basis. This brings the total number of centers already operating under the program to 20, an increase of 11. Two health centers, close to Bogota, have been specially reorganized and staffed to serve as field practice areas. The government is greatly interested in this program, and negotiations have begun to extend it for a period of five years, with the aim of organizing one pilot center in each department of the country. These pilot centers will be used for both service and training purposes. A *Manual of Procedures*, which includes the technical standards for the development of the program in each Health Center, has been prepared and it is hoped that by 1960 the standard procedures will be followed in all the centers.

The health centers in San Cristobal and Ciudad Trujillo, Dominican Republic are continuing to service their areas and are helping in the training of all types of public health personnel.

In Ecuador the services have expanded through the development of four new centers of maternal and child health in capitals of provinces.

In Guatemala the pilot area and its training center continued in operation, and during 1959 the record system was reorganized.

The demonstration area in Honduras was expanded to five additional municipalities. The pilot Health Center, Las Crucitas, established early in 1958, increased its services, especially in maternal and child care and in sanitation, and the first health post was inaugurated early in 1959.

The demonstration health program in the State of Guanajuato has progressed toward one of its objectives, namely, demonstrating the coordination of all health activities in the district. Negotiations are under way to develop a health district system for the State. Local authorities of municipalities have shown an increasing interest in the program and the funds allotted by local governments have increased substantially.

Studies for the reorganization of the health regions in Panama were undertaken in order to develop long-range plans. Modernization and standardization of records used by health centers were carried out, using the records of the La Chorrera Health Center as a basis. Studies for the reorganization of the urban health departments of Panama City and Colon were initiated. The form of reporting by the health centers, needed for evaluation and supervision of work by the regional and central teams, is being studied.

In Paraguay the buildings of two new health centers were finished and four others were expanded. There is a trend toward decentralizing activities and giving more executive functions to the local services.

Four new health units which began operation in Uruguay with adequately trained personnel furnished services to the capitals of the four departments that had been without health units, thus completing coverage and providing a solid basis for sound health activities in the five departments in the demonstration project.

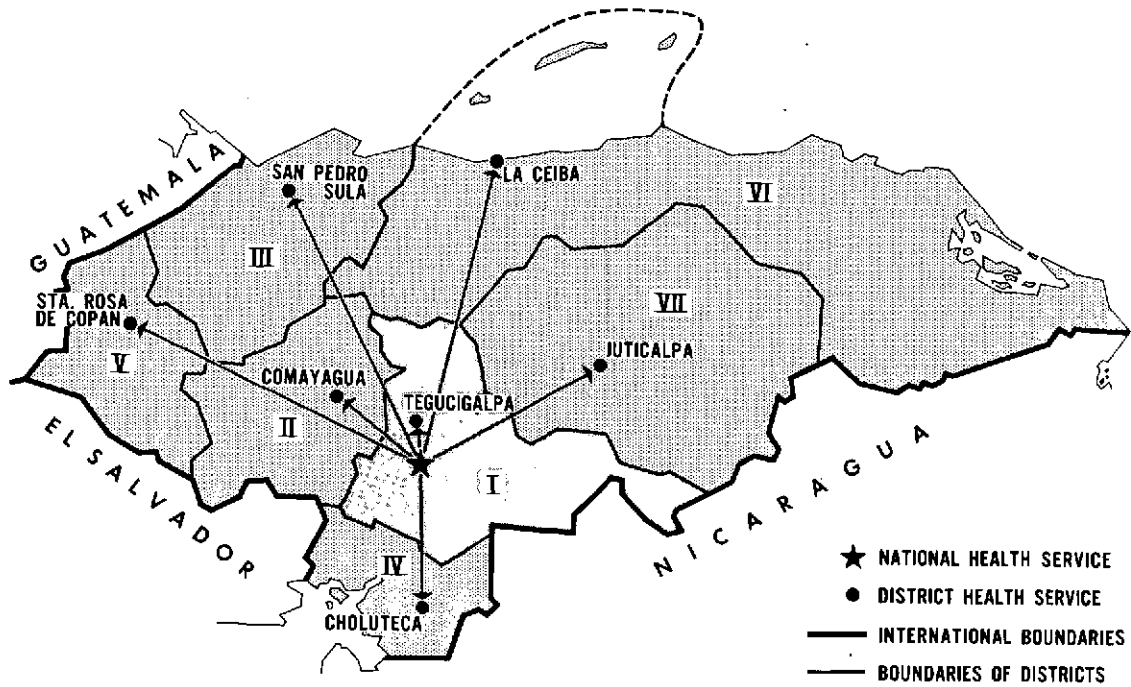
Major activities in the health centers of demonstration projects are in the fields of maternal and child health, environmental sanitation, and control of communicable diseases. Comments on the first two types of activities are covered in the chapters on MCH and environmental sanitation. In communicable diseases control, immunization was done routinely against smallpox; frequently against diphtheria, pertussis, and tetanus, using combined material; and occasionally BCG, killed poliomyelitis and typhoid vaccines were also administered.

Training of Personnel

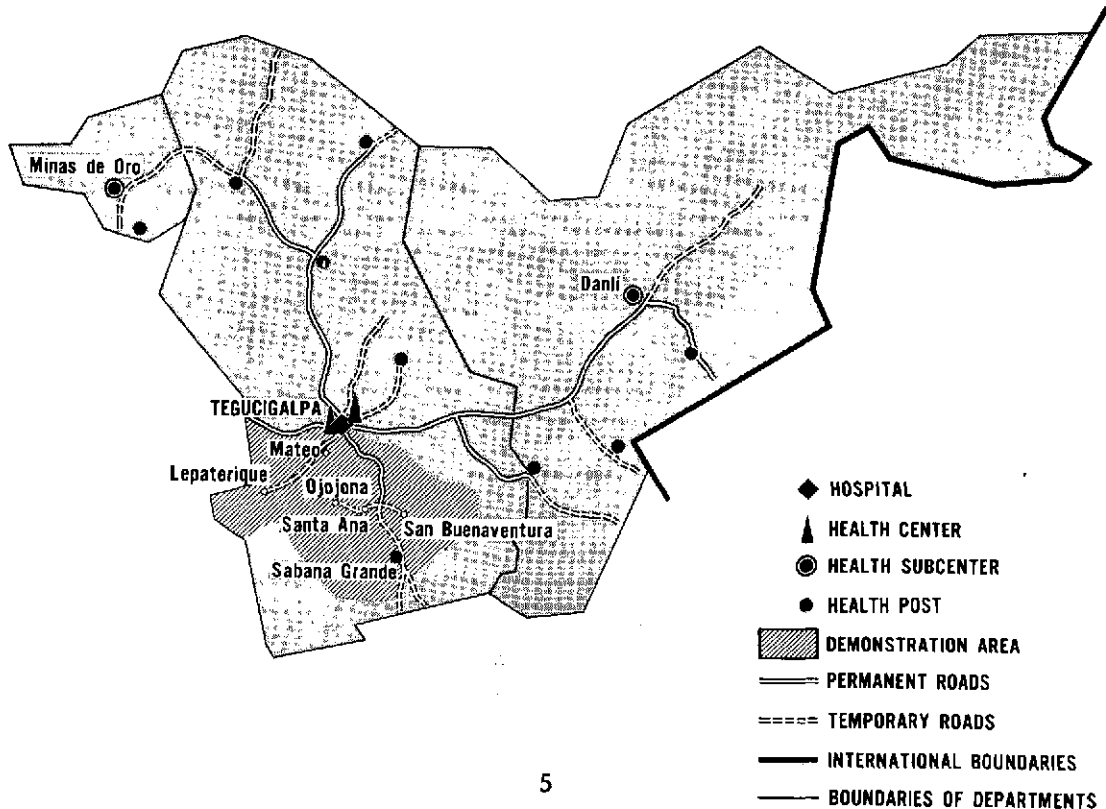
Training of personnel is a necessary and important part of the demonstration projects of integrated health services. Therefore, every demonstration project includes, besides

PLAN OF ORGANIZATION FOR INTEGRATED HEALTH SERVICES IN HONDURAS

NATIONAL AND DISTRICT HEALTH SERVICES



LOCAL HEALTH SERVICES IN DISTRICT I AND DEMONSTRATION AREA WITHIN DISTRICT



provision for fellowships for formal academic training, locally organized courses as well as in-service training.

Fellowships for formal courses are included in the chapter on education and training, and thus this section refers principally to courses and in-service education activities developed in integrated health projects.

As shown in Table II, 667 health workers completed courses in 1959. This is 215 more than received such training last year. The two largest groups were sanitary inspectors (227) and nursing auxiliaries (274). In both these fields the numbers of workers prepared in courses were much greater than in 1958.

TABLE II. NUMBER AND TYPE OF PERSONNEL COMPLETING COURSES IN INTEGRATED HEALTH PROJECTS, 1959

Project	Total	Physicians	Sanitary inspectors	Nurses	Nursing auxiliaries	Statisticians	Others
Total	667	16	227	48	274	12	90
Argentina-7	78	—	17	—	24	12	25 ^a
Colombia-4	149	—	78	15	56	—	—
El Salvador-5	67	—	24	21	22	—	—
Guatemala-8	62	16	—	12	34	—	—
Honduras-4	79	—	30	—	29	—	20 ^b
Mexico-22	10	—	10	—	—	—	—
Panama-1	49	—	8	—	41	—	—
Paraguay-10	122	—	40	—	37	—	45 ^c
Uruguay-5	51	—	20	—	31	—	—

— None. ^a Twelve (physicians, nurses, engineers, and dentists) attended a course in general public health; 13 teachers attended a nutrition course. ^b Milk distributors. ^c Twenty attended a course on classification of causes of death; 15 midwives attended a course on public health, and 10 received training in a course on laboratory techniques.

The types of courses developed in these projects vary widely; some are of short duration, while others are given over periods of several months. Instruction is both academic and practical, and the proportions vary. Additional information is given regarding length and hours of instruction and practice in courses for nurses and nursing auxiliaries (Table III) and for sanitary inspectors (Table IV).

In Argentina the first 10-month course for sanitary inspectors was completed, with 17 students attending; the second course was started in May. A three-month orientation course in public health was organized, with attendance of 12 professionals, among them physicians, nurses, engineers, and dentists. The subdepartment of statistics

organized a 2½-month course for its statisticians and for those from the health centers and other departments, with 12 students attending. This development of a statistics course at the provincial level should have a beneficial effect on the improvement and use of the data. Two short courses in nutrition were also given—one for nursing auxiliaries (two months, with 24 students) and another on nutrition education and school health for teachers (one month, with 12 attendants).

In Colombia the eighth post-graduate course in public health nursing and midwifery ended early in the year with 15 nurses graduating, and the ninth course was started early in 1959, with 22 students. A training course for 27 sanitary inspectors was completed early in 1959, and two more courses for 22 and 20 inspectors, respectively, were held during the year. Two courses for nursing auxiliaries were also held, with attendance of a total of 56 auxiliaries. In addition to these activities on the project, a one-year course in public health administration began late in the year at the School of Public Health for 19 professionals.

Training activities in Guatemala were as follows: a seven-month public health course for physicians, with 16 participants; an eight-month public health course for nurses, with 12 students; and two courses for nursing auxiliaries, with 16 and 18 students, respectively. A public health laboratory course was started in May and will continue until April 1960, with 16 laboratory auxiliaries attending.

The international staff in Guatemala rendered consultant services in the fields of medical, nursing, and dental education. For example, the creation and organization of the department of preventive and social medicine, which will utilize the services of a small health center, and the provision of full-time professors were subjects under discussion. The personnel of the project, both national and international, participated in a course of public health nursing for the national school of nursing.

A nursing auxiliary course, initiated in 1958 in Honduras, was completed early in 1959, with 16 students, followed by another course for 13 auxiliaries during the year. The second course for sanitary inspectors, initiated late in 1958, was completed early in the year, with 13 students, and the third course was completed, with 17 inspectors trained. A one-month course with 123 hours of classes and demonstration was provided for 20 persons in charge of milk distribution stations.

In the State of Guanajuato, Mexico a three-month course for sanitary inspectors was held, with 10 students attending.

A 7½-month course for nursing auxiliaries, initiated late in 1958 in Panama, was completed by 41 students.

An eight-month course for nursing auxiliaries was held in Paraguay, with 37 attendants. In addition, a three-month orientation course in public health for 15 midwives was held, as well as a 1½-month laboratory technician course for 10 students, and an eight-month sanitary in-

TABLE III. COURSES FOR PUBLIC HEALTH NURSES AND FOR NURSING AUXILIARIES COMPLETED IN 1959 IN INTEGRATED HEALTH PROJECTS

Project	Public health nurses					Nursing auxiliaries				
	Number	Duration in months	Hours		Date ended	Number	Duration in months	Hours		Date ended
			Theory	Practice				Theory	Practice	
Total	48					274				
Argentina-7	—	—	—	—	—	24	2	20	18	Dec. 24, 1959
Colombia-4	15 ^a	12	797	1,329	Feb. 18, 1959	30	3.5	174	432	August 6, 1959
El Salvador-5	21	8	...	...	...	26	3	182	398	August 28, 1959
Guatemala-8	12	8		790	Sept. 5, 1959	22	8	520	646	...
Honduras-4	—	—	—	—	—	16	4	314	264	May 30, 1959
Panama-1	—	—	—	—	—	18	4	314	264	Dec. 31, 1959
Paraguay-10	—	—	—	—	—	16	6	410	517	March 31, 1959
Uruguay-5	—	—	—	—	—	13	6	1,003		Nov. 28, 1959
	—	—	—	—	—	41	7.5	307	874	July 3, 1959
	—	—	—	—	—	37	8	453	839	December 1959
	—	—	—	—	—	31	10	462	840	May 1959

... Data not available. — None. ^a Public health nurse-midwives.

spectors course, initiated in 1958 with 40 students.

In Uruguay an 11-month course for sanitary inspectors, initiated late in 1958, was completed for 20 students, and a 10-month course for nursing auxiliaries, begun in August 1958, was completed, with 31 auxiliaries trained.

The technique of using seminars or round-table discussions in several aspects of public health has continued to be used and stimulated by the Organization.

In Argentina a seminar on food surveys was organized by the Institute of Nutrition and was assisted by FAO, OAS, and PAHO. A seminar on maternal and child health was conducted in Resistencia by the Chaco Government. Methods of protecting the health of mothers and children were discussed in the light of facilities available, both in personnel and funds. Reports of these seminars are given in the maternal and child health chapter.

In Colombia the second seminar on environmental sanitation was held late in 1959, with participation of all the environmental sanitation personnel in the project, directors of the centers, and other leaders in this field.

In the Dominican Republic the staff participated in a social welfare seminar, organized by the Ministry of Health, in which health, economic, and educational aspects of welfare were analyzed.

In Guatemala a seminar on environmental sanitation was held especially for sanitary inspectors. The new organization of services at the local level and the functions of the inspectors were analyzed. As a result, a Sanitary Inspectors Association was founded. A round-table discussion on poliomyelitis and another on onchocerciasis also took place in Guatemala. These activities served as stimuli for proper control measures for those diseases.

Plans have been approved for the forthcoming First National Seminar in Public Health, to be held early in 1960 in Honduras. In this Seminar health activities throughout the country will be scrutinized, with the hope of developing a better oriented and more coordinated system of work.

In Paraguay a round-table discussion was held for study of the best possible utilization of health personnel and

TABLE IV. COURSES FOR 227 SANITARY INSPECTORS COMPLETED IN 1959 IN INTEGRATED HEALTH PROJECTS

Project	Number of sanitary inspectors	Duration in months	Hours		Date ended
			Theory	Practice	
Argentina-7	17	10 ^a	1,096	480	January 10, 1959
Colombia-4	27	6	400	392	March 24, 1959
	22	5	400	392	September 19, 1959
	29	5	400	392	November 9, 1959
El Salvador-5	24	9	1,018	315	...
Honduras-4	13	6	457	440	March 21, 1959
	17	6	333	653	November 28, 1959
Mexico-22	10	3	...	...	October 2, 1959
Panama-1	8	4	...	...	...
Paraguay-10	40	8	1,170	400	June 1959
Uruguay-5	20	11	754	300	July 1959

... Data not available. a Estimated.

resources available. It was attended by medical officers in charge of health centers of two of the health regions, as well as by chiefs of the central departments.

In Paraguay a symposium on nutrition of the mother, the child, and the family was organized with the participation of project zone and regional international personnel.

As an example of planning for several years, in Uruguay a document has been prepared which contains the program of training for nursing auxiliaries and sanitary inspectors for the next five years. The training of 133 health visitors (nursing auxiliaries) and about 50 sanitary inspectors is planned.

In 1960 the Organization is planning to cooperate with countries in evaluation of these training activities for analysis of their effectiveness and with the purpose of readjusting methodology and content where experience shows the need.

Health Statistics

A major activity in the field of health statistics was the extension of field consultant services through the activities of four short-term consultants as well as four statistical consultants in the zones. Another accomplishment was the compilation and analysis of data for the report *Health in the Americas and the Pan American Health Organization*. These data are serving to show in concise form the health problems in the Americas and the resources in manpower. Activities in health statistics are described in four sections: a) Collection, Analysis, and Distribution of Statistical Information; b) Education and Training Program; c) Activities in the Countries; and d) International Sanitary Regulations.

Collection, Analysis, and Distribution of Statistical Information

At the request of a Subcommittee of the U.S. Senate, which was studying the role of the United States in the international health field, data were assembled regarding

health problems in the Americas. In addition to the publication in English as a Subcommittee document, the report is being released in Spanish and Portuguese and will be distributed at the XI Inter-American Conference of the Organization of American States in Quito, Ecuador as well as to health officials. The purpose of the report is to answer questions regarding the status of health in the Americas—questions such as what is the nature of the problems, what are the technical and material resources available to solve them, and what the role of the Organization may be in solution of the problems.

The problems are shown in 59 charts on a continent-wide basis. In addition to the existing situation, estimates of the needs in 1980 are made, when the population of the Americas is expected to be over 600 million. Emphasis is placed on the manpower needed for health services and the education and training of health workers for this program. Information is provided regarding physicians, nursing personnel, personnel for environmental sanitation, veterinarians, dentists, and other health personnel. It is

hoped that the report will stimulate interest and new efforts on the part of those who are genuinely concerned with the destiny of each country and the Americas as a whole.

To show the growth of population and estimated population by the year 2000, Tables V and VI and the accompanying figure provide data published by the United Nations. By 2000, the population of the Americas may be nearly a billion, with approximately two-thirds of the population in Middle and South America where the rate of increase is the greatest in the world. The population of South America alone may exceed that of Northern America (U.S. and Canada) by the year 2000.

TABLE V. POPULATION (IN MILLIONS) OF THE WORLD, THE AMERICAS, AND THREE REGIONS OF THE AMERICAS, 1920 AND 1940, AND ESTIMATED POPULATION 1960, 1980, 2000

Region	1920	1940	1960	1980	2000
World	1,810	2,246	2,910	4,200	6,280
Americas	208	277	403	603	904
Northern ^a	117	146	197	254	312
Middle	30	41	66	115	198
South	61	90	140	234	394

^a Bureau of Census estimate for U.S. in 1980 raises figure for Northern America to 270 million and for the Americas to 619 million.

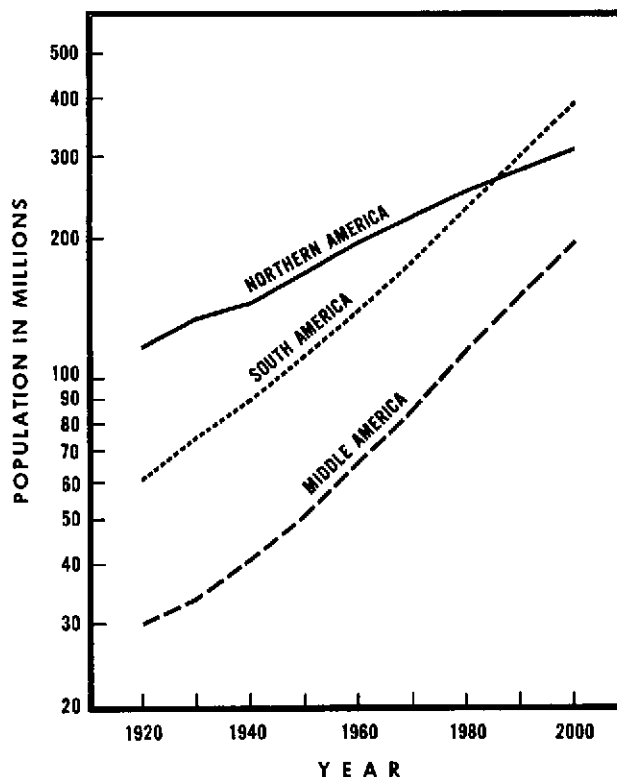
TABLE VI. PERCENTAGE DISTRIBUTION OF POPULATION IN THE AMERICAS BY REGION, 1920-2000

Region	1920	1940	1960	1980	2000
Total	100	100	100	100	100
Northern	56	53	49	42	34
Middle	15	15	16	19	22
South	29	32	35	39	44

Sources: UN Statistical Yearbook 1958; UN, ST/SOA/Series A/28.

The *Weekly Epidemiological Report* was prepared regularly on Tuesday of each week and distributed by airmail to health authorities. Current reports are provided of quarantinable diseases. The number of cases of the five quarantinable diseases reported in the Americas in 1959 are

GROWTH OF POPULATION IN THREE REGIONS OF THE AMERICAS, 1920-1960, AND ESTIMATED GROWTH, 1950-2000



Source: United Nations, Statistical Yearbook, 1958
United Nations, ST/SOA/Series A/28

shown in Table VII. Reports of over 4,000 cases of quarantinable diseases were received, of which 3,447 were of smallpox. Progress is being made in improving current reporting.

Areas in which cases of quarantinable diseases occur are termed "infected local areas". These areas should be declared free of the disease when all measures of prophylaxis have been taken and maintained to prevent the recurrence of the disease and its spread to other areas, and when a specific period of time has elapsed without a new case, in accordance with Article 6 of the *International Sanitary Regulations*.

In addition to information regarding the quarantinable diseases, the *Weekly* provides current information of reported cases of malaria and poliomyelitis.

An analysis was made of reporting of malaria to the national health services, primarily on the basis of clinical diagnosis, and to the malaria eradication program on the basis of laboratory confirmations. In this program, case-finding procedures being applied are resulting in an increase in confirmed cases. Reporting procedures need to be coordinated, so that the results of the malaria eradication program can be evaluated.

TABLE VII. REPORTED CASES OF QUARANTINABLE DISEASES IN THE AMERICAS, 1959

Area	Jungle yellow fever	Louse-borne relapsing fever	Plague	Louse-borne typhus	Smallpox
Total	30	2	92	685	3,447
Argentina	—	—	—	4	34
Bolivia	2	1	—	29	7
Brazil	3	—	16	—	1,354
Chile	—	—	—	6	1
Colombia	21	—	—	13	867
Ecuador	—	—	40	290	1,184
Mexico	—	—	—	247	—
Peru	1	1	32	96	—
United States	—	—	4	—	—
Venezuela	1	—	—	—	—
Trinidad and Tobago	2	—	—	—	—

— None reported.

The quarterly publication *Health Statistics* provides monthly totals of cases of five quarantinable diseases by location within countries, and of other notifiable diseases by countries. In addition, this publication contains reports of special interest in health statistics.

The health administrations of the Americas were kept informed of progress in the *Aedes aegypti* eradication campaign from the viewpoint of the *International Sanitary Regulations* through special monthly and quarterly summaries appearing in the *Weekly Epidemiological Report*. These summaries contained information concerning the inspection of localities with international traffic and the number of localities covered.

To provide annual figures on reported cases of notifiable diseases, a second *Ten-Year Report on Notifiable Diseases* is being prepared for the period 1949-1958. In addition to the numbers of cases by countries for the 10 years, selected data are given for the three years 1956, 1957, and 1958. Cases of quarantinable diseases and malaria are distributed by major political units in order that the distribution of these diseases may be studied. Also, data are given by age group for the following diseases: diphtheria; acute infectious encephalitis; leprosy; malaria; measles; meningococcal infections; acute poliomyelitis; scarlet fever; tuberculosis; typhoid fever; louse-borne typhus; and whooping cough. Information regarding the following zoonoses in animals is provided: arthropod-borne encephalitis; leptospirosis; trichiniasis; trypanosomiasis; and bovine tuberculosis. The number of cases in man and animals are given for anthrax, brucellosis, hydatid disease, and rabies.

litis; leptospirosis; trichiniasis; trypanosomiasis; and bovine tuberculosis. The number of cases in man and animals are given for anthrax, brucellosis, hydatid disease, and rabies.

Education and Training Program

The fields of major activity include the training of statisticians in the annual course at the School of Public Health in Chile and training through short courses in classification of causes of death through instruction given by staff of the Latin American Center of Venezuela. Also, consultant services in the field of medical statistics were extended more widely than ever before. A Working Group on Education and Training on Medical Certification also was held for discussion of teaching of medical certification to medical students.

Course in Vital and Health Statistics, AMRO-10

The School of Public Health, University of Chile, gave the seventh course on vital and health statistics for statisticians from eight countries. Fellowships for this course were awarded by the Organization for 13 students from the following countries: Argentina, 6; Colombia, 1; Honduras, 1; Peru, 3; and Uruguay, 2. Two-hundred-and-fifty-five statisticians from 20 countries have received training at this Center, of whom 128 were from Chile and 127 from other countries. Most of the students from other countries received fellowships from the Organization. The distribution of students is shown in Table VIII:

TABLE VIII. COUNTRY OF ORIGIN OF STUDENTS IN COURSES ON VITAL AND HEALTH STATISTICS, CHILE, 1953-1959

Country	Number	Country	Number	Country	Number
Total	255				
Argentina	27	Dominican Republic	1	Mexico	13
Bolivia	6	Ecuador	6	Nicaragua	3
Brazil	2	El Salvador	3	Panama	6
Chile	128	Guatemala	6	Paraguay	9
Colombia	5	Haiti	3	Peru	15
Costa Rica	6	Honduras	1	Uruguay	10
Cuba	2			Venezuela	3

The School of Public Health, which conducts this annual course, has developed a fine faculty in biostatistics with seven full-time and several part-time faculty members who

assist in the instruction. The influence of the Center can be seen through the accomplishments of the graduates. Applications for admission vary by country, and in recent years many have been received from Argentina.

Latin American Center for Classification of Diseases, AMRO-85

Developments of the Latin American Center in 1959 have made a great contribution to the improvement of classification. Prior to this year, three courses had been held at the Center in Caracas, Venezuela for 42 persons from 16 countries. Also, courses were given in 1958 for 15 students in Colombia and 13 in the Dominican Republic. In 1959, five courses were given in five countries with 126 students: Argentina, 32; Panama, 41; Paraguay, 21; Peru, 22; and Venezuela, 10. Thus, through these 10 courses, 196 persons from 17 countries (distributed as in Table IX) have received training (in Spanish) in classification of causes of death.

TABLE IX. COUNTRY OF ORIGIN OF STUDENTS IN COURSES ON CLASSIFICATION, 1954-1959

Country	Number	Country	Number	Country	Number
Total	196				
Argentina ^a	33	Ecuador	2	Nicaragua	4
Chile	1	El Salvador	1	Panama ^a	47
Colombia ^a	21	Guatemala	6	Paraguay ^a	22
Costa Rica	3	Haiti	1	Peru ^a	25
Cuba	2	Honduras	1	Venezuela	4
Dominican Republic ^a	14	Mexico	8	PASB	1

^a Courses held in these countries.

The influence of this Center is being extended widely in the Americas and has increased interest in the use of the international form of medical certificate and in the *International Classification of Diseases*.

Working Group on Education and Training on Medical Certification, AMRO-98

The Working Group on Education and Training on Medical Certification met at the Latin American Center for Classification of Diseases in Caracas, Venezuela, May 26-30. Objectives of the meeting were to make a complete review of the status of education and training of medical students on medical certification, exchange views on the various educational and promotional techniques, and prepare recommendations on the teaching of this subject in medical schools. Prior to the meeting, WHO Headquarters made a preliminary summary of instruction on

medical certification of causes of death based on information contained in programs of medical schools, on replies to requests for data, and on other available data. Twelve faculty members and statisticians from the following countries participated in the Working Group: Argentina, 1; Brazil, 3; Chile, 1; Colombia, 2; Mexico, 1; Panama, 1; United States, 1; Uruguay, 1; and Venezuela, 1.

The Working Group's report entitled "Education and Training on Medical Certification," and the Spanish translation of the report by WHO entitled "Educación y adiestramiento en certificación médica" will be published in Spanish in the *Boletín* of PASB. These reports will be distributed to medical schools and should be useful to professors in developing instruction on medical certification.

Teaching of Medical Statistics

Progress continued in the field of teaching of medical statistics, with outstanding contributions by three heads of departments of biostatistics of schools of public health. One visited several medical schools in Brazil to advise on the development of health statistics. One carried out a full program of lectures and consultant services in schools of medicine and public health in Central America, Mexico, Peru, and Venezuela. In all countries visited there is great interest in either improving or incorporating the teaching of statistics in medical school curricula. The third visited Argentina, Brazil, and Chile, lecturing on the role of statistics in medical research problems and clinical trials.

A consultant taught two courses in malaria statistics at the Malaria Eradication Training Center in Jamaica. The first course in the year was taught by the Zone III consultant. At the end of the year a malaria statistician was appointed who will have responsibility for most of the teaching. Some teaching in medical statistics was also carried on by the statistical consultants in the countries in which they were rendering service.

Activities in the Countries

In addition to collection, analysis, and distribution of data, the program of the Organization in the field of health statistics includes assistance in improvement and extension of statistical services in the health field throughout the Americas. Statistical consultants are assigned to the Zone Offices for these specific field activities. During the year consultants in Zones II and III continued activities in the countries of Middle America. Late in the year statistical consultants were appointed for Zones I and VI and a short-term consultant rendered service in Zone V. In addition the consultants, whose activities are mentioned under *Teaching of Medical Statistics*, also rendered service in the countries.

Several developments in the countries indicated progress in health statistics and are reported here.

In Argentina progress was noted in the field of health statistics, with a great interest shown in the education

and training program. A "Comisión de Estadística Vital y Sanitaria," administered by the "Consejo Nacional de Estadística," was created in 1959; thus a mechanism has been established for coordination of statistical activities. In the Province of El Chaco, Argentina the subdepartment of biostatistics of the Provincial Ministry of Social Welfare and Public Health has developed a fine department with a trained staff, and is rendering statistical services in many activities of the Ministry. The internationally recommended procedures in vital statistics are being established and an individual form of medical certificate is already in use. In both the Provinces of El Chaco and Córdoba short courses for the training of staff were given. The persons in charge of instruction had previously received training in statistics, including several trained in the School of Public Health in Chile (AMRO-10). The El Chaco course, for 12 students, lasted for a period of 2½ months, while the Córdoba course was for 36 students, with 42 hours of theory and practice and 40 hours of visits and seminars in a two-week period.

The subdepartment of statistics of the National Health Service of Chile continued to issue its yearly reports early in the following year, thus providing very promptly annual material for use within the country and for international agencies. In 1959 the National Committee on Vital and Health Statistics of Chile published a summary of activities of three of its subcommittees on population estimates, medical certification of causes of death, and coordination among services producing vital statistics.

In Costa Rica plans have been drawn up for a reorganization within the Ministry of Health of the department of biostatistics for closer integration of statistical activities and better utilization of data obtained through the venereal disease, leprosy, cancer, and similar campaigns.

Explorations were made in Cuba to develop Pinar del Rio as a demonstration center for the country in the production and use of health statistics.

The time when the international certificate for causes of death is to be used in Honduras is closer at hand, waiting only for a final step before it has legal bases. It will make possible better analysis of the mortality patterns in Honduras. Changes in the methodology of data collection are taking place in the San Felipe Hospital. These newer methods may spread to similar institutions in other parts of the country.

A pilot plan was formulated for improved collection and use of health statistics in Celaya, Mexico, which may become a model and center for training and investigation in health data collection and production. Training in health statistics is given in the schools of medicine, public health, and nursing in Mexico City. The number of trained statisticians joining the staffs of the School of Public Health and the Ministry of Health is increasing.

The international certificate for causes of death has been introduced in Nicaragua and its use on a national basis is

imminent. Departmental capitals will be the first to try it out. Advanced training in health statistics is being given to key people in the biostatistics office.

In Panama work progresses on the collection of data on health centers as a means of evaluating their function in serving the health needs of the population. Training on the classification of causes of death was given in Panama to 41 persons employed in the health field.

In Venezuela the department of demography and epidemiology has expanded its services and employed additional trained personnel. Work in hospital statistics has been initiated. The annual publication *Epidemiology and Vital Statistics* (1958) was released before the end of the year, thus establishing a new record of prompt release of these reports. Several reports on statistics and violent deaths have provided analyses of this problem. The work in the biostatistical experimental zone has been extended to a neighboring state.

Although responsibility for censuses usually rests with the statistical office in each country, health services are in great need of census data for many of the activities. Thus, it is necessary for health services to assist in planning for the census and in tabulation of data. The United Nations held a Seminar on Evaluation and Utilization of Population Census Data in Latin America in Chile in December. At that Seminar the following dates were reported as established for censuses:

Argentina	—	September 30, 1960
Brazil	—	July 1, 1960
Colombia	—	August 1961
Cuba	—	1963
Chile	—	October-November 1960
Ecuador	—	November 1961
Honduras	—	March 1961
Mexico	—	May-June 1960
Panama	—	December 11, 1960
Venezuela	—	November 1960
Federation of West Indies	—	April 1960

In addition, possible dates were given for censuses in the following countries:

Bolivia	—	September 1961
Guatemala	—	April 1961
Haiti	—	1961 or 1962
Nicaragua	—	May 1961
Paraguay	—	1961
Netherlands Antilles	—	1961
Guadeloupe, Martinique, and French Guiana	—	1961

International Sanitary Regulations

Five of the six quarantinable diseases occur in the Americas as seen in Table VII. The *International Sanitary*

Regulations, adopted in 1951, provide for the immediate notification of these quarantinable diseases to the Organization and procedures to be followed to ensure the maximum security against the international spread of these diseases with minimum interference to world traffic. The *International Sanitary Regulations* refer expressly to the six quarantinable diseases and limit the sanitary measures to be taken in respect of other infectious diseases. The new annotated edition of the *International Sanitary Regulations* was released in Spanish in 1959.

On May 14, the Government of Colombia became a

member of WHO, and the Regulations, which, as a matter of fact had been accepted and carried out prior to this, formally entered into force three months later.

An important activity of the Organization is to ensure that no measures in excess of those provided in the Regulations are carried out. Frequently this requires fairly detailed explanations and interpretations for health authorities who in their desire to protect their populations sometimes take measures which are ineffective and seem only to complicate control procedures.

Environmental Sanitation

By far the most significant advances made during the year in the field of environmental sanitation were in the community water-supply program. The Bureau was involved in studying approaches to this program in the Region and in promotional phases directed primarily toward arousing interest among Member Governments, international agencies, and others whose support is needed. Information regarding the situation on urban water-supply systems, population served, and general types of organizations and financial problems was collected and analyzed for guidance in program planning.

In addition to the water-supply activities, expansion of the over-all sanitation program was manifested in 1959 primarily in further development of rural sanitation services in the integrated health projects. Emphasis was also placed on problems of municipalities within project areas. Of course, attention continued to be focused on strengthening sanitation services at all government levels.

Water Supply

This year marked the beginning of a regional effort to bring safe water in adequate quantities to all the people. Unanimous endorsement by the World Health Assembly, the strongest approval of the PAHO Directing Council, and the creation of a Special Water Fund by both Organizations formally established the water program.

The relationship of water to disease is well known; it has been previously pointed out that not only is the safety of water important, but also the quantity available. Mortality rates for children, aged one-four, show that diarrheal diseases rank first in 12 of the Latin American

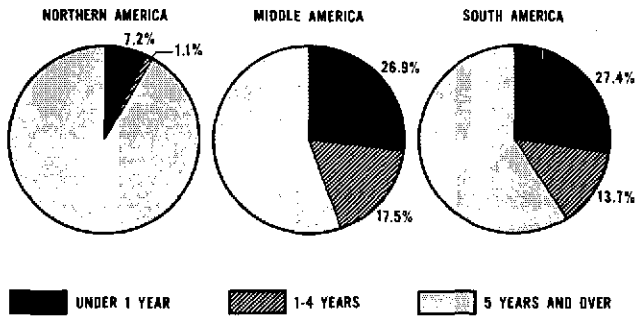
countries and among the first five causes of death in the remaining countries. It has been demonstrated that the diarrheal disease incidence can be significantly reduced by making water accessible in the home. The accompanying graphs show the death rates occurring in infancy and early childhood in three regions of the Americas; death rates, by groups of causes, per 100,000 children, one-four years of age; and the per cent of population without water service in cities of 2,000 or more population in the Americas.

A vast number of people live in urban areas of the Region without water service. The accompanying table shows the percentage of people in some randomly selected cities which are without water service. Table X illustrates the fact that by emphasizing a program where population densities are highest the greatest number of people will benefit with the least expenditure of money and time.

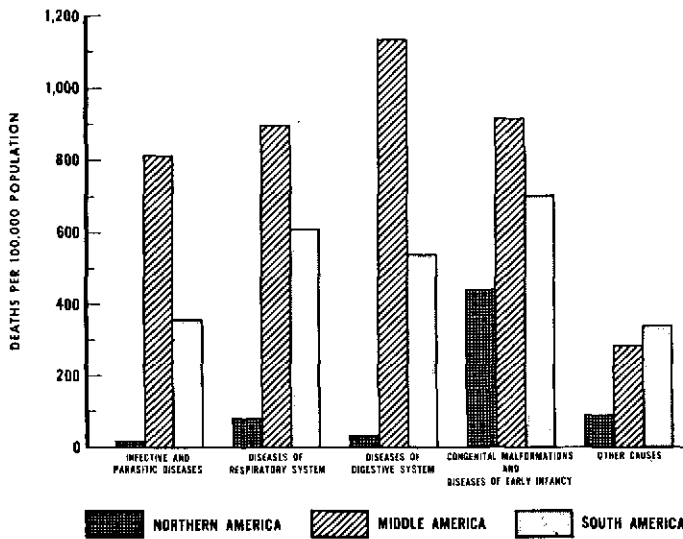
The Organization began collection of data on water facilities in all countries during the first quarter of 1959. As these data were compiled, visits were made to selected countries by the Chief of the Environmental Sanitation Branch and an engineer-consultant to assess the views of national officials, learn of local problems, and stimulate general thinking on national water programs.

At its meeting in Geneva in 1959, the World Health Assembly adopted a resolution which recognized the great public health need for more and safer water for the peoples of the world, and called upon the Director-General to initiate a program carrying very high priority which would be directed at helping countries to supply their people with water. It further authorized the Director-General to establish a Special Water Fund and to invite contributions from all sources interested in furthering

PER CENT OF TOTAL DEATHS THAT OCCUR IN INFANCY AND EARLY CHILDHOOD IN THE THREE REGIONS OF THE AMERICAS, 1956



DEATHS OF CHILDREN UNDER 5 YEARS OF AGE PER 100,000 POPULATION BY GROUPS OF CAUSES IN THE THREE REGIONS OF THE AMERICAS, 1956

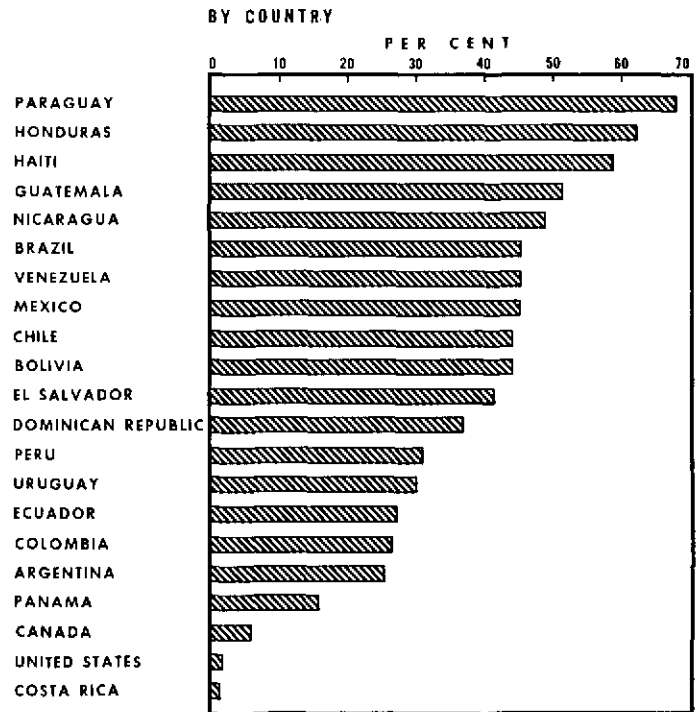


IS AUTHORIZED. (THIS ACCOUNT IS DESIGNATED THE SPECIAL WATER FUND).

Before the Directing Council adjourned, the U.S. delegation announced a contribution of \$500,000 to the world water program, of which \$200,000 was designated for use by PAHO in the Region of the Americas. The Advisory Committee on Water Supply, established in April 1958, immediately convened to advise the Director on water-supply activities for the future in the light of their experiences in the Middle and South American countries. A tentative set of proposals was then drawn up for consideration by the Member Governments.

Water programs already started may be listed as follows: a) Argentina. The ability and capability of health personnel to work with and complement the activities of the Public Works Department has been demonstrated in Chaco Province where the Provincial Health Department, in conjunction with the PAHO engineer, has been able to

PER CENT OF POPULATION WITHOUT WATER SERVICE IN CITIES WITH 2,000 OR MORE INHABITANTS IN COUNTRIES OF THE AMERICAS



this action. At its meeting in September, the PAHO Directing Council adopted a similar resolution summarized as follows:

I) ALL AVAILABLE RESOURCES, LOCAL AND INTERNATIONAL, SHOULD BE DIRECTED TO THE PROVISION OF SAFE AND ADEQUATE WATER SUPPLIES AS A PRIORITY PROGRAM FOR MEMBER GOVERNMENTS.

II) THE DIRECTOR IS AUTHORIZED TO SECURE FINANCIAL PARTICIPATION AND ACCEPT ALL CONTRIBUTIONS FOR PROVIDING ASSISTANCE TO GOVERNMENTS IN THE DEVELOPMENT OF WATER SUPPLIES. FOR THIS PURPOSE A SPECIAL ACCOUNT

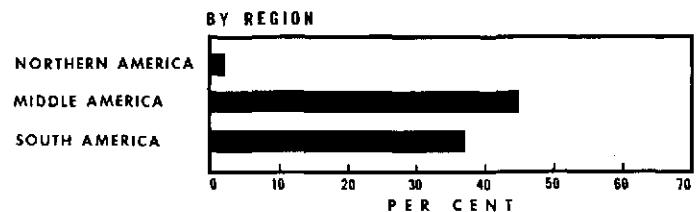


TABLE X. ESTIMATED NUMBER AND PER CENT OF POPULATION LACKING WATER SERVICE^a IN CITIES OF 18 LATIN AMERICAN COUNTRIES^b IN 1958, BY COUNTRY AND SIZE OF CITIES

Country	Estimated population: July 1, 1958 (thousands)	Cities of 50,000 or more inhabitants						Cities of 10,000-49,999 inhabitants				Cities of 2,000-9,999 inhabitants				
		No. of cities	Total population		Population without water service		No. of cities	Total population		Population without water service		No. of cities	Total population		Population without water service	
			Number (thousands)	Per cent	Number (thousands)	Per cent		Number (thousands)	Per cent	Number (thousands)	Per cent		Number (thousands)	Per cent	Number (thousands)	Per cent
Total	149,509	114	34,848	23.3	7,813	22	507	12,639	8.5	5,907	47	2,402	12,581	8.4	8,861	70
Argentina	20,256	26	9,158	45.2	1,241	14	84	2,241	11.1	732	33	375	2,053	10.1	1,439	70
Bolivia	3,305	4	557	16.9	160 ^c	29	4	118	3.6	83	70	40	182	5.5	136 ^d	75
Brazil	62,725	33	12,259	19.5	3,006	25	187	4,973 ^e	7.9	3,039	61	950	5,260 ^e	8.4	4,153	79
Chile	7,314	9	2,457	33.6	1,035	42	39	1,050	14.4	488	46	80	474	6.5	238	50
Colombia	13,522	14	3,189	23.6	669	21	42	923	6.8	266	29	254	949	7.0	413	44
Costa Rica	1,072	1	135	12.6	3	2	6	92	8.6	—	0	16	73	6.8	1	1
Dominican Republic ^f	2,791	2	429	15.4	99	23	7	146	5.2	72	49	27	166	5.9	103	62
Ecuador	4,007	3	839	20.9	126	15	9	174	4.3	63	36	49	257	6.4	157 ^g	61
El Salvador	2,434	2	289	11.9	62	21	10	164	6.7	59	36	43	181	7.4	142	78
Guatemala	3,549	1	370	10.4	74	20	4	83	2.3	59	71	83	418	11.8	314	75
Haiti	3,426	1	199	5.8	88	44	6	82	2.4	37	45	22	110 ^h	3.2	105	95
Honduras	1,822	1	97	5.3	52	54	4	88	4.9	54	61	29	136	7.5	94	69
Nicaragua	1,376	1	175	12.7	63	36	8	169	12.3	83	49	21	107	7.8	75	70
Panama	995	2	198	19.9	—	0	3	45	4.5	23	50	21	92	9.2	30	32
Paraguay	1,672	1	240	14.4	100	42	3	51	3.1	51	100	40	168	10.0	161	96
Peru	10,213	3	1,437	14.1	114	8	22	762 ⁱ	7.5	134	18	151	962 ⁱ	9.4	735	76
Uruguay	2,710	1	850	31.4	150	18	28	594	21.9	218	37	43	187	6.9	123	66
Venezuela	6,320	9	1,970	31.2	771	39	41	884	14.0	446	50	158	806 ^j	12.8	442	55

^a Water service is considered to be lacking in houses which have no connection in either the house or its adjacent courtyard to a piped community water supply. ^b Two countries excluded: data for Mexico not available by size of cities; no data from Cuba. ^c Estimated from reporting in three of four cities. ^d Estimated from reporting in 22 of the 40 cities. ^e Population estimated on assumption of yearly increase of 4.5 per cent of census figure. ^f Population estimated on assumption of yearly increase of 10 per cent of census figure in cities over 50,000; five per cent in all other cities over 2,000. ^g Estimated from reporting in 12 of 49 cities. ^h Population estimated on assumption of yearly increase of 2.5 per cent of census figure. ⁱ Population estimated on assumption of yearly increase of four per cent of census figure. ^j Estimated from proportion of total population in this group at last census.

stimulate a local municipality to extend its water system. Within a period of three years water will be provided to an additional area of 300 city blocks. All financing is being done locally; b) Cuba. A national water and sewer authority has been established. PAHO helped establish a waterworks operators training course which was completed in June. A request has been received to provide an engineer-consultant on water-system design to help train new engineers in the authority; c) Peru. A Presidential Decree has created a national water committee to study

and formulate a national water plan. PAHO has provided a consultant for assistance on certain specific municipal systems; d) St. Kitts. (Leeward Is.) The advice of a PAHO engineer and action of local officials have seen the completion of extensive water-supply improvement made possible by local financing and improved management; e) Venezuela. The government has requested the services of a consultant for preliminary discussions related to the national water program.

Other countries have also submitted requests which

were under consideration as the year ended.

In general, it may be said that the first year of the water program closed with nearly every country of the Region having given consideration to the avenues that can be used to construct, extend, and expand water systems to meet the regional objective of "safe and adequate water for all the people."

Technical Discussions

The XI Meeting of the Directing Council devoted one full day to the Technical Discussions on the subject "Technical, Financial, and Administrative Aspects of Water Supply in the Urban Environment in the Americas."

Two consultants presented papers, followed by a panel discussion composed of five authorities on various aspects of the topic. The afternoon session was devoted to questions and discussions from the floor.

This topic was selected by the previous Directing Council for discussion because it recognized the fact that if the objective of safe and adequate water is to be reached, the major obstacles of finance and administration must be overcome, and that simply recognizing the great importance of water to health on the part of public health officials has not and will not be sufficient to supply the people with water.

Field Programs

Four of the Zone Offices had the full-time services of a sanitary engineer in 1959, and plans were completed to include engineers in all the other Zones and in the Field Office, El Paso early in 1960.

Zone Offices continued to provide leadership, coordination, and promotion of sanitation endeavors within the public health programs of Member Governments. Technical assistance on specific problems was rendered by zone engineers both through visits and provision of technical information and guidance. Interest in specific programs, such as community water supply, was strengthened through preparation and dissemination of information, in meetings, and by consultation with engineering organizations, schools, and government officials. Details of activities, by country or area, follow.

Argentina. An important development has taken place in Argentina with the organization of the first "Distrito Sanitario" (see chapter on integrated health services). National sanitation personnel allocated to the "Distrito" include one engineer, two supervisors, and 16 sanitary inspectors who are working in an area inhabited by a population of 200,000. Sanitation services are decentralized at the local level in the health centers.

The construction of 35 wells, servicing a population of about 5,000, was completed in the demonstration area of the project, and advice was given for the extension of the

water-supply service in Resistencia. Distribution was also made of 1,027 latrine slabs. Other sanitation activities in the area included surveys and visits in connection with sanitary conditions in schools, industrial enterprises, food establishments, and garbage disposal.

Brazil. Sanitation activities assisted by PAHO/WHO were primarily concerned with education and training of sanitary inspectors and sanitary engineers. The integrated health project (Brazil-3), initiated in 1958, includes sanitation activities in which UNICEF is collaborating by providing supplies and equipment. Another project (Brazil-39) in Mato Grosso was begun and the Organization will provide the services of a sanitary engineer along with other members of the public health team in 1960.

Chile. Construction of workshops was begun for the manufacture of sanitary fittings and appurtenances to be used in the Ovalle-Copiapo project. Auxiliary sanitation personnel to be employed in this project were trained.

Colombia. A study was completed on the reorganization of the health services of the Ministry of Public Health and Social Welfare. The detailed proposal submitted includes setting up a Division of Environmental Health with sections of sanitary engineering and occupational health.

A national sanitary engineer was assigned to the pilot project, Colombia-4, in October as counterpart to the PAHO engineer.

Environmental sanitation surveys were conducted with the assistance of PAHO personnel in the three "Departamentos" of Boyaca, Cundinamarca, and Nariño. Technical advice was given for the extension of the water-supply and sewer systems of Pamplona, Ocana, Sogamoso, and Chiquinquirá. Studies were also made for the development of rural water supplies, and construction of several wells has been initiated. Approximately 2,600 latrines have been installed in rural areas. Several workshops for the construction and assembly of sanitary equipment for the rural sanitation program have been organized and five of them are now in operation. Other activities were carried out for the improvement of garbage and refuse collection and disposal services, and for the improvement of food sanitation in public establishments.

A summary of sanitation works carried out in various "Departamentos" and health centers appears below.

Inspecciones	Wells protected and constructed	Water connections	Latrines	Sewer connections
108,767	20	479	928	643

a Twenty health centers covering a population of approximately 612,000.

Dominican Republic. In the demonstration area of San Cristobal, seven new wells were constructed during the year and 2,172 latrines completed, bringing the total of new latrines constructed from the beginning of the project to 5,196 (end of November 1959). Routine inspections of food-serving establishments have been carried out both in San Cristobal and Ciudad Trujillo.

Ecuador. A new Department of Sanitary Engineering was created within the Directorate General of Health.

El Salvador. Local sanitation services have been established in a great majority of the existing health centers. Services consist of sanitary inspectors working under the direction of engineer-supervisors. The shortage of sanitary engineers in the country is felt acutely and efforts are being made to improve the situation. Evaluation of the work so far accomplished in the demonstration area is in progress. Final plans were completed for transfer of the PAHO engineer from the project level to the national level.

Guatemala. An important role was played in training of auxiliary sanitation personnel through the preparation of material for a comprehensive text-book in Spanish, which should prove useful in the further training of personnel in this and other Latin American countries.

The work of various government agencies in improvement and construction of community water-supply systems in Guatemala is summarized by the following data: a) systems were completed in nine communities covering a population of 4,180; b) systems are under construction or expansion in 37 communities for a total population of 98,800.

Honduras. Sanitation services were expanded to new health centers organized during the year. Assistance was given in the preparation of water-supply plans for several municipalities. Final plans were completed for development of a rural well-drilling and sanitation program, to begin in 1960 with UNICEF assistance. Sewer extensions were made to 65 houses in the present demonstration area, and in other parts of the area 167 latrines were constructed. Other activities carried out by project staff covered such varied fields as garbage disposal and insect control. Surveys on housing conditions and routine inspections were also made.

Mexico. Sanitation works in the district of Guanajuato have progressed with the arrival of a new drilling machine supplied by UNICEF. Table XI summarizes the accomplishments in water and excreta disposal from the initiation of the project.

Other activities were carried out for the improvement of school sanitation and the hygiene of housing. Specific costs for various types of sanitation works were assessed and analyzed. Of particular interest has been the extension of water-distribution systems to the homes of people in small villages at local expense and the local operation and maintenance of such systems.

TABLE XI. SANITATION ACTIVITIES ASSOCIATED WITH PUBLIC HEALTH SERVICES IN GUANAJUATO (MEXICO-22)

Activities	Cumulative total as of December 1959	Number	
		1958	1959
Drinking Water			
Wells drilled	69	19	41
Draw well and water source construction and protection	91	40	33
Hand pump installation	158	63	70
Motor driven pump installation	13	4	6
Water unit construction	4	2	2
Water tank construction	16	4	6
Hydrants installed	58	18	27
Water system construction	5	1	3
House connections	101	12	10
Latrines			
Units delivered	1,701	647	572
Units installed	1,140	429	418
Housing constructed	632	266	261

Panama. Sanitation activities continued in the demonstration area (La Chorrera) with construction of new wells and latrines. However, the main activities of the PAHO/WHO sanitation staff were concerned with advising, at the regional and national levels, on reorientation of training courses for sanitary inspectors, and on the national plan for water-supply improvement and development, both in rural and urban areas. Eleven new wells were constructed with the limited amount of drilling equipment available.

Paraguay. Special attention was given to auxiliary sanitation personnel with the additional training of 33 sanitary inspectors. At present 74 inspectors and five supervisors have been trained either locally or abroad. Each of the four "Regiones Sanitarias" has the full-time service of a qualified sanitary engineer. In addition to the activities carried out to improve and extend water-supply service and facilities for excreta disposal in eight health centers, 15 wells were constructed and 25 spring supplies or wells repaired; 319 new latrines were constructed and 315 reconditioned. The PAHO/WHO sanitary engineer collaborated directly in the preparation of standards for the national sanitation program and regulations for water supplies.

Peru. Activities of the sanitary engineer assigned to project Peru-22 were directed largely toward assisting the

government in its urban water-supply program. Details may be found in the section on water supply.

United States. Several sanitation problems in the U.S.-Mexico border area have been investigated by the Field Office, El Paso. These are primarily concerned with beach pollution on the Pacific coast, vector control in Las Cruces (New Mexico) and Juarez—El Paso areas, and air pollution in the Juarez—El Paso area. All these problems involve populations on both sides of the border. To expedite the handling of the increasing border problems, a post for a sanitary engineer has been set up at the El Paso Office beginning in 1960.

Uruguay. A full-time post for a sanitary engineer in the "Departamento de Ingeniería Sanitaria" was established. Agreements with several government agencies were also made for carrying out local sanitation programs. The construction of a workshop was initiated, as well as a survey of sanitary conditions of the five "Departamentos."

An agreement between "Obras Sanitarias del Estado" and the Geological Institution was signed relating to the provision of water supplies for small communities.

United Kingdom Territories. Field projects in this area are operating with joint assistance of PAHO/WHO and UNICEF on rural sanitation problems in the following islands: Barbados; St. Kitts; St. Lucia; St. Vincent; and Trinidad. Surveys for the purpose of developing rural sanitation programs were conducted in the following areas: Antigua; Bahamas; British Guiana; British Virgin Islands; Montserrat; and the Netherlands Antilles.

Training

The School of Public Health of the University of Minnesota initiated the first of a series of courses for training engineers in the development of ground-water supplies. The three-month course included a period of theoretical lectures and a six-week field program. Several fellowships were awarded by PAHO/WHO to engineers of countries in the Region where water-supply programs had been initiated.

Review of curricula presently offered in the training of auxiliary sanitation personnel in Latin America was undertaken in a three-week workshop in San Jose, organized by ICA, with the collaboration of the Government of Costa Rica and PAHO. Since training activities of this nature form an important part of most of the integrated health projects, several staff sanitary engineers from field projects, as well as a number of national sanitary engineers and inspectors, participated under PAHO sponsorship.

Among the recommendations made by the workshop and contained in its report are the following: a) the curriculum for sanitarian training should be adjusted for the needs of each country, although for the most part, most of the basic course work will be uniform; b) one type of sanitarian should be considered per country, rather than having two or more different categories of auxiliary

sanitation personnel; and c) greater opportunity for promotion and advancement should be provided for sanitarians and greater stress placed on the importance of this group of public health workers.

The report should prove a valuable guide for improvement of patterns and methods of training sanitation workers throughout Latin America.

The Organization collaborated during the year in two water operators courses which followed the pattern of previous courses sponsored by the Organization in Honduras, 1953; Guatemala, 1955; Mexico, 1956; and Trinidad, 1958.

One of the courses, organized in Montevideo, Uruguay in collaboration with the School of Engineering, Ministry of Health, and Ministry of Public Works, lasted approximately five weeks. PAHO aided by planning and organizing the course; awarding 20 fellowships to participants from Argentina, Chile, Paraguay, and Uruguay; providing an international consultant; and furnishing a limited amount of training equipment. Lectures given in the training have been assembled and reproduced in a comprehensive document, made available to the participants and to governments who may wish to present similar courses in the future.

Assistance was given to a national course for training of waterworks operators in Cuba by providing two consultant-lecturers.

In Mexico zone and project staff have explored ways for greater assistance to education in sanitary engineering at the School of Sanitary Engineering and at the post-graduate course given at the Universidad Nacional de México. Improved teaching of environmental sanitation in schools of medicine was the theme of a national round-table discussion group to which the Organization gave assistance. Among the points brought out in this discussion may be mentioned the need for greater coordination between schools of medicine and engineering faculties to permit a better understanding of the relationship of engineering to public health and vice-versa through the interchange of professors. Need was also expressed for full-time faculty who are competent in the field of engineering and who can present the environmental sanitation subjects.

The report for this round table contains many interesting commentaries on field training, curriculum, and time allocation for the teaching of sanitation subjects, and should prove of interest to those responsible for the training of medical students.

At the request of the Government of Jamaica a consultant reviewed the curriculum for public health inspectors at the Training Center in Kingston. Since it is always necessary to review the work and area in which the sanitarian is to be employed before it is possible to develop a most effective type of training, his report refers to this particular problem as well as to curriculum and training. It is in-

teresting to note that in this area, because of the shortage of public health nurses, sanitarians are employed extensively for paramedical duties to cover part of the work normally assigned to nursing staff. The training must therefore for the present follow lines which are somewhat different from those found in other areas of the Region.

Other training activities in which PAHO/WHO collaborated during the year included: a) a second training course for sanitary inspectors, organized by the provincial health authorities in Argentina similar to the one held in 1958; b) a second national seminar on environmental sanitation, held in Colombia with the cooperation of the School of Public Health; c) three courses in Colombia for the training of sanitary inspectors, and from which 75 students graduated, 49 of whom were assigned to work in the project area and in the health services in other parts of the country; d) the first training course (six months) for sanitary inspectors organized in Ecuador in collaboration with the Inter-American Cooperative Public Health Service (SCISP), from which 20 students graduated and are to be employed in various parts of the country as provincial sanitary inspectors; e) a seventh course for sanitary inspectors, given in El Salvador where collaboration was also extended by the PAHO/WHO sanitary engineer in the revision and preparation of various manuals; f) direct assistance to a training course for 23 sanitary inspectors at the Amatitlán Center, Guatemala; g) a course for 10 sanitary inspectors, organized for the first time in Celaya, the demonstration area in Guanajuato, Mexico; h) a

four-month course for sanitary inspectors, given at the La Chorrera Health Center in Panama to eight new officers to be employed in various health units; and i) a course for 20 national sanitary inspectors, organized through the integrated health project in Uruguay.

Meetings

The Advisory Committee on Environmental Sanitation, established in 1958, was convened again this year to advise the Organization on implementation of the water-supply program, recommended earlier by the Committee. It met in October following the XI Meeting of the Directing Council, which passed a resolution endorsing the recommendations made by the Twelfth World Health Assembly and requested the PASB Director to take a number of steps giving effect to the recommendations. The Advisory Committee expressed its confidence in the feasibility of the community water-supply program and recommended that highest priority be given to: a) stimulating interest of national officials in promoting and launching national water programs; b) reorienting and broadening PAHO staff knowledge on problems of administration, credit and finance, governmental structure, and legal matters pertaining to water-supply services; c) training and orienting national engineers and others responsible for waterworks management in sound administrative practices, efficient operation, and fiscal procedures; and d) offering technical assistance to governments in promoting, planning, and executing water-supply facilities and services.

Maternal and Child Health

Development of MCH Services

Efforts to strengthen maternal and child health services at the national level continued in 1959. In general, there is recognition of the need for an MCH administrative unit, which exists in the structure of most departments or ministries of health. Thus, in the proposed reorganization of the national health services in Colombia, Guatemala, Honduras, and Peru the new structure includes such an administrative unit. Also, plans were made to establish a maternal and child health unit for the first time as part of the reorganization of the health services in the Dominican Republic.

As an indication of the interest of governments in reorganization and strengthening of MCH services, a short-term consultant visited Argentina to assist the MCH division of the Ministry of Health in planning the reorganization and strengthening of the MCH services of the country as part of the development of its general health services. During the period of the consultant's visit, a seminar on MCH for national and regional personnel was organized in the Province of El Chaco under the auspices of the Ministry of Public Health of the Province. The seminar was attended by 40 participants from nine provinces of the country. During the meeting emphasis was placed on MCH services presently developed under the integrated

health services project in the Province of El Chaco with PAHO assistance. This gave opportunity for MCH workers from other provinces to become acquainted with the present organization of the Ministry of Public Health of this Province, as well as with activities that had developed in the fields of MCH and environmental sanitation, in view of the direct relationship of these latter services with the protection of mother and child.

Efforts for the development of MCH services continued in all integrated health projects, based on the principle of integration with other basic health activities. In many of the projects MCH functions are one of the primary activities of both medical and nursing personnel, taking substantial amounts of the working time of the nursing personnel.

The Organization is giving continued attention to extension of child-care services beyond the first year of life. Analysis of attendance in three countries (Colombia, Honduras, and Uruguay) showed that the present trend of extending these services throughout the pre-school ages is achieving success. In 1959 nearly twice as many children, one-four years, were registered than children 0-one year. In the past the ratio was generally in favor of infants, with few children, one-four years, registered.

There were increasing attempts during the year to develop new approaches regarding nutritional problems of children under five years and the serious problem of diarrheal disease and other communicable diseases of childhood such as whooping cough.

In 1960 the Organization plans to analyze critically MCH activities as they have developed in these projects, in order to bring needed reorientation of these activities more into focus. This will be part of the over-all effort to evaluate the services developed in the integrated health projects.

The great use being made of health center services is seen in data from the demonstration area in El Chaco, Argentina. Of the infants under one year of age, 83.1 per cent were under supervision. Of the children, one-six years of age, 35.6 per cent were under supervision. The two short courses developed by the subdepartment of nutrition, one for nursing auxiliaries and the other for teachers of the school, were to prepare such personnel to carry out teaching regarding nutrition, including milk for vulnerable groups, such as pregnant women, infants, and young children.

The 11 health centers organized in Colombia in 1959, as well as the nine in existence, provide maternal and child health services, which up to the present has been the principal activity. During the year, 172 classes were given to groups of mothers. Talks are given in health centers to mothers on such subjects as nutrition, and care of the child, among others. Due to the high incidence of infant diarrhea, rehydration services have been initiated in the Chiquinquirá and Tunja centers. There is also increasing

coordination with the pediatric services in the hospitals. Approximately 75 per cent of the working time of nursing personnel was devoted to maternal and child health activities.

As part of the school health program of the Health Center of Las Crucitas, Honduras, 28 hours of classes were given to teachers. Also, first aid was taught to two groups of teachers.

Diarrheal Disease

A Seminar on Diarrheal Disease in Childhood was organized in Brazil in 1959, with the assistance of the Organization. The Seminar was held in Recife for both personnel from the federal and the state health services. In all, there were 59 participants, including four members of PAHO and two members of ICA. The 59 participants included 38 doctors, eight nurses, six sanitary engineers, two sanitary inspectors, and five health educators. Of the 38 doctors, 12 were public health administrators, 12 were maternal and child health officers, and six were pediatricians. The remainder included six professors from schools of medicine, one pathologist, and one statistician. This meeting was organized as a follow-up of the two inter-country seminars organized in 1956 and 1957, in Chile and Mexico respectively, for all countries in Latin America. PAHO assisted the national meeting, in view of the importance of the problem of diarrheal disease in Brazil and because of the size of the country. Its purpose was to invite persons in administratively responsible positions in public health administration, maternal and child health, nursing, engineering, health education and other allied professions from the federal and state health services in order to discuss jointly the diarrheal disease problem. Discussions were held in terms of an approach to practical solutions and were based essentially on the major subjects previously presented at the two inter-country seminars mentioned above, taking as general guidance the conclusions reached in the joint report of these two seminars. Based on these conclusions, it was possible, through presentation in plenary sessions and through group discussions, to consider more in detail the various phases of the control program as described in the joint report. Although the conclusions of the Seminar in Recife reflect in essence those of the joint report, they were arrived at not as an endorsement of the previous report, but as the result of active discussions within the groups. Furthermore, this Seminar, as it was concerned with the problem in one country, particularly in the maternal and child health part of the program, has been able to suggest practical measures in more detail. Its report comprises: 1) an introduction, dealing with the definition of diarrheal disease and with the importance of the problem from the public health point of view, as well as with analysis of the problem; and 2) the main body which deals with program development in phases of

maternal and child health, sanitation, and public health administration. In the part related to maternal and child health, particular attention is given to early treatment of cases with extensive discussions on ways in which to administer early hydration. Another important point deals with feeding practices in infancy and early childhood, with special attention to certain specific ways of preparing these diets in unsanitary conditions so as to protect food from major contamination. Another chapter is devoted to the influence of personal hygiene habits and cleanliness of the home in relation to this program.

During the Seminar a visit, organized by the Special Public Health Service (SESP), was paid to the health services of Palmares, Pernambuco. In this area an epidemiological study in relation to diarrheal disease had been conducted for over a year in order to measure the problem in terms of mortality and morbidity and to determine the major etiologic agents and underlying epidemiological mechanisms. Certain specific variables, such as abundant use of water and fly population, were studied in detail.

During 1959 the Organization continued to assist other studies in relation to diarrheal disease carried out at INCAP. The main objective here is to investigate the inter-relationship of infections, particularly diarrheal disease and malnutrition. The project deals specifically with children under five years. Studies are carried out in three Indian communities in Guatemala, each with approximately 600 children, along the following lines: in one community an intensive supplementary feeding and nutrition education program has been established. In another community all

infections, but especially diarrheal disease, are treated as promptly and effectively as possible, and environmental sanitation and health education are introduced. The third community serves as control. At regular intervals all children undergo a clinical-nutritional and fecal bacteriological and parasitological examination. Dietary surveys are done yearly and careful continuous morbidity and mortality records are kept. PAHO is providing a bacteriologist and a statistician for the studies.

The Organization has also contributed a small grant to the Hospital Infantil in Mexico City, where a study has been carried out of children with diarrheal disease at the outpatient department with the special purpose of investigating the effect of early oral rehydration and the possibility of carrying this out successfully in the home. Final analysis of the data will be available in 1960, but the study has demonstrated that in a sizable number of cases simple oral rehydration is a satisfactory method for fluid replacement and that the program can be carried out at home directly through education of the mothers. As a side result of the study there is indication that antibiotic medication is of lesser importance in the cure of the child with diarrheal disease.

In the projects of integrated health services, attention is given to the problem of diarrheal disease, both in terms of studying ways of introducing rehydration facilities and in teaching mothers improved weaning and post-weaning diets for young children. In 1960, it is proposed to make available the services of short-term consultants to assist in developing these particular techniques in the projects.

Nursing Services

With the reorganization and strengthening of national health services during the last several years and the increase in numbers of nursing personnel, there has evolved an increasing recognition that the extension and improvement of nursing services are dependent on a strong supervisory and coordinating structure headed by prepared nurses within national health services. As a result, in 1959 health authorities created new departments, divisions, or sections of nursing and strengthened those existing through the appointment of prepared nurses.

As shown in Table XII, by the end of the year, a nursing

unit existed in each of 19 countries. In 10 this unit appeared as a specific entity within a broader administrative unit responsible for technical services. In six countries the nursing unit was located in the division of local or rural health services, and in one, a nurse was a member of the staff assigned to the national maternal and child health division. In two countries nurses were working at the national level in a section specially connected with an integrated health services project. In three countries there is presently under study the reorganization or creation of the nursing unit.

TABLE XII. PLACE OF NURSING UNIT IN HEALTH SERVICES OF 19 COUNTRIES IN LATIN AMERICA

Place of Nursing Unit in National Health Services	Countries
Within broad administrative unit responsible for technical services	Argentina, Bolivia, ^a Brazil, ^b Chile, Costa Rica, Honduras, Mexico, Nicaragua, Paraguay, Peru
Within the division or department of local or rural health services	El Salvador, Guatemala, Haiti, Panama, Uruguay, Venezuela
In national maternal and child health division	Ecuador
Special nursing section for cooperation with integrated health services project. WHO/UNICEF	Colombia, Dominican Republic

^a Nursing services for the country are administered by the Inter-American Cooperative Public Health Service (SCISP). ^b In addition, there are two nursing units administered by the Special Public Health Service (SESP).

Activities at the National Level

Zone nurses gave advisory service directly to all Latin American countries, 12 of which received services from nurse consultants assigned to the integrated health services project in that country.

With nurses participating at the national level there were increased opportunities for cooperating with other health personnel in broad over-all planning for the development of health services (Argentina, Colombia, Paraguay, and Peru). Specific activities in which the national nursing unit was involved in new ventures included studying nursing resources (Honduras and Nicaragua), defining functions of supervisory personnel (Guatemala), coordinating services between national and provincial levels (Argentina, Colombia, and Peru), organizing nursing seminars and congresses (Argentina, Colombia, and Paraguay), and reviewing legislation pertaining to nursing (Costa Rica and Guatemala). Also, in cooperation with international nurses at zone and project levels, national nurses initiated studies for determining functions of nursing personnel and cooperated in the selection, orientation, and training of new health workers (Colombia, Costa Rica, Chile, Dominican Republic, El Salvador, Guatemala, Honduras, Panama, Paraguay, and Uruguay).

The nursing unit at the national level in several countries was also concerned with establishing priorities and norms for nursing services for the country as a whole. It also

studied, with other staff, ways and means for integrating into generalized services, nursing services and personnel attached to specialized programs, such as venereal disease control, tuberculosis control, and BCG vaccination. Attention was given to defining functions of various levels of nursing personnel and to methods of their selection, orientation, and preparation.

In several countries an awareness has developed of the need for establishing working relationships with hospital nursing services and for giving hospital nursing personnel an opportunity to understand and cope with health needs of patients and their families. In some countries the national health authority has established out-patient maternal and child health clinics in hospitals and assigned ministry of health nursing personnel to these. In a few countries a referral system has been established whereby mothers and children discharged from the hospital are reported to the maternal and child health clinic and home visits are made by nursing personnel. Systems are also being established in several countries whereby homes of individuals hospitalized with a communicable disease are visited and epidemiological investigations are carried out by nursing personnel.

Activities at the Local Level

Nurses at the national level, in cooperation with international nurses, particularly in those areas in which the Organization is cooperating in integrated health services projects, continued to plan with nurses at the local level for the continuation and expansion of basic nursing services. These included services to mothers and children in clinics and through home visits; communicable disease control, especially through immunizations; organization and participation in classes for mothers; preparation of procedure manuals; and orientation and supervision of the traditional birth attendant and the nursing auxiliary.

In addition, emphasis was given to the following activities: a) planning and implementing of special courses for graduate public health nurses already employed or newly assigned (in-service training); b) cooperating with schools of nursing in developing and participating in training activities for student nurses as well as for allied health personnel; c) developing and participating in programs designed to orient the graduate midwife to public health; and d) establishing courses for auxiliary nursing personnel and evaluating the effectiveness of these courses.

With the decentralization in some countries from national to intermediate or regional level, a pattern is being established whereby the nursing unit, at the national level, is becoming primarily concerned with the administrative aspects of nursing programs and, in cooperation with nurses at the regional and local levels, assists in the planning and extension of nursing services.

As a result of the development of nursing services,

supervisory activities are gaining acceptance as a means for technical guidance and support. This is a considerable achievement since until very recently supervision was synonymous with administrative control. Methods of supervision, such as caseload analysis, case discussion, and technical review are being added to the traditional method of supervision, namely the home visit by the supervisor with the staff.

Training Activities

The need for all levels of nursing personnel was greatly increased with the expansion of services, and emphasis continued on training activities. A detailed description of these activities may be found in the chapter on integrated health services (Table III). The number of nursing service personnel prepared within integrated health services projects is included in this table. Detailed information regarding formal courses and academic institutions will be found in the section on education and training.

Graduate nurses previously prepared in public health, either through fellowships abroad sponsored by the Organization, or through educational activities in the home country designed to prepare instructors and supervisors for health services, were responsible for organizing

courses for auxiliary nursing personnel. The courses, although varied in length and content, aimed at meeting immediate needs, including elementary nursing, and emphasized nursing responsibilities in maternal and child health services, communicable disease control, health education, home economics, and nutrition.

Trends

Strengthening and expansion of services have brought about the recognition of the need for family-centered care as a more efficient method of applying scientific and social knowledge for general improvement of the health of the community.

Better prepared nurses, both basically and scientifically, will be able to participate more effectively in all phases of the health program such as planning, implementation, development, and evaluation.

From the achievements noted, it is anticipated that health authorities will continue to place emphasis on preparing nursing personnel, as well as on creating sufficient nursing posts at all levels, so that nursing and nursing services may continue to contribute to the general well-being of the community as a whole.

Nutrition

The Nutrition program expanded further in 1959 both through assistance to the Member Countries, in many instances jointly with the Food and Agriculture Organization (FAO) and the United Nations Children's Fund (UNICEF), and through the specific program at the Institute of Nutrition of Central America and Panama (INCAP).

The Organization continued its administrative responsibility for INCAP, besides providing a full-time consultant to the Institute of Nutrition of Ecuador (INNE). In addition to providing service to the Central American countries and Panama, Bureau staff members also carried out advisory functions in Argentina, Brazil, Mexico, and Paraguay.

In Brazil PAHO participated in a joint survey with FAO in formulating plans for an expanded program of supplementary feeding and nutrition education to be assisted by UNICEF.

A consultant visited Mexico to discuss the program of the National Institute of Nutrition, as well as the development of applied nutrition activities with UNICEF assistance.

In Paraguay assistance included joint program preparation with FAO and UNICEF in the elaboration of an applied nutrition program.

The Organization cooperated in the same way with FAO and UNICEF in developing a program outline for expanded and integrated nutrition in Costa Rica, as well as in a modification of the existing nutrition programs of a similar type in Guatemala.

In Argentina assistance took the form of organization, responsibility, and participation by two staff members in a regional seminar, with the training of dietary survey workers from seven countries.

In connection with the expanded program of medical research of the World Health Organization, a short-term consultant visited Argentina, Guatemala, Mexico, Peru and Venezuela for the purpose of stimulating interest in epidemiological studies of anemia, with special reference to young children and pregnant and lactating mothers. This visit had as a primary purpose a survey of the needs and opportunities for support of research in this somewhat neglected field.

PAHO also participated in two regional seminars on

the improvement of nutrition, with special reference to the problems of infants and young children. The meetings were sponsored by the Instituto Interamericano del Niño and the Unitarian Service Committee. Both the Organization and FAO assigned two consultants to assist in the technical aspects of these meetings, which were held in succession in Quito, Ecuador, and Asunción, Paraguay during late February and early March. In the former seminar, persons concerned with applied nutrition programs within the Ministries of Health, Education, and Agriculture of Colombia, Ecuador, Peru, and Venezuela attended, while in the latter, participants came from Argentina, Bolivia, Brazil, Chile, Paraguay, and Uruguay. In both seminars, the secretariat included nutrition experts from Argentina, Brazil, Chile, and Peru, as well as representatives from each of the participating organizations. The meetings served not only as a training experience for the participants, but also for the elaboration of a series of policy recommendations closely paralleling those of the Fourth Joint FAO/WHO Conference on Nutritional Problems of Latin America, held in Guatemala in September 1957.

INCAP Activities

During 1959 INCAP completed 10 years of activity and a 10th Anniversary celebration was held on September 15. This was held at the time of the meetings of the Technical Advisory Committee and the Council, whose members participated in the celebration.

The ceremonies included symposia on "The Teaching of Nutrition in Schools of Medicine and Public Health" and "Application of Research Knowledge to Applied Nutrition Programs".

A review of the work of INCAP shows a steady progressing and broadening of activities, some of which are presented in greater detail in these pages.

During 1959, applied nutrition activities and assistance to member countries were substantially increased while the research program continues to be directed toward the fundamental problems of malnutrition in the area.

Program of Investigations

This portion of INCAP activities was carried out by the Divisions of Clinical Investigation, Clinical Biochemistry, Pathology, Agricultural and Food Chemistry, Statistics, and the Epidemiology Section of the Division of Public Health.

Among the outstanding programs was the further development of INCAPARINA (INCAP Vegetable Mixture No. 9). Although this formula was already mentioned in last year's Report, it was improved and further tested in 1959. A four-month acceptability trial in four different towns in Guatemala included nearly 200 pre-school children, and showed it to be highly acceptable by mothers

and children. A thin gruel (locally called "atole") is prepared in such a way that each glass has the approximate protein nutritive value of one glass of milk and a balanced content of other nutrients. It can be served hot or cold, flavored to taste with sugar and cinnamon, vanilla, or anise.

Following the acceptability studies, INCAPARINA was put on sale in one Indian village in Guatemala with equally satisfactory results. In this community of about 4,500 inhabitants, approximately 4,200 bags, containing 75 grams each of the product, were sold monthly during the first five months. It is expected that in 1960, INCAPARINA will be commercially produced and distributed in Guatemala in substantial quantities. It will be distributed in plastic bags containing 75 grams each, with directions for preparation printed on the bag. One bag per day will supply an average pre-school child with 1.5—2.0 grams of protein per kg., which when added to his usual diet should ensure an adequate protein intake. Arrangements are also being made for its production in El Salvador and Nicaragua.

Another important project is the investigation of the relationship between malnutrition and infection, and especially diarrheal disease in children under five years of age. Three Indian communities in Guatemala with about 600 children in this age group are being investigated for a three-to-five year period. In one community an intensive supplementary feeding and nutrition education program has been developed. It is anticipated that the effect of improving the nutritional status of the children will be demonstrated in the frequency, duration, and severity of infectious diseases. In another community all infections, especially diarrheal diseases, are treated as promptly and effectively as possible, and environmental sanitation and health education are being introduced. The third community serves as a control. At regular intervals all children undergo a clinical-nutritional and fecal bacteriological and parasitological examination. Dietary surveys are done yearly. In addition, accurate morbidity and mortality records are maintained.

In the INCAP metabolic unit, work continued on the effect of various infections on the nitrogen balance of children. It has been shown that a series of bacterial and viral infections, as well as certain parasitic infestations, lower net nitrogen retention. After recovery from the infection, return to normal nitrogen balance may take as long as two weeks.

Studies have also continued on the supplementation of cereal proteins, especially corn, to determine which amino acids are the most limiting. It has been found in the case of corn that lysine, tryptophane, and isoleucine are the most limiting amino acids, and their addition to corn protein brings its biological value within the range of protein of animal origin. In the case of wheat flour, lysine is the most limiting factor and its addition results in

substantial improvement in the nitrogen retention of young children.

In a group of children in a very poor orphanage in Guatemala City, blood and urine samples were examined for various nutrients before and after the children were fed a diet similar to that consumed by children of higher socio-economic groups. Free serum riboflavin and red blood cell riboflavin, as well as ascorbic acid and carotene, rose significantly, while total serum proteins, serum cholinesterase, and blood hemoglobin dropped slightly. Serum Vitamin A did not change in those presenting adequate levels at the start, but rose markedly in those with inadequate initial levels. Urinary excretion of riboflavin, ascorbic acid, and N-methylnicotinamide rose in response to the increased intake of the corresponding vitamins. However, urinary thiamine excretion decreased, presumably because of a greater demand due to the increased calorie intake.

Maternal milk of women from low socio-economic groups was analyzed for its content of Vitamin A, carotene, proteins, and riboflavin. It was found that the levels of Vitamin A in the milk of low income Guatemalan mothers are especially low. Since the infants are born with low hepatic reserves of this nutrient, it becomes even more important to ensure an adequate intake of Vitamin A for pregnant and lactating women.

Examination of human aortas from low income patients dying in New Orleans, Guatemala City, and San Jose, Costa Rica has continued as an INCAP project. Results confirm the previous Report that after the third decade atherosclerotic lesions increase rapidly in New Orleans, at a much lower rate in Costa Rica, and most slowly in Guatemala. The weight and fat content of a sample of these aortas paralleled the severity of the atherosclerotic lesions found. A new project has been started in cooperation with 13 pathologists from Brazil, Colombia, Costa Rica, Chile, Guatemala, Jamaica, Puerto Rico, Peru, the United States, and Venezuela. The project is known as the Inter-American Atherosclerosis Study and is supported by a grant from the National Institutes of Health of the United States. The study will make possible the collection in Guatemala of all the pathological material for the comparative study of coronary and aortic atherosclerosis using modern biochemical, biophysical, and statistical techniques.

A study of blood groups among Guatemalan Indians has included the ABO, Rh, Kell, Kidd, Duffy, and Diego factors. The distribution of several of these factors among Indians of pure Mayan origin is closely similar to that in East Asian population groups and markedly different from European and African patterns.

The Division of Agricultural and Food Chemistry has increased its investigations on the effect of enriching various animal feeds and human foods with the limiting essential amino acids. In addition, new foods have been

analyzed for their nutritional value and various vegetable mixtures have been tried on laboratory animals. This kind of work will continue to receive emphasis because of its importance to agricultural production and utilization, and hence to the availability of foods in areas where human malnutrition is prevalent.

The Division of Statistics has entered into the planning and analysis of almost every research project at INCAP. It is also carrying out an investigation of the stability of INCAPARINA under various climatic and storage conditions. So far, after nine months, no deleterious effects of climate, humidity, infestation, or storage have been found in properly stored samples.

Service to Member Countries

In 1959 the Division of Country Services was divided into two new divisions, Education and Public Health. In making this change it was made clear that all of the INCAP Divisions would provide their specialized services to member countries whenever necessary or requested.

Visits of INCAP staff to member countries became more frequent and regular in 1959, thus permitting longer-range planning of local activities. The nutrition sections in the member countries have continued to develop, especially through training of personnel either at INCAP or in schools of public health.

Services to member countries in general can be divided into two categories: a) training in nutrition of local personnel; and b) assistance to national nutrition sections in the development of programs.

In each member country INCAP personnel participated in courses of various kinds and spoke to many groups on several aspects of nutrition. Thus large groups of physicians, public health nurses, auxiliary nurses, teachers, home economists, agricultural extension agents, social workers, and sanitarians received training in nutrition adapted to their needs and interests. Training activities covered the largest number of public health personnel in Guatemala and El Salvador, where public health demonstration areas are in operation. Special emphasis was placed on the introduction of new ideas concerning nutrition to population groups and the recognition of malnutrition by personnel of the health centers.

A substantial number of fellowships (six months to one year) were awarded by INCAP to Central Americans for work in its central laboratories in Guatemala. On returning to their countries, these trainees will work in the nutrition section or laboratories of the public health department, the university, or other public institutions.

Medical schools and schools of nursing have been urged to include nutrition as one of their courses. The medical schools of El Salvador and Guatemala have already taken affirmative action and have requested INCAP to participate in this teaching. Nurses from several schools of nursing

have also visited INCAP to observe educational activities.

INCAP has been assisting its member countries in developing nutrition activities based on the integral program developed jointly by WHO and FAO. The ministries of education, agriculture, and public health are cooperatively involved at all working levels in carrying out this type of planning. The program in Costa Rica was the first to be approved. It consists of a pilot program based on cooperation among the three above-mentioned ministries, and is to be initiated in an area where schools, health centers, and agricultural extension agencies already exist. It is hoped that this program can be extended to other areas within the near future, and to the other member countries. UNICEF has agreed to provide equipment and stipends for the training of local personnel, while PAHO/WHO and FAO will provide technical assistance and fellowships for senior personnel outside the country.

In Costa Rica, El Salvador, and Honduras it has been possible to convert a number of day-care centers for children into nutritional rehabilitation centers. Malnourished children are accepted upon the recommendation of a physician or a health center and receive at least one good meal a day. At the same time the mother is instructed in proper nutrition for her child.

INNE Activities

During 1959 the National Institute of Nutrition of Ecuador (INNE) and its Coastal Department in Guayaquil devoted their activities particularly to nutrition education.

In the first half of the year the Institute made an intensive study of endemic goiter in the Province of Quito, in order to complete the general data compiled for the country during 1958. The investigation program was planned so as to include a survey on goiter incidence in children, adolescents, and adults, and was supplemented by a complete nutrition survey covering clinical, biochemical, dietetic, economic, vital statistics, agricultural, and geological data. Studies were conducted in 11 statistically selected communities. These activities have attracted so much attention locally that the Government of Ecuador is currently studying the manner of carrying out salt iodization as soon as possible.

During the months of July, August, and September, INNE personnel collaborated in a nutrition study in several areas of the country among civilian and military groups totalling more than 7,000 persons of all ages. An inter-

departmental committee of U.S. agencies participated in the study at the request of the government.

It should also be mentioned that the Institute's Clinical Department is responsible for establishing standard height and weight curves in Ecuador for children and adolescents from 0 to 18 years of age. This activity will be completed during the early part of 1960.

In addition, the Nutrition Institute's Coastal Department in Guayaquil is developing an investigation program on the problem of anemic diseases along the litoral of the country.

With regard to nutrition education, the Institute made continuous efforts and obtained satisfactory results in educating mothers at health centers and other establishments, such as high schools and social service schools under the Ministry of Education.

In response to a proposal of the Ecuadorian Board of Education, the government promulgated a Decree in March that makes official the teaching of nutrition in high schools that teach the modern humanities and those that teach the educational sciences in preparing future teachers. The subject of nutrition will be taught one hour weekly for one year at the schools teaching the humanities and for two years at the educational science schools.

To train biology professors who will be in charge of teaching nutrition, INNE, in cooperation with WHO and FAO, organized courses in Quito, Guayaquil, and Cuenca during 1958. INNE also published a 36-page pamphlet entitled *Nociones Complementarias y Sugerencias para la Enseñanza de la Nutrición en los Colegios de Bachillerato*. Also, the *Manual de Nutrición Humana*, the text-book prepared by INNE for students at those schools, was placed on sale in August 1959.

The Nutrition Institute has collaborated with social service schools, and at the present time all graduates complete their studies with adequate training in nutrition. Educational programs with practical demonstrations are also developed in the health centers at Quito and Guayaquil.

A study has been made, in cooperation with officers of the Andean Mission, for a pilot program in nutrition education for indigenous communities in rural areas of the Sierra. Its implementation, with the advisory services of WHO and FAO and the aid of UNICEF, is foreseen for early 1960.

In addition, INNE has rendered technical advisory services to various organizations and national agencies, particularly the National Economic Planning Board.

Dental Health

Activities in this field have been coordinated by a regional adviser in dental health, who has assisted in the promotion of dental health in several countries, and has given direct aid to the dental public health training program at the School of Public Health, University of São Paulo, Brazil. His activities followed two broad lines of approach—education and training and dental public health.

Education and Training

Concepts on dental education at the undergraduate level were presented at various dental schools, including Buenos Aires, Argentina; Concepción, Chile; Asunción, Paraguay; and Caracas, Venezuela. Emphasis was placed on the need for the teaching of preventive dentistry to permeate the entire curriculum in a dental health course. A philosophy of dental education was presented which analyzed public health dentistry developments under: a) curriculum reorganization for better correlation of subjects and an integrated view of the profession; b) emphasis on a liberal education for the dentist; and c) efforts to bring the dental school closer to the community. Meanwhile, copies of this statement were distributed by the Brazilian Dental Education Association (ABENO) to all Brazilian dental schools.

Assistance was given to the School of Hygiene and Public Health, University of São Paulo, Brazil, through a substantial amount of teaching at the Regional Center for Dental Public Health Training (Brazil-37), and through advisory services in organization, planning, and evaluation activities. Thirteen students from 10 countries completed the course this year.

The training program was divided into four periods: a) orientation; b) academic; c) field-training; and d) examination. The academic period covered such subjects as: bacteriology; biostatistics; public health administration; epidemiology; nutrition; environmental sanitation; applied social sciences; health education; dental public health; and applied epidemiology. The field-training period included three weeks of activities in the Servicios Especiales de Salud Pública (SESP) area, and covered such matters as observation of a water fluoridation program, including its epidemiological, technical, and administrative aspects; observation of a field research project on the utilization of fluoride tablets in a school program; visits to two cities to observe health activities in the company of the "visitadora" and sanitary inspector on home visits;

and finally, a dental survey in these two cities with an evaluation of the incremental care program from the point of view of productivity and cost analysis.

Field work also included observation of the operations of a large health program at a regional level (Belo Horizonte, Brazil), from the standpoint of the dental supervisor working at this level. Special attention here was given to the position of the dental program within the over-all health program and to the relationships of the dental supervisor with field units.

By the end of 1959 the Brazil-37 project had trained 28 dentists from 13 countries. By 1960 it is expected that dentists from all but four countries in Latin America will have been sent for training.

Two other brief courses on dental health were given by the adviser during the year—one (six hours) for about 150 dentists working at the Health Service in Buenos Aires, and oriented toward school dental services, and the other (12 hours) given to approximately 50 dentists interested in public health at the Argentine Dental Association. Several chiefs of dental services in Buenos Aires attended the latter course.

Dental Public Health

In the area of public health, special advisory services were rendered to the Government of Jamaica relative to illegal dental practice, and to the type of training that could be provided to improve dental health services on the island.

Advice was also provided to the Government of Venezuela regarding problems faced by the Division of Dental Health at the central level, especially in its relation with the dental services in the Caracas metropolitan area. Several changes have already been introduced in the dental program and the division chief and his assistant are to take public health courses in 1960 under WHO fellowships. Furthermore, three Venezuelan dentists will take the MPH course under the auspices of the Venezuelan Government.

As a follow-up to a visit made in 1958 to British Guiana, a special set of record system forms for the work of mobile dental units was prepared and sent to the government. British Guiana is expected to request assistance of WHO and UNICEF in a dental project in 1960.

A special report was prepared on the subject of water fluoridation, covering a review of the present status of fluoridation in the Region and the problems involved in

the slow progress being made in this field. In connection with the possibility of linking this work with the future expanded water program in the Hemisphere, information on fluorspar utilization has also been made available.

Industrialization of silicofluoride within Latin America or utilization of natural fluorspar seem to be the alternatives which will make possible wider utilization of water fluoridation in this part of the world.

Health Education

Health education activities of the Bureau were expanded in 1959, with emphasis on the health education training of health workers and allied personnel, particularly in the integrated health projects and in national malaria eradication programs. This training was accomplished through short courses and in-service training carried on as a part of the national programs with which the Bureau cooperates. Health education advisory services were provided through consultants of the Bureau in Zones I and II and in other countries of the Region through staff of the Regional Office.

With the cooperation of national health education personnel and staff of other international agencies working in the field of health, health education efforts were intensified in the integrated health projects through the training of national personnel and subsequent application of health education methods in work at the community level.

In Zone I special attention was given to the health education aspects of environmental sanitation through training of personnel and in the development of community organization work in collaboration with national counterparts. This work has led to the development of health education sections in the national health services of several of the countries in the Zone. In Zone II plans were also developed for long-range selection and training of professional health education staff for national health services, in addition to the assistance provided through advisory services to integrated health projects and other national health programs. Follow-up work was carried on by the

Bureau in connection with the Twelfth World Health Assembly Technical Discussions on Health Education. A system was established for the routine exchange of health education experiences and materials among the Member Countries through the Bureau. Technical materials for professional staff and training programs were provided to the national health services and to professional schools, including the WHO Technical Report Series on Health Education, background documents from Expert Committees on Health Education, guides for teacher training in health education, manuals on conference leadership and group work, and articles on health education methods and techniques.

The Bureau collaborated with health education and malaria eradication staff of the International Cooperation Administration of the U.S. in the preparation of a draft guide on educational approaches for malaria eradication programs which is intended for world-wide distribution. The document deals with suggested methods to be used for the organization of educational methods to be used from the national to the local level in securing community support for the malaria eradication programs. It is anticipated that it may also have general application to other public health services.

Preliminary plans were made for cooperation in the improvement of teacher training in health education as a joint effort with UNESCO. Steps also have been taken toward implementing health education training in schools of medicine.

Other Activities

Administrative Methods and Procedures in Public Health

A survey of administrative services in ministries of public health and of national and local training facilities for administrative personnel in these ministries throughout

the Hemisphere was initiated in 1959.

The current survey is a further implementation of Resolution XXXV of the X Meeting of the Directing Council which requested the Director to take the necessary steps to provide collaboration in matters concerning administrative methods and procedures in public health services.

Findings of the survey have indicated that there is a compelling need for assistance in public administration in the ministries of public health. Plans call for completion of the survey in 1961.

This activity is part of a continuing program which has included assistance by the Organization to the Member Governments in administrative methods and procedures in the malaria eradication campaign by developing training courses and providing advisory services.

Future plans call for a seminar on the management and organization of public health establishments under the sponsorship of the Pan American Sanitary Bureau and the United Nations to be held in the Advanced School of Public Administration in Central America in late 1960. The meeting will include the participation of the directors general and the chiefs of administration in the health ministries of Central America and Panama.

For 1961 and 1962 a consultant specialized in the evaluation of administrative methods and practices has been assigned to Chile. This is in addition to the consultant in administration who has been assigned to the Ministry of Public Health and Welfare of Paraguay since late 1958; the assistance being provided in the malaria eradication campaign by four administrative management consultants in Zones II, III, and IV; and a regional transport management consultant.

Mental Health

Interest in the promotion of mental health in the general population has been growing in several countries, even though there is awareness that communicable disease control, organization of health services, maternal and child health, sanitation, and other basic health activities still have a higher priority. The Organization has helped make this interest effective through consultants on specific programs, notably those related to services aimed at prevention of major mental illnesses through early diagnosis and treatment.

Existing mental health and psychiatric services were studied by a special consultant in Venezuela. Short and long-term measures for further development were suggested. The recommendations included the organization of mental health services at the ministry level, with special emphasis on reorganization of the psychiatric care and the development of a network of mental health services in close relation with local health services. Suggested improvements in the teaching of psychiatry in medical schools and in the training of personnel for mental health services were also covered by the recommendations.

In Mexico a consultant also studied the present organization and services in the field of mental health, as well as the training facilities, and made specific recommendations dealing with a national mental health plan, with the aim of promoting the best possible mental health of the population. The recommendations included organizing services

for early and adequate psychiatric treatment and rehabilitation and promoting good training facilities. A second visit by the consultant is planned.

The implications of mental health in many apparently non-related health problems opens opportunities to include its methods and techniques as part of the total activities of the integrated health services. Plans have been completed for appointment of a permanent consultant in this field who will promote and develop specific projects and activities within already existing health projects.

Rehabilitation

PAHO continued to participate in 1959 in the organization of a Rehabilitation Training Center for physically handicapped persons in São Paulo, Brazil. The PAHO consultant acted as an adviser to the Director of the Center in the over-all phases of the program.

After two years, the Center is now able to demonstrate various phases of rehabilitation in medical, vocational, educational, and social aspects. It has also developed a series of courses, particularly for physical therapists and occupational therapists. According to the need, the Center can train in the following areas: medical rehabilitation; brace-making and fitting; and prosthesis-making and fitting.

During the year the Center conducted a seminar on rehabilitation which was attended by approximately 200 nationals, including professors of orthopedics from Curitiba, Porto Alegre, Recife, and Salvador.

Hospital Planning and Organization

During 1959 advisory services continued to be provided to the National and Provincial Ministries of Public Health in Argentina in organizing their hospitals and planning hospital policies, as well as in training professional and auxiliary personnel, and numerous innovations were recommended for the technical and administrative operation of various institutions, among them establishment of demonstration centers, promulgation of adequate regulations, and modernization of statistical systems. In the Provinces of Buenos Aires, Chaco, Córdoba, Salta, and Tucumán, collaboration was given to ascertain the hospital problem in each of those provinces, and the necessary measures were recommended to improve technical and administrative services. Several educational institutions also received collaboration in studies on operation, performance, morbidity, mortality, personnel, and costs of clinical hospitals. Plans were suggested for new construction and remodelling. Among the educational institutions which received advice were the School of Medical Sciences of the University of Buenos Aires and the Schools of Medicine of the Universities of La Plata and Córdoba.

During the year, the Argentine authorities held the following training courses: a course for directors of hospitals and health centers, lasting six weeks with 40 persons

attending; a course for directors of institutions and centers concerned with respiratory tract diseases, lasting six weeks with an enrollment of 20 persons; a course on hospital organization and administration in the National School of Public Health commenced in August and will continue until March 31, 1960, with 16 physicians enrolled; a three-week course in hospital statistics, with an enrollment of 32 statisticians from various hospitals and the statistical division of the Ministry of Public Health; and a six-week course for directors of hospitals of the municipality of Buenos Aires, with 35 attendants.

Special mention should be made of the organization of demonstration centers in organization of model hospital establishments, either in their entirety or in some of their departments. The demonstration areas will serve to implement administrative methods and, at the same time, serve as a training area for personnel at all levels. These

activities are being carried out in the Ferrando Hospital, Province of Chaco; the Argerich Hospital and Angel Gallardo Health Center in the Federal Capital; and in the Rivadavia, Avellaneda, and Casa Cuna Hospitals, and the Clinical Hospital of Buenos Aires.

Many countries have expressed interest in obtaining technical advice in reorganizing, expanding, or improving their hospital systems, as part of their general health programs. The services of various consultants specialized in the subject are expected to be utilized in complying with requests made. In 1960 a regional adviser dealing with the broad field of medical care will be appointed. He will survey the Region with regard to the present situation in the countries of the Americas. The survey will include the relationship between hospital systems and health services and the development of social security services.



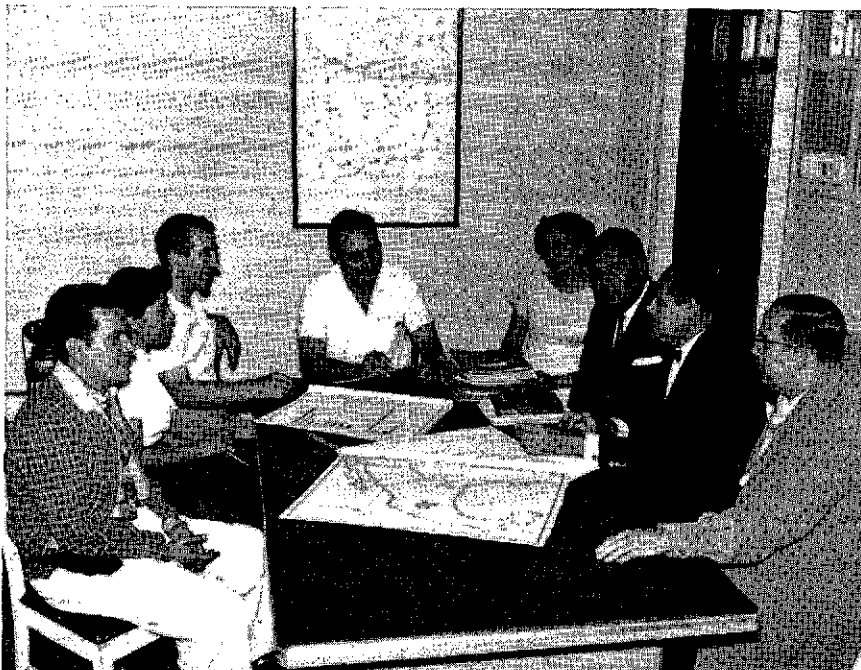
Seventeen families in Amatitlán were chosen to receive weekly supplies of INCAPARINA on its first trial, Amatitlán, Guatemala.



Health Education—Nurse at health center reviewing need for preventive inoculation with high school students and adults, Amatitlán, Guatemala.

PUBLIC HEALTH ADMINISTRATION

Nutrition—Visiting nurse carrying out practical teaching with parents on locally available fruit nutrients, Celaya, Guanajuato, Mexico.



Program Planning—National and international personnel planning a state-wide health program, Celaya, Guanajuato, Mexico.



Dental care is part of the integrated health services project in Las Crucitas, Honduras.

Villagers in this rural community in Paraguay constructed their water-supply installation under the supervision of sanitary engineers of the Sanitation Department of the Ministry of Health.



Construction of water tank being accomplished by villagers, under the guidance of an engineer, Tavera, Guanajuato, Mexico.



Six faucets to serve village residents. This basic water-supply unit will permit the residents to extend water lines to the rest of the village as rapidly as pipes can be obtained, Roque, Guanajuato, Mexico.

This modern, 40 million liters a day water-treatment plant was entirely paid for and is operated and maintained out of funds collected from the people, Guatemala City, Guatemala.





A public laundry in the village of Palín—constructed by the Division of Rural Services of the Ministry of Public Health and Social Welfare, Guatemala.



Two sanitary inspectors check post-construction maintenance of a rural latrine and shower combination, designed and constructed by sanitary engineers and personnel of the La Chorrera Rural Health Center, Panama.



Approximately 265 inhabitants of this community will benefit from a new well being constructed under the supervision of the sanitary engineer of the La Chorrera Rural Health Center, Villa Rosario, Capira, Panama.



A mother learns to bathe her baby.

Placing of a prefabricated concrete curbing in an existing well to make well water sanitary, part of the integrated public health program in Paraguay.



A trainee midwife of the local health center discusses infant clothing with expectant mothers, Rineon de Tamayo, Guanajuato, Mexico.

EDUCATION AND TRAINING

Introduction

It is an obvious fact that permanent and effective improvement in health services and in public health depends upon availability of properly trained personnel for the various health professions. One of the fundamental priorities of the Organization, therefore, has been to ameliorate the serious shortcomings which exist in Latin America today with regard to every one of the health professions both as to numbers of trained persons and as to caliber of training.

A long-range objective has been to assist each country to develop within its own borders satisfactory basic educational institutions for physicians, nurses, engineers, and other types of health personnel. Substantial progress has been made in this regard but it is still necessary and will probably continue to be necessary for a considerable period of time to have selected international training centers where resources may be concentrated and training of high quality provided. Collaboration by the Organization in the work of these centers thus has the effect of assistance to many individual countries.

Almost every project in which the Organization is concerned does, of course, have educational aspects. The integrated health projects are prime examples, as is described in the relevant chapter of this Report. As additional examples there may be cited that of the laboratory adviser who spends a good deal of his time training local personnel in jobs which will continue after he leaves; similarly a consultant in a nutrition institute, an adviser on leprosy control, a consultant in veterinary public health are all examples of persons who are spending a substantial portion of their time in the training of local staff members. In the section on Public Health Administration a tabulation is presented of the national personnel trained in connection with projects aimed at improving health services.

The present chapter is concerned more directly with activities relating to formal preparation of technical

personnel. Most attention is given to basic medical and nursing education and to professional education in public health, as well as consideration of the total fellowship program. Although brief reference is made to specific training programs in other specialized fields such as statistics, environmental sanitation, veterinary public health, and dentistry, more extensive presentations of the educational accomplishments in these fields will be found in the respective chapter.

An important event during the year, based upon the Organization's recognition of the disparity between its accomplishments and the enormity of the task to be done, was the calling of an Advisory Committee on Education. This Committee, which met in Washington, November 24, 1959, reviewed carefully documentation prepared on the educational gaps in the Americas, quantitative and qualitative, and studied the programs carried on by the Organization to deal with the problem. The Committee considered these gaps to be of serious proportion, constituting a fundamental obstacle to the strengthening of health services and the improvement of the health of the people of the Americas. It was concluded that the Organization's approach, if carried out on a large enough scale, was well designed to assist the countries in meeting their needs, and it was emphasized, furthermore, that the program should be a broad one embracing all categories of essential health workers.

The Committee made clear that in its opinion programs furthering education merited highest priority and therefore recommended strongly that the Organization should greatly extend its activities in the field of professional education. Recognizing that it was not likely that the normal progress of the regular budget could support the kind of program urgently needed, the Committee recommended that other sources, such as private foundations, be approached to obtain the necessary funds.

Medical Education

There were, at the end of 1959, 184 medical schools in the Americas, slightly more than half, 96, in the U.S.A. and Canada, and 88 in Latin America. The size of the student body in Latin American schools is so variable that the number of schools does not mean much by itself. It may be noted, however, that there was at least one medical school in every country in the Americas. From available data, it appears that 10 per cent of the schools have approximately 50 per cent of the graduates and 50 per cent of the schools have less than 15 per cent of the graduates. Some of the schools appear to be too large and many too small to have adequate educational programs. Of even more importance than the matter of quantity is the great variation in comprehensiveness and quality of instruction. While a number of schools maintain excellent standards, there are too many with serious defects in curriculum plan, in amount of practical training provided, and in quantity and quality of teaching. A serious lack is absence of a nucleus of full-time staff, particularly in the basic sciences. Presence of such staff members has been shown to be essential to permanent raising of teaching standards. Progress has been made in this respect but it appears that not more than about half the schools have any full-time personnel.

Research is an integral part of any medical educational institution for it is impossible to conceive of really effective teaching where the curiosity of students is not stimulated by precept and example, and where their ability to analyze new suggestions, for example in therapy, is not developed by contact with the atmosphere of careful scientific investigation.

Need for an adequate number of well-trained physicians is based upon filling the requirements both for curative and preventive services. While the Organization's basic function is to further prevention, it has clearly recognized that there are several levels of prevention and that once illness has developed prevention of death or disability depends upon the level of medical competence in diagnosis, therapy, and rehabilitation. Many other organizations are also interested in the broad improvement of medical education in Latin America, as is described in more detail under the section on Medical Education Information Center. To make the best use of its limited resources, therefore, the Organization has defined its priorities conceiving of its role as being primarily concerned with encouraging improvement of the basic planning and content of the medical curriculum, as well as the administrative organization of the medical school; improvement of the teaching of the concept and practice of prevention in its broadest aspects, giving particular attention to the fact that this teaching must not be limited to the department of preventive medicine but must be taught in many other

departments of the medical school, notably clinical departments such as pediatrics and obstetrics; improvement in the teaching of basic sciences, recognizing that an adequate and dynamic concept of the structure and functioning of the human body is essential to an understanding of the prevention and cure of disease; and, finally, improvement in the clinical aspects of teaching recognizing that within existing budgetary possibilities it is feasible to consider aid to clinical instruction only when necessary to fill basic gaps in the teaching program.

Within these priorities the Organization has channeled its activities along two main lines, those affecting groups of schools or countries and those directed at an individual institution.

Programs Affecting More Than One Country

In view of its international character, the Organization is particularly adapted to undertake or coordinate multi-country activities. During the year these have been of several types.

A highlight of the year was the holding of the Second World Conference on Medical Education in Chicago, Illinois, U.S.A., under the aëgis of the World Medical Association, with the sponsorship of the World Health Organization, the Council for International Organizations of Medical Sciences, and the International Association of Universities. The American countries were well represented at the Conference. A member of the staff of the Organization was a member of the Executive Committee of the Program Committee for the Conference and other members of the staff presented papers and took active part in the meeting. Two of the eight vice-presidents were from Latin America. The Conference theme: "Medicine—A Life-Long Study", was reflected in the program which concerned itself chiefly with the problems of teaching after qualification as a physician, for the general practitioner as well as the specialist.

In December 1959 the Colombian Association of Medical Schools organized a Seminar on the Teaching of Internal Medicine in Medical Schools. Through collaboration by the Organization and the Kellogg Foundation, facilities were provided for attendance at the Seminar of teachers of internal medicine from 21 medical schools in 12 countries outside of Colombia. Since the basic clinical competence of the physician in the care of the human beings for which he is responsible is conditioned by the kind of instruction he receives in internal medicine more than by any other single course in medical school, improvement of instruction in this field and broadening of its concepts, particularly with regard to prevention, are of great importance. Staff of the Organization participated in planning the topics and topic questions of the Seminar and a staff member took

active part in the meeting itself.

Previous annual reports have indicated the extent of the Organization's interest in the teaching of pediatrics, the clinical field perhaps most closely related to prevention. Carrying out of a broad survey (AMRO-68) which covered every medical school in Latin America was followed by a seminar for the schools in Colombia and Venezuela (AMRO-102), as well as collaboration in related international meetings such as the Central American and Pan American Pediatric Congresses.

At the IX International Congress of Pediatrics in Montreal in July 1959, a special session on pediatric education was sponsored by the Organization in collaboration with the International Pediatric Association. This meeting, which took place July 25, was held in the form of two panel discussions. The panels considered the following subjects: 1) the teaching of pediatrics to all students of medicine; 2) the preparation of the pediatric specialist; and 3) the preparation of pediatric teachers. Each panel was composed of six distinguished pediatric teachers, everyone from a different country, thus facilitating truly international composition of ideas and experiences. Following a preparatory session at which the method and content of the presentation was clarified among the panel members, each introduced his topic briefly, responding to previously prepared questions. Subsequently there was free exchange among the panel members and active general participation in the discussion. Since no speaker took more than about five minutes, a truly broad exchange took place and ideas from all parts of the world were presented for general comment.

Staff of the Organization were responsible for the planning and for the management of the special session. A staff member took responsibility for a 10-minute summary of the highlights of the session at its close.

As part of the preliminary preparation and documentation for the subjects to be discussed, the Organization prepared, in collaboration with the American Academy of Pediatrics and its Committee on Medical Education, an analysis of the continuing influence of the Survey of Pediatric Education carried out in the U.S.A. in 1946-47. This analysis was based upon questionnaires submitted to the heads of departments of pediatrics in the medical schools of that country during the early months of 1959.

Assistance was given to preparation and follow-up of a meeting of the International Epidemiological Association held in Cali, Colombia, in August 1959. This Association, composed of elected members from various departments of preventive medicine in the medical schools of the world, is particularly concerned with encouragement of epidemiologic research through medical schools and the use of this and other materials in improving instruction of medical students in preventive medicine. At this first meeting in Latin America attention was given to the special epidemiological problems and resultant teaching opportunities

which may be found in the Americas.

In view of the increasing importance of ionizing radiation both as a tool of medical practice and as a hazard to health, the Organization has arranged for training in the field of protection and in the utility as well as limitations of radioisotopes in clinical medicine. To expand facilities in the Spanish language regarding radioisotopes an agreement is being developed, in collaboration with the Kellogg Foundation, to assist the University of Chile to set up a training program in the clinical uses of radioisotopes (Chile-39). It is hoped to achieve a broad selection of fellows for this course so that one or more persons in each country will be qualified in this respect.

Slow progress is being made in completion of the Survey of Teaching of Basic Sciences. A further interim report was made at a meeting of the Latin American Association of Physiological Sciences held in connection with the XXI International Congress of Physiological Sciences in Buenos Aires in 1959.

Individual Country Programs

Special country projects are in operation in Mexico (Mexico-32), Haiti (Haiti-19), Argentina (Argentina-18), and Venezuela (Venezuela-17), but assistance has been given also to schools in almost all the countries in the Region by regular staff of the Organization. At a seminar for the medical schools of Mexico on the teaching of environmental sanitation to students of medicine, the Organization collaborated in the preparation and holding of the seminar and provided the services of a consultant as well as attendance by specialized staff members. This seminar had particular importance since it confronted the problem of teaching to medical students of aspects of a field usually reserved to specialists with an entirely different type of background. In Latin America, however, physicians need to participate actively, in collaboration with engineers, in improving sanitary facilities. The medical school must therefore strike the nice balance in its teaching program, between giving the medical student a clear understanding of the specialized techniques and concepts involved and avoiding trying to be so inclusive as to confuse the student through trying to make him a sort of auxiliary engineer.

A study tour was arranged for deans of four medical schools in Argentina (Argentina-18) to visit as a group medical schools in Brazil, Colombia, Puerto Rico, and in the continental United States. The group also participated in the Second World Conference on Medical Education. Follow-up reports indicate that the visits had substantial effects in modifying the plan for reorganization at the medical schools concerned.

Venezuela is planning a national seminar on medical education to include the four schools in the country and staff of the Organization participated in working out the methodology, content, and timing of the meeting. The Venezuelan schools are planning a critical reexamination

of their total programs and this seminar will offer opportunity for collaboration among the schools and interchange of ideas with the consultants from other countries which the Organization is providing.

Further progress has been made in the long-range program in Haiti (Haiti-19) although somewhat more slowly than had been hoped for. National personnel are in training abroad partly through fellowships of the government and partly through fellowships of the Organization. The Organization has provided the services of a professor of physiology who is concerning himself not only with the improvement of teaching in this subject but also with the general reform of the medical curriculum and program of the medical school. A particular need is equipment for the basic science laboratories and collaboration with the ICA is expected to help solve this problem.

In Colombia a visiting professor at the School of Public Health, whose project is described below, played a large role in reorganizing the course in microbiology at the Medical School.

The medical schools in Central America and Panama have all shown particular interest in reform of medical education and the schools in Costa Rica, El Salvador, Guatemala, Honduras, and Panama were all visited by staff members to give advice on general teaching programs. In addition, in Costa Rica, a general review was made of the progress since the school started basic science instruction; in El Salvador, special attention was given to collaboration in organizing an intra-school seminar on clinical teaching; in Guatemala, to the teaching of preventive medicine; in Honduras, to reorganization of the teaching of physiology for which a consultant was provided to advise on a new course structure and to assist in planning the equipment of the physiology laboratory; and in Panama, a special consultant was provided to help the national librarian who had received a fellowship from the Organization in the work of establishing the library's operating procedure.

As in previous years, special attention has been given to the teaching of statistics in the medical curriculum. Three distinguished consultants visited 21 schools in nine countries throughout the continent lecturing and advising on teaching programs. Further details of these visits will be found in the chapter on statistics.

Increasing attention is being paid to the training of

faculty members of medical schools. During the year 16 fellowships were awarded to permit professors to undertake studies designed to improve their teaching.

Medical Education Information Center (MEIC)

This Center, which has been in existence since 1952 and has been described fully in previous annual reports, continued to function chiefly through distribution of the quarterly report on fellowships. Two meetings were held at which a complete country by country review was made of the activities of the various participating agencies. A total of 10 agencies are now playing an active role in the work of the Medical Education Information Center and are regularly reporting fellowships awarded.

Library

The Headquarters Library continued to expand its bibliographical reference service as well as provide reading and audio-visual materials during the year, particularly for personnel serving in the field programs. The Library serves the Member Governments in several ways. In general it fulfills requests from governments through the Zone Offices, or through direct requests made by physicians and researchers assigned to government hospitals and institutes. Forty-one such requests were accommodated in 1959.

In addition, the Library supplied bibliographic entries for the section on "Public Health and Medicine" in the *Revista Interamericana de Bibliografía*, published by the Columbus Memorial Library of the Pan American Union. The Library also prepared the section "Biblioteca" for the *Boletín de la Oficina Sanitaria Panamericana*.

The Library collaborated with the Medical Library Association (United States), and the Venezuelan Institute for Scientific Research in arranging a program for three medical librarians on fellowships.

Assistance was given to the librarian of the Venezuelan Institute for Scientific Research in planning and equipping its new library.

A member of the Headquarters staff visited the library of Zone II in 1959 and instructed local staff in simple cataloging, classification, and basic techniques of library work. A manual of basic principles of library work was also compiled and copies were forwarded to each Zone Office.

Public Health

After several years of discussion and a year of intensive planning, the first Conference on Schools of Public Health in Latin America was held, with the generous collaboration of the Government of Mexico, at San Miguel Regla, State of Hidalgo, in the first week of November 1959. The meeting had been prepared through distribution to all prospective participants of pertinent documentation, background material and list of bibliographic references, and through the visit of a consultant to the chief participating schools. Based upon the reports of the consultant's visits and through correspondence a series of questions were drawn up on the three chief topics of discussion: 1) objectives of a school of public health; 2) content and coverage of the course, teaching methods, faculty; and 3) administrative standards for teaching research and for community service.

At the same time the consultant interviewed officers of the ministries of health to seek the "consumer's" point of view on the content and purpose of educational programs in the field of public health.

Another consultant prepared a special background paper on the present state of professional education in public health and the problems faced by the schools. As further background material, participants were asked to bring descriptive material concerning their teaching programs and the general method of operation of the school.

Thirty-three participants attended the meeting, including both educators and health administrators, from Argentina, Brazil, Chile, Mexico, Peru, Puerto Rico, United States, and Venezuela. Among the participants were physicians, engineers, health educators, statisticians, and members of other professional groups.

The Conference was planned as small working groups of about 10 participants, distributed with due care to achieve balanced professional and geographic distribution. Each group chose its own chairman and rapporteur for each topic to be discussed. A continuing secretary for each group had been previously assigned from among the PASB professional staff. Each topic was introduced at a plenary session through a panel presentation by three or four of the participants and the three groups then met separately to consider the questions under the topic in great detail. Upon conclusion of this discussion all rapporteurs and secretaries met together to prepare a joint report that would reflect the opinions of all the groups on the topic. This joint report was then studied critically by each group separately and the resulting comments were subsequently

examined in a plenary session. The resultant corrected versions were then assembled to be gone over completely once again at the last plenary session.

Noteworthy in the development of the work of the Conference was the enthusiasm and dedication of all the participants. Scheduled time for the sessions was almost invariably exceeded and discussions usually continued in an informal way through meal time and into the evenings.

Probably the greatest success of the Conference was the mutual stimulation of the sustained contacts and the establishment of a basis for continuing interchange.

As in past years, the three schools of public health in Latin America—São Paulo, Santiago, and Mexico—which carry the major load of international academic training in public health, received aid from the Organization in the form of visiting professors, fellowships to faculty members, and teaching supplies and equipment. An indication of the importance of these schools in the training of public health personnel in the Americas is the fact that in 1959 they enrolled a total of 107 fellows who were on fellowships of the Organization.

In 1959 all three schools were visited by a consultant on the general program of schools of public health and by a special consultant in the field of teaching of environmental sanitation. In addition, the latter visited the School of Sanitary Engineering of the Graduate School of the University of Mexico which conducts the graduate training program for sanitary engineers in Mexico, attended also by certain students from other countries.

A measure of the continuing development of national schools of public health, that is, schools whose student body is essentially limited to persons from the particular country, or from an individual state, is the fact that a special project has now been developed for each country having such a school and the former interzone project (AMRO-16) has become unnecessary. In Brazil, the consultant assisting in the planning for reorganization of the National School of Public Health completed his two-year assignment. A formal decree has been issued establishing the bases for the new school. The school in Rio, as well as the state school in Belo Horizonte, were also visited by the consultant preparing for the Conference of Schools of Public Health.

In Colombia there has been substantial reorganization of the National School of Public Health and a full-time Director was appointed, on loan from the Universidad del Valle, in Cali. To collaborate with this effort the

Organization has provided the services of a visiting professor of microbiology who is not only helping to set up a new teaching program in this field but is also collaborating with the general reorganization of instruction in microbiology in the medical school. The School of Public Health has moved to new quarters in the medical school building at the University City and is vigorously engaged in raising standards in order to conduct public health instruction of high quality.

Further progress is being made in establishing a national school of public health in Argentina. The physician proposed for director of this school returned from his fellowship where, in addition to receiving graduate training in public health, he had special work in teaching methods and organizational programs in preventive medicine. Planning for the school as part of the University of Buenos Aires is proceeding slowly and carefully in order to establish a sound basis for the program and to have well-trained teaching staff in the essential disciplines of the curriculum. In the meantime, in order to give some training immediately to personnel urgently needed for the Ministry of Public Health, a special training program has been developed within the Ministry of Health. The situation of the program at the Ministry of Health, as well as the development of the school at the university, was also reviewed by the consultant on training and teaching program who visited the international school of public health.

For some years the Ministry of Public Health and Social Welfare of Venezuela has maintained a school of public health with its own facilities and a nucleus of full-time teaching personnel. The school has carried out a program of instruction aiming at high quality with inclusion of all major subjects related to public health administration. After negotiations between the Ministry and the National University, agreement was reached to transfer the school to the university in order to place it on a regular academic basis. To assist the university and the Ministry in making this change and establishing a new and more complete curriculum, the Organization provided a special consultant who analyzed the strength and weaknesses of the school and made a series of specific recommendations concerning developments of the program and training of necessary teaching personnel.

The Government of Jamaica has maintained for many years a special training station designed particularly for training of personnel from all the British West Indies, particularly in the fields of public health nursing and sanitary inspectors. The curriculum of the training center has complied with the requirements of the British Royal Sanitary Institute but has not always been well adapted to the special needs of Jamaica itself or the other West Indies. A professor of sanitary engineering, who is familiar with the whole public health curriculum, was provided by the Organization (West Indies Federation-11) to analyze

the situation and his report makes a series of recommendations concerning admission requirements, possible changes in duration of the course, and reexamination of the course content in the light of the specific duties that the graduates are called upon to perform. A particular problem to be resolved is how much training the sanitary inspectors should receive in regard to going into the problems of general health advice for the children and adults in the homes which they visit.

As in past years, staff of the Organization gave lectures and took part in instruction at most of the schools of public health in Canada and the U.S.A. These lectures offered an opportunity not only to enlarge the horizon of the students of the schools of public health but to bring to a larger audience knowledge of the work of the Organization.

For several years an important part of the program to aid the schools of public health in the Americas receiving students from other countries has been the award of fellowships to faculty members. These have been designed to help them improve their teaching methods and particularly to permit them to become more familiar with the types of situations their students must meet upon graduation. During 1959, 11 such fellowships were awarded.

Environmental Sanitation

Training of personnel for the field of environmental sanitation must take place at several levels. Sanitary engineers are needed as leaders with a broad knowledge of the various phases of public health engineering including protection of water supplies, adequate sewage disposal, garbage disposal, and related subjects. In addition, there must be a corps of trained sanitary inspectors, but it may be expected that this group will have a good deal of turnover so that constant training programs must be maintained both for original training and for refresher work. In addition to both of the above groups, which are concerned with all phases of environmental sanitation, there are needed specialized personnel in such fields as operators of water plants.

The Organization's program in training all of these people includes both assistance at the international level to the schools of public health mentioned above, for the training of sanitary engineers and for the preparation of teachers of sanitary inspectors, and assistance to training programs for sanitary inspectors within individual countries, usually developed as part of the integrated health projects. Special courses for waterworks operators have been held within countries and for small groups of countries. All of this work may be expected to expand with development of a standard water-supply program. Additional information on the training of environmental sanitation personnel will be found in the relevant chapter.

Dental Health

The general survey of dental health needs in the Americas, carried out by the dental health consultant of the Organization, indicated that first priority needed to be given to training programs. It was clear that there was need of special training for personnel to administer dental public health programs in the ministries of health and also need to improve education of the individual dentists in matters of preventive dentistry. The course in dental public health developed at the School of Public Health in São Paulo, with the collaboration of the Kellogg Foundation, has been one of the major concerns of the Organization's dental health consultant. In addition, he helped in improving the preventive dentistry activities in the dental schools of Argentina, Brazil, and Chile. Fuller details of dental health training will be found in the chapter on dental health activities.

Veterinary Medical Education

Increased attention to the control of the zoonoses and to food hygiene and the greater import being given to comparative medicine in medical research has resulted in a growing interest on the part of veterinarians and veterinary medicine in public health and an increased demand for training in this field. Closely related to this has been the desire of schools of veterinary medicine to improve the teaching of public health to all their students, not just those going into public health.

Advice was provided by Organization staff members to schools with veterinarians enrolled in the regular academic courses for the master's degree in public health to help them adapt the curriculum to meet more nearly the needs of public health veterinarians. More extensive consultation was provided to the School of Public Health in Rio de Janeiro (Brazil-19) on course content, where veterinarians will be received for public health training in 1960 for the first time in this school.

While the post-graduate training of veterinarians in public health is an important and growing activity, a development of much greater dimension exists in regard to improvement of teaching of public health and preventive medicine in schools of veterinary medicine. Realization of the potentially greater role of the veterinarian in the community health program and the concomitant responsibility of the schools of veterinary medicine to provide better orientation in this respect has led faculties to become actively concerned with public health teaching and to seek the assistance of the Organization in this respect. Programs for direct assistance to individual countries have been developed in three countries (Brazil-44, Mexico-34, Peru-28) and consultation was provided to others through either short-term consultants (AMRO-67) or the Organization's staff members.

During 1959 the services of special consultants, themselves deans of schools of veterinary medicine, were provided to the schools of veterinary medicine located in Santiago, Chile; La Plata, Buenos Aires, and Corrientes, Argentina; São Paulo and Belo Horizonte, Brazil.

A high point in the progress in this field was the Seminar on Teaching Public Health in Schools of Veterinary Medicine, which took place in Kansas City, Mo., U.S.A., in August, and brought together for the first time veterinary educators from all the Hemisphere. The Seminar was planned and conducted by the Organization, with the collaboration and co-sponsorship of the United States Public Health Service, as well as the American Veterinary Medical Association, the Association of Deans of American Colleges of Veterinary Medicine, and the Secretariat of the Pan American Congress on Veterinary Medicine. Participants included deans and professors of public health from the schools of veterinary medicine in the Americas, and selected consultants from various aspects of public health services. A total of 81 persons attended. The discussions were held at the University of Kansas City.

Five major topics were discussed: Teaching Objectives; Curriculum; Teaching Staff and Facilities; Teaching Methods and Aids; and Research and Community Service. The Seminar was conducted in working groups and plenary sessions with each group considering all the topics. On the basis of the group reports a joint report of the Seminar was prepared and discussed at the plenary sessions. The Seminar noted that the "concept of public health should be emphasized throughout the veterinary medical curriculum since most subjects taught relate in a particular way to public health" and that the "teaching of public health and preventive medicine concepts should begin early in the veterinary curriculum." Emphasis was also made that new challenges are arising in comparative medicine, e.g., chronic disease, nutritional disorders, genetics, aging, and radiobiology, and these must be considered in planning for the teaching of preventive medicine and public health.

Aside from the Seminar there is a growing interest in the field of comparative medicine as an important and efficient method for the conduct of medical research. Much research done on animals in medical schools is unknown to veterinarians, while much research done on animals by veterinarians is unknown to physicians even though it may have important implications for human health. With the realization that much of the initial work in medical research is conducted in animals, veterinary medicine is accepting an increasingly important role in this field and veterinarians are being added to many research teams.

Other training activities in the field of veterinary medicine are carried on at the Pan American Zoonoses Center and are described separately under the corresponding chapter.

Nursing Education

Partly as a result of the Organization's emphasis on strengthening basic nursing education, schools with modern organization and curriculum now exist in all but two countries of the Hemisphere and the pattern of modernization will undoubtedly spread without much further external impetus. Twenty-one nursing advisers served in 14 educational projects during 1959. Fellowships awarded in this field during the year totaled 20. Focus of the Organization's attention will therefore shift gradually in the next five-year period to the preparation of instructors and supervisors and to the training of auxiliary nursing personnel, programs which have already been started in a few countries. A third area in education related to nursing that has only been touched but which will receive more emphasis in the future is that which pertains to midwifery.

Basic Nursing Education

The principal aim of projects for strengthening basic nursing education in the Americas is to prepare young women who can function most effectively within the health services of each country. A superficial study revealed that many nurses are being used in public health services and even in positions of supervision and administration although they had been prepared only for bedside nursing care. As a result, leading schools have now changed their curricula to prepare students adequately in: a) basic nursing care whether in the hospital or in the community; b) administration of nursing services; and c) teaching and supervision of other nursing personnel.

Since such responsibilities obviously entail an educational background superior to that formerly required of nurses, the schools of nursing with very few exceptions now select students on the basis of at least nine years of general schooling, i.e., the end of the first cycle of secondary education. A few of the leading schools even required of their candidates completion of pre-university education.

Projects in basic nursing education in which the Organization collaborated during 1959 include schools of nursing: in the Universities of Córdoba and Litoral, and in the Chaco (Argentina-3 and 23); in La Paz (Bolivia-5); in Havana (Cuba-4); in Ciudad Trujillo (Dominican Republic-3); in the University of Guayaquil (Ecuador-16); in Guatemala City (Guatemala-6); in Kingston (Jamaica-12); in the states of Mexico (Mexico-14); in Managua (Nicaragua-5); and in the Central University of Venezuela (Venezuela-14).

Of specific significance, because each entails new methods of approach, are the basic nursing education projects in

Argentina, Mexico, and Venezuela.

In Argentina there exist approximately 120 schools of nursing, less than 10 of which require more than six years of primary education for entrance or have a nurse-director, and less than 20 of which have even one nurse-instructor or have supervised clinical experience for their students. National education and health authorities are now anxious to improve this situation, and various universities are reorganizing their schools of nursing or beginning entirely new programs of nursing education. Six of these universities (located in Córdoba, Rosario, Buenos Aires, Tucumán, La Plata, and Mendoza), as well as the new school begun in Resistencia, Chaco, under the auspices of the National and Provincial Ministries of Health, have requested varying degrees of collaboration from the Organization.

In the school of the University of the Litoral, in Rosario, (Argentina-23), a 32-month curriculum is given in four years. The arrangement of courses follows the sequence from the beginning of life to adulthood (growth and development), and from normal conditions of health to deviation from normal, thus allowing increased emphasis on the social and health aspects of nursing. Clinical experience of the students is organized for learning and not for service, but the last year is devoted almost exclusively to an internship period in administration, supervision, and teaching in the various services of the hospital, during which the students are not constantly supervised by an instructor but present their problems for discussion and clarification at special seminar sessions.

On the other hand, the school in Córdoba (Argentina-3), although also giving a total program of 32 months, does not follow the university academic year and completes its full course in approximately two-and-a-half years. For the future it is planned to provide, in addition to the above, a period of four to six months of internship for each senior student in a field of nursing of her own selection.

The greatest obstacle to the strengthening of the schools in Argentina is the lack of nurses with sufficiently strong educational backgrounds to be prepared as instructors. In the beginning, therefore, it is planned to concentrate collaboration in three university schools of nursing and to use their graduates to help the other schools. In the meantime, improvement of nursing services will be brought about by in-service education of the professional personnel now employed in the hospitals used for the clinical experience of student nurses, and by the training of auxiliary personnel.

Mexico, which like Argentina has large numbers of

institutions (approximately 70) for training nurses, is trying to upgrade nursing education through a mass program of assistance to at least one real school of nursing in each of the states. The Organization is collaborating in this effort (Mexico-14) which is being carried out by the division of the Ministry of Health that deals with the preparation of health personnel.

A study of all schools of nursing outside the Federal District is being completed and some help has already been extended from the Ministry to a few schools in the form of salaries for instructors, fellowships for the preparation of other instructors, and the provision of books and visual aids. It is planned to give more concentrated help to six regional schools so that they may serve as centers for the preparation of instructors for other schools in the areas in which they are located. In the meantime, a series of six-month courses for instructors is given in Mexico City to prepare staff first, for the regional schools, and second, for the other schools in the states.

In Venezuela, where until this year nursing education has been based entirely on six years of primary education, an attempt is being made to upgrade educational requirements for entrance into the School of Nursing in the Central University in Caracas. In addition, it is planned in this project (Venezuela-14) to evolve an entirely new curriculum which will incorporate subjects required in the second cycle of secondary school and nursing subjects in such a way that at the end of the 36-month course young women may obtain the diplomas of nurse and "bachiller". This is the first time in Latin America that such a coordinated program has been planned and it will be watched with great interest.

Advanced Nursing Education

Once it was found that graduate nurses were occupying positions of supervision and administration with no preparation for these functions, it became imperative to organize post-basic courses to provide them with the necessary supplementary training. These courses are given on two levels: a) those planned for the graduate nurse with complete high school education, which provide a full academic year of training in supervision, administration, and education of other nursing personnel (Chile-29 and Costa Rica-18); and b) those which give graduate nurses without full secondary education a more practical and shorter course to enable them to carry out their duties more effectively (AMRO-100, Peru-15, and Mexico-14).

In the post-graduate course at the School of Public Health of the University of Chile (Chile-29), 17 nurses were enrolled in 1959, of whom seven were from countries other than Chile. The number of nurses who have graduated from the program since its inception in 1955 totals 85, of whom 37 were from countries other than Chile.

In November a review of this course revealed that the nursing faculty, which has been prepared through study

abroad and through the guidance of an international adviser, is ready to take over full responsibility. Fellowships will be requested from the Organization during the next two or three years to provide additional preparation for instructors or nurse supervisors in the health services connected with the course.

Recommendations made by the group of national nurses and professors evaluating the program included several dealing with the establishment of closer relationships with nursing education and health authorities. This coordination would ensure better continuity of education from the basic to the post-graduate course and improved field experiences for the students. Furthermore, exploration of the possibility of expanding the course to provide preparation for instructors of schools of nursing was recommended.

Preparation of Instructors of Auxiliary Nursing Personnel and Training of Auxiliaries

Increased concern in the training of a group of workers who will eventually substitute for the untrained personnel now giving the bulk of bedside nursing care throughout Latin America is reflected in the growing number of projects on a national scale directed specifically to the preparation of instructors of auxiliary nursing personnel and of auxiliaries (Argentina-25, Chile-34, Guatemala-6, and Uruguay-13).

The project in Guatemala, initiated in 1955, has prepared 14 nurses (and 11 nurses from other countries) as instructors, and trained 292 auxiliaries. In 1959 the program was extended to the interior of the country (Zacapa and Jutiapa), where 18 and 10 more auxiliaries, respectively, were in training for service in the 300-bed hospitals located in each town. The plan of operations of this project calls for extension of an in-service training program to all nursing personnel now employed. Approximately 30 auxiliaries who completed the course, directed mainly to hospital nursing, went on to take further training for work in rural public health services. In addition, a large number of auxiliary personnel have been trained for public health nursing in all the integrated health projects (See Table III).

A beginning was made during the year when a course in ward administration was given to 43 head nurses and supervisors in the General Hospital in Guatemala City.

Midwifery Education

In many countries of the Americas midwifery is considered a specialization following completion of a course in nursing, e.g., Costa Rica, Mexico, and Panama. But there are some countries where midwifery is still a separate profession and where for many years to come it may not be possible to institute preparation based on nursing for this specialty. The policy of the Organization has been to assist in strengthening schools of midwifery wherever

they exist through the addition to the curriculum of nursing, including its public health aspects. A project of this kind is being carried out in Santiago, in the School of Midwifery, attached to the University of Chile (Chile-20). As a result of this project the number of instructors was raised from six to 11, two of these being the first nurses appointed as instructors within the school. Physical facilities were expanded to include two offices for the instructors and a residence for students who come from the provinces. Student selection policies were made more rigid and the student enrollment was limited, thus reducing the previous ratio of one instructor per 34 students to one per 15. A course in basic principles of administration and supervision was conducted for the chief midwives in six maternity services in Santiago, and an in-service education program was organized in the maternity service where the School of Midwifery students carry out their clinical experience.

A beginning has been made in setting up standards of

patients care in maternal and child health services, in strengthening the curriculum of schools of nursing in the area of maternal and infant care, and in improving the training of auxiliary personnel at present working in maternity services and responsible for some of the activities in the area of obstetrics. Plans for the two remaining years of the project include continuation of present activities and establishment of a rural practice area and a domiciliary delivery program destined for student field experience.

The first Inter-American Congress of Midwifery, sponsored by the Chilean Association of Midwives, was held in Santiago this year and, although there was quite a current of opinion which favored merging nursing and midwifery, the majority opinion was still in favor of preserving midwifery as an independent profession. Greater rapprochement between nurses and midwives is of fundamental importance since joint planning with regard to the future of midwifery is so essential.

V Regional Congress on Nursing

An unprecedented opportunity for interchange of ideas among a large number of nurses in regard to preliminary steps for nursing legislation was offered in Buenos Aires (October 25-31, 1959), when almost 700 nurses from 17 countries of the Americas registered to discuss legislation for the improvement of nursing service (AMRO-23.5). This topic had been chosen almost two years earlier after consultation with professional associations in each country.

Regional congresses on nursing, sponsored by the Organization, more closely resemble a giant seminar than the general type of congress. A meeting of such a large number of nurses coming from all over the Hemisphere represents an enormous investment of time and money that must be used carefully. It also represents an enormous wealth of experience which, channeled effectively, may contribute to the solution of common problems and the preparation of efficient plans of action.

Consequently, the time at these congresses is so organized that discussion and search for solutions of problems are

the major objectives. Direct participation of all members is provided for through the organization of small groups for discussion. Discussion groups consisted of 18 groups of approximately 20 members each, and no less than 60 nurses and student nurses attended as observers. Since the papers on the topics to be discussed had been distributed to government authorities and all nurses associations three months prior to the Congress, little time was wasted in reading these at the meeting, and only a summary was presented. Every evening a consolidated report was drawn up by the chairmen and secretaries of all the groups, and was then presented the following morning to the plenary meeting.

The principal recommendation made by the assembly was that in order to enact realistic legislation in any country it was necessary first to make an exhaustive study of its nursing resources and needs, as well as of already existing laws or other legal regulations which affect nursing.

Fellowships

As in previous years, the principal objective in the Organization's fellowship program was to strengthen the health services and related educational institutions in the Member Countries. The year 1959 witnessed further interest in training abroad of country personnel.

A total of 505 fellowships were awarded in the Americas* (Table XIII). Although this figure indicates an over-all decrease as compared to the year before when the total was 560, the decrease was entirely due to the expectedly smaller number of fellowships awarded for malaria studies, a decrease from 203 in 1958 to 75 in 1959. On the other hand, fellowships for other subjects, covering the broad program of the Organization, increased from 357 to 430, or 20 per cent.

The general program expansion was also evident from the number of fellows (159) who came from the other Regional Offices to study in the Americas (Table XIV). The figure represents a 10 per cent increase over the 1958 total (144).

Analysis of fellowships awarded, by field of study, is subject to reservation in that the classification used, as any has to be, is somewhat arbitrary. There is much overlapping of interest but some arbitrary decisions must be made. For example, fellows who take general public health courses in a school of public health, but express special interest in the study of communicable diseases or other specialty, are grouped, according to the rules of classification, under the specialty in which they expressed interest, although the training may have been broader in scope. These same comments apply to studies in maternal and child health and nursing, among others.

As noted above, the decrease in fellowships for malaria studies was not unexpected, as the relatively large number of fellowships awarded for such training in 1957 and 1958 provided in the main the basic personnel for the eradication program. The objective of the 1959 awards, therefore, was to train certain additional personnel to fill remaining vacancies as well as to provide necessary replacements for turnover of staff.

In spite of the reduction in malaria, the field of communicable diseases continued to receive the largest proportion of fellowships. Under this heading, outside of malaria,

TABLE XIII. FELLOWSHIP AWARDS IN THE AMERICAS BY COUNTRY OF ORIGIN AND TYPE OF TRAINING, 1959^a

Country of origin	Fellowships				
	Total awards	Courses organized or assisted by PAHO/WHO		Other courses	Other arrangements
		Special	Academic		
Total	505	156	77	165	107
Argentina	83	21	14	37	11
Bolivia	8	2	3	3	—
Brazil	44	19	—	10	15
Canada	—	—	—	—	—
Chile	21	9	—	3	9
Colombia	34	14	10	9	1
Costa Rica	11	4	4	3	—
Cuba	7	5	1	—	1
Dominican Republic	9	1	2	3	3
Ecuador	22	6	6	9	1
El Salvador	8	5	2	1	—
Guatemala	23	10	7	5	1
Haiti	9	1	—	6	2
Honduras	24	7	4	6	7
Mexico	18	5	2	2	9
Nicaragua	11	4	1	4	2
Panama	11	5	—	5	1
Paraguay	27	8	2	10	7
Peru	51	4	13	30	4
United States	7	—	—	—	7
Uruguay	24	17	4	2	1
Venezuela	16	6	2	4	4
British Territories	33	3	—	13	17
Depts. of France in the Americas	3	—	—	—	3
Surinam and the Netherlands Antilles	1	—	—	—	1

— None. ^a Corresponds to the period December 1, 1958 - November 30, 1959

* For reporting purposes, throughout this chapter the year 1959 represents the period December 1, 1958 to November 30, 1959.

TABLE XIV. FELLOWS FROM OTHER REGIONS
COMMENCING STUDIES IN THE AMERICAS IN 1959,^a
BY TYPE OF TRAINING

Region of origin	Total	Courses organized or assisted by PAHO/WHO	Other courses	Other arrangements
All other Regions	159	15 ^b	52	92
Europe	44	1	12	31
South East Asia	23	2	12	9
Eastern Mediterranean	43	9	14	20
Western Pacific	26	2	7	17
Africa	23	1	7	15

^a Corresponds to the period December 1, 1958 - November 30, 1959.

^b Of these, 12 Fellows attended the Malaria Course for Physicians and Engineers in Jamaica; one attended the Course for Sanitarians in Jamaica; one went to INCAP; and one to the Sanitary Inspectors' Course in Brazil.

there were 111 awards compared to 85 last year (Table XV). It is to be noted, however, that in 1957 there were 121 awards in this group, even more than in 1959.

Of the 1959 awards, it is to be noted that 35 were for studies in foot-and-mouth disease at the Pan American Foot-and-Mouth Disease Center.

Other fields that showed an increase over 1958 were: public health administration (60 per cent); vital and health statistics (41 per cent); and sanitation (42 per cent). The latter had even in 1958 shown a marked increase over 1957, indicating growing concern with training more personnel for environmental sanitation. Nevertheless, there were very few applications from engineers and the increase covered mainly requests for inspectors and for short courses or travel grants.

In close relationship with the fields of study is the distribution of awards by the profession of fellows (Table XVI). Of the total number of fellowships awarded, the largest figure (38 per cent) was for physicians in different specialties; 13 per cent were for engineers and sanitary inspectors. The serious needs in the latter field would, however, justify a much greater number. The other professional and non-professional groups are scattered in accordance with the general needs of the countries.

Regarding type of awards (Tables XIII, XV, and XVII), fellowships for academic and other courses reached 242, or 48 per cent of the total awarded. This compares with 136, or 25 per cent of the total number awarded, in 1958.

This gain is quite gratifying, especially since a large portion of these awards were used for basic studies in public health leading to a master's degree (MPH) or its equivalent. Highest priority is given to studies of this type as they provide training for public health personnel at various levels and permit long-range strengthening of fundamental and permanent services within the countries.

Distribution of fellowships, by country, followed approximately the same pattern as in previous years (Table XVIII). All the countries in the Region, except Canada, requested and received fellowships. Variation in the number of fellowships awarded to one country or another has no connection with size, but rather reflects the country's degree of interest in sending fellows abroad for training under the auspices of PAHO/WHO. Fellowships for Argentina, for example, increased from 50 in 1958 to 83 in 1959 (66 per cent); 51 of the fellowships were awarded for basic studies in public health, while the remainder covered almost all the general fields of studies (see Table XVII). This increase is closely related to expansion of public health activities in that country and the many programs in which the Organization is collaborating with the government.

The countries in which fellows undertook their studies continued to cooperate generously in the fellowship program, providing all types of facilities for both courses and observation trips.

Countries with academic institutions that accept foreign students naturally received a much greater number of fellows than did those which provided only observation visits. Table XVIII gives evidence of the continued policy of sending fellows to places of study or observation where conditions and problems are generally similar to those they must cope with upon returning to their own countries. Thus, 80 per cent of all the fellows of the Americas carried out their studies and observations in Latin America. Three-quarters of the fellows who took academic courses went to appropriate schools in Latin America. This policy has given good results, particularly in the cases of fellows having little experience or whose knowledge of English is inadequate. On the latter point, it should be again emphasized that the contract, concluded several years ago with the English Language Institute of the University of Michigan, to examine applicants for fellowships who are assigned to English-speaking countries or institutions, continues to operate without major difficulty and with fine results. Ever since this system of uniform examinations was put into effect, complaints from educational institutions receiving the fellows have been at a minimum.

Development of the fellowship program is more flexible than that of other activities of the Organization, and consequently, is more susceptible to variations in availability of funds. This is why it has been possible to utilize savings that appear from year to year in the various allotments of the Organization's budget to increase the regular

TABLE XV. FELLOWSHIPS AWARDED IN THE AMERICAS BY COUNTRY OF ORIGIN AND FIELD OF STUDY, AND ARRIVALS FROM OTHER REGIONS, 1959^a

Field of study	Fellowships awarded by country of origin																						Arrivals from other regions				
	Total	Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Haiti	Honduras	Mexico	Nicaragua	Panama	Paraguay	Peru	United States	Uruguay		Venezuela	British Territories	Departments of France in the Americas	Surinam and the Netherlands Antilles
Total	505	83	8	44	—	21	34	11	7	9	22	8	23	9	24	18	11	11	27	51	7	24	16	33	3	1	159
Public health administration	67																										12
Hospital and medical care administration	7	3	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	1	—	—	—	—	—	—	—
Other	60	8	1	1	—	2	3	—	—	2	4	1	1	1	4	4	—	2	8	15	—	1	1	1	—	—	
Sanitation	88																										18
Sanitary inspection	23	1	—	—	—	4	—	—	—	1	2	2	6	—	1	—	—	—	—	5	—	—	1	—	—	—	
Sanitary engineering	3	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	
Other	62	6	1	2	—	4	2	—	—	3	1	—	—	2	—	—	—	2	5	6	—	12	4	12	—	—	
Nursing	42	5	—	1	—	3	3	4	—	1	4	—	2	1	—	—	5	—	2	5	—	2	1	3	—	—	20
Maternal and child health	17	6	1	—	—	1	—	—	—	—	1	—	—	—	—	1	—	—	1	4	—	—	—	1	1	—	8
Other health services	73																										34
Mental health	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	9
Health education	8	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	6
Occupational health	3	2	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Nutrition	7	—	—	—	—	2	1	—	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Health statistics	41	13	2	—	—	7	1	—	—	—	—	1	—	4	2	2	1	1	5	—	2	—	—	—	—	—	3
Dental care	7	—	—	—	—	1	1	—	—	1	—	—	—	—	2	—	—	—	—	—	—	—	1	1	—	—	5
Rehabilitation	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	1	—	4
Control of pharmaceutical preparations	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Communicable diseases	186																										43
Malaria	75	3	2	25	—	7	1	6	1	2	3	6	1	5	1	2	3	1	1	1	—	—	1	4	—	—	
Tuberculosis	5	—	2	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	—	—	—	—	—	
Veterinary public health	39	5	—	3	—	3	1	2	1	2	2	3	1	2	1	2	2	2	1	—	6	—	—	—	—	—	
Zoonoses	24	7	1	1	—	1	1	1	—	1	—	2	—	—	2	—	1	1	2	—	—	3	—	—	—	—	
Rabies	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Leptosy	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Poliomyelitis	9	1	—	2	—	1	—	—	—	1	—	—	—	—	1	—	—	—	1	—	1	1	—	—	—	—	
Other communicable diseases	12	1	—	1	—	1	—	—	—	—	—	—	—	1	2	1	—	—	2	1	—	—	1	1	—	—	
Laboratory services ^b	19	4	—	2	—	2	—	—	—	1	—	1	1	—	2	—	—	—	2	1	—	—	2	—	—	1	
Medical science and education ^c	27	10	—	2	—	3	—	—	—	—	—	—	—	2	3	—	—	—	—	—	6	—	—	1	—	13	
Clinical medicine	5																										11
Radioisotopes	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	
Other	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

— None. ^aCorresponds to the period December 1, 1958 - November 30, 1959. ^bmalacology, public health laboratory, parasitology, bacteriology, medical entomology, serology, vaccine and sera preparation, microbiology, helminthology, mycology, virology. ^cOf these, 11 fellowships were awarded to professors of schools of public health and 16 to professors of schools of medicine.

TABLE XVI. NUMBER OF FELLOWSHIPS AWARDED IN THE AMERICAS IN 1959,^a BY PROFESSION

Profession	Number
Total, All Professions	505
Physicians	192
Dentists	8
Engineers	39
Veterinarians	60
Nurses	48
Other professionals	14
Sanitary inspectors	27
Other non-professionals	117

^a Corresponds to the period December 1, 1958 - November 30, 1959.

funds used for fellowships. Thus, obligations for fellowships in 1959 amounted to \$922,695 (Table XIX), even though the 1959 budget (Official Document No. 28) shows amounts assigned for fellowships and participants in seminars at only \$806,131.

Several of the Member Countries have also requested the Organization's services in preparing programs and supervising fellows subsidized by their own funds. Venezuela, for example, has quite an intensive fellowship program with which the Bureau has collaborated. In 1959 the government awarded approximately 80 fellowships for studies in various countries of the Americas and Europe, with the majority studying in U.S.A. Systematic supervision of these fellows has been established in accordance with an agreement made with the Government of Venezuela. By the end of the year, PAHO/WHO staff had interviewed 25 of these fellows in their place of study or at Washington Headquarters.

There has been continued collaboration with the Organization of American States in reviewing and advising on their fellowship applications in the health field.

Also, both the Member Governments and the Organization have developed increasing interest in evaluating the fellowship program in all its aspects. For this purpose

joint effort will be necessary—on the part of the Member Governments selecting and proposing candidates for fellowships and those countries and institutions offering their facilities and services for training.

WHO recently convoked a study group in Geneva to examine and evaluate the fellowship program. Specific note was made of the requirements essential to the success of such a program, i.e., the need for full compliance with established commitments by all parties involved—the country selecting and proposing the candidate, the candidate himself, and the Organization.

The Study Group, after making a detailed study of all phases of the fellowship program, suggested a list of items to be included in the criteria for fellowship appraisal. These items included evaluation of accomplishments regarding such points as: a) for the pre-fellowship period—effectiveness in selecting applicants who fulfill requirements (including language capacity); maintenance or improvement in quality and quantity of applicants; b) for the fellowship period—appropriateness of the studies to the needs of the fellow; his academic qualifications and adjustment; satisfactory administrative arrangements for him; whether or not the fellow completed his program of study; and c) for the post-fellowship period—whether or not he returned to his country and is employed in the field of his study; identifiable benefits to the host institution or country; professional contributions of the fellow upon his return; scientific publications he may have produced; professional honors or recognition he may have received; influence on policy or legislation he may have made.

The Governing Bodies of PAHO have been aware of difficulties arising in certain Member Countries relative to the problem of compliance, especially in regard to facilities, salaries, and guarantee of fellows' career positions in their own government services while they pursue studies abroad. Because of this, many promising candidates refuse to accept a fellowship and travel abroad, with consequent technical and administrative disruption of the program.

A resolution in this regard was passed at the XV Pan American Sanitary Conference (San Juan, Puerto Rico, September–October 1958) which recommended *inter alia* that Member Countries draw up their fellowship programs in advance, in accordance with national needs; that they adopt the most appropriate procedures for the proper selection of candidates; that they make available to the fellows the necessary means to enable them to complete their studies effectively and without anxiety, and that, on completion of their training, they be given an appropriate position that will ensure the utilization of their knowledge in the best interest of public health.

TABLE XVII. FELLOWSHIPS AWARDED IN THE AMERICAS BY COUNTRY OF ORIGIN, FIELD OF STUDY, AND TYPE OF TRAINING, 1959^a

Field of study and type of training	Total	Country of origin																								
		Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Haiti	Honduras	Mexico	Nicaragua	Panama	Paraguay	Peru	United States	Uruguay	Venezuela	British Territories	Departments of France in the Americas	Surinam and the Netherlands Antilles
Total	505	83	8	44	—	21	34	11	7	9	22	8	23	9	24	18	11	11	27	51	7	24	16	33	3	1
Public health administration	67																									
Other courses	53	10	1	—	—	—	3	—	—	1	4	1	1	2	4	2	—	2	5	15	—	1	—	1	—	—
Other arrangements	14	1	—	1	—	2	—	—	—	1	—	—	—	—	—	3	—	—	3	1	—	—	1	1	—	—
Sanitation	88																									
Courses organized	58	8	1	—	—	4	6	—	—	2	3	2	6	—	1	—	—	—	5	6	—	10	3	1	—	—
Other courses	15	—	—	1	—	—	—	—	—	2	—	—	—	—	1	—	—	1	—	3	—	1	2	4	—	—
Other arrangements	15	—	—	1	—	—	—	—	—	1	—	—	—	—	1	—	—	1	1	2	—	1	—	7	—	—
Nursing	42																									
Courses organized	13	1	—	—	—	—	3	2	—	—	2	—	—	—	—	—	—	—	—	3	—	2	—	—	—	—
Other courses	22	4	—	1	—	2	—	2	—	—	2	—	2	1	—	—	3	—	1	2	—	—	1	1	—	—
Other arrangements	7	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—	2	—	1	—	—	—	—	2	—	—
Maternal and child health	17																									
Other courses	15	6	1	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	1	4	—	—	—	1	—	—
Other arrangements	2	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	—
Other health services	73																									
Courses organized	44	11	2	—	—	—	8	2	—	—	3	—	1	—	3	4	1	—	1	4	—	2	1	1	—	—
Other courses	23	9	—	—	—	1	2	1	—	—	—	—	1	—	1	—	1	1	1	1	—	—	—	4	—	—
Other arrangements	6	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	2	—
Communicable diseases	186																									
Courses organized	118	15	2	19	—	5	7	4	6	1	4	5	10	1	7	3	4	5	4	4	—	7	4	1	—	—
Other courses	28	5	1	8	—	—	3	—	—	—	2	—	1	1	—	—	—	—	1	2	3	—	1	—	—	
Other arrangements	40	1	—	10	—	3	1	—	1	—	1	—	1	2	3	5	—	—	2	1	—	—	3	5	—	1
Medical science and education	27																									
Other courses	4	2	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—
Other arrangements	23	8	—	2	—	3	—	—	—	—	—	—	—	—	3	—	—	—	—	—	6	—	—	1	—	—
Clinical medicine	5																									
Other courses	4	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	1	—	—
Other arrangements	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—

— None. ^a Corresponds to the period December 1, 1958 - November 30, 1959

TABLE XVIII. FELLOWSHIPS AWARDED IN THE AMERICAS BY COUNTRY OF ORIGIN AND BY COUNTRY OR REGION OF STUDY, 1959^a

Country of origin	Country of study in the Americas																				Other region of study										
	Total ^b	Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Haiti	Honduras	Mexico	Nicaragua	Panama	Paraguay	Peru	United States	Uruguay	Venezuela	British Territories	Departments of France in the Americas	Surinam and the Netherlands Antilles	Western Pacific	European	Eastern Mediterranean	South East Asia	
	505	44	—	82	8	103	21	40	2	—	11	7	26	1	2	79	2	10	—	15	102 ^c	24	41	8	—	1	4	18	1	2	
Argentina	83	11	—	12	—	32	1	5	—	—	—	—	—	—	—	3	—	—	—	—	14	5	—	—	—	—	—	—	—	—	
Bolivia	8	1	—	2	—	3	—	2	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Brazil	44	6	—	1	2	—	2	4	—	—	8	2	6	—	2	29	—	1	—	3	8	1	20	—	—	—	—	2	2	—	
Canada	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Chile	21	4	—	3	—	—	3	2	—	—	—	—	—	—	—	1	—	—	—	—	8	3	—	1	—	—	—	4	—	—	
Colombia	34	1	—	11	—	9	—	2	—	—	3	—	3	—	—	3	1	—	—	3	1	—	7	—	—	—	—	—	—	—	
Costa Rica	11	1	—	2	—	2	—	2	—	—	—	—	—	—	—	—	—	—	—	—	3	—	1	—	—	—	—	—	—	—	
Cuba	7	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Dominican Republic	9	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	
Ecuador	22	2	—	5	—	7	1	1	—	—	—	—	2	—	—	1	—	—	—	—	3	—	—	—	—	—	—	—	—	—	
El Salvador	8	—	—	2	—	1	—	2	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Guatemala	23	2	—	6	—	5	1	3	—	—	—	—	—	—	—	6	—	—	—	—	1	2	—	2	—	—	—	—	—	—	
Haiti	9	—	—	—	2	—	1	1	—	—	—	—	1	—	—	1	—	—	—	—	4	—	1	—	—	—	—	—	—	—	
Honduras	24	—	—	3	—	2	3	3	2	—	—	2	3	—	—	8	—	—	—	—	2	—	—	1	—	—	—	—	—	—	
Mexico	18	2	—	3	—	1	—	—	—	—	—	1	3	—	—	—	—	—	—	—	7	—	2	1	—	—	—	2	—	—	
Nicaragua	11	—	—	—	—	4	—	2	—	—	—	—	1	—	—	4	—	—	—	—	1	—	1	—	—	—	—	—	—	—	
Panama	11	1	—	1	—	1	—	2	—	—	—	—	—	—	—	3	—	—	—	—	2	—	1	—	—	—	—	—	—	—	
Paraguay	27	3	—	8	—	8	1	2	—	—	—	1	—	—	—	1	—	3	—	5	2	6	1	—	—	—	—	—	—	—	
Peru	51	2	—	10	—	20	2	2	—	—	—	1	1	—	5	—	—	—	—	—	9	—	—	—	—	—	—	—	—	—	
United States	7	—	—	3	—	3	3	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	2	4	1	2
Uruguay	24	6	—	—	—	5	1	1	—	—	—	—	—	—	—	—	—	—	—	—	2	9	—	—	—	—	—	—	—	—	
Venezuela	16	2	—	4	—	—	1	2	—	—	—	—	1	1	—	2	—	2	—	—	5	—	—	1	—	—	—	—	—	—	
British Territories	33	—	—	1	2	—	1	1	—	—	—	—	1	—	—	1	—	—	—	—	23	—	1	4	—	1	—	—	—	—	
Departments of France in the Americas	3	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	
Surinam and the Netherlands Antilles	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	
Total, all other Regions ^b	159	—	—	7	22	—	1	1	—	—	—	6	7	—	—	24	—	2	—	—	128	—	12	22	1	—	—	—	—	—	

— None. ^aCorresponds to the period December 1, 1958 - November 30, 1959. ^bAlthough some Fellows studied in several countries, the totals for country or region of origin are unduplicated. ^cOf these, 33 studied in Puerto Rico.

TABLE XIX. FELLOWSHIP FUNDS IN THE AMERICAS FOR 1958 AND 1959

Year	Total	PAHO			WHO	
		Regular	Special Malaria Fund	Other	Regular	Technical Assistance
1958 ^a	\$895,805	129,945	206,611	7,400	400,399	151,450
1959 ^a	\$922,695	330,773	110,811	24,375	374,676	82,060

^a Calendar year.

The resolution also recommended that the Director put into practice the necessary means for a continuing evaluation of the fellowship program.

*Participants in Seminars and Working Groups
Organized By PAHO, 1959*

In addition to the fellowship program, in which personnel undertook various types of training, a number of health workers have participated in seminars and working groups organized by PAHO. These are listed in Table XXII, which also shows the number and country or area of origin of the participants.

TABLE XX. FELLOWSHIPS AWARDED FOR COURSES ORGANIZED OR ASSISTED BY PAHO/WHO IN THE AMERICAS, BY COUNTRY OF ORIGIN AND FIELD OF STUDY, 1959^a

Field of study ^b and project	Country of origin																										
	Total	Argentina	Bolivia	Brazil	Canada	Chile	Colombia	Costa Rica	Cuba	Dominican Republic	Ecuador	El Salvador	Guatemala	Haiti	Honduras	Mexico	Nicaragua	Panama	Paraguay	Peru	United States	Uruguay	Venezuela	British Territories	Departments of France in the Americas	Surinam and the Netherlands Antilles	
Total fellows	233	35	5	19	—	9	24	8	6	3	12	7	17	1	11	7	5	5	10	17	—	21	8	3	—	—	
Sanitation																											
AMRO-1	26	2	—	—	—	—	4	—	—	2	2	2	6	—	1	—	—	—	1	5	—	—	1	—	—	—	—
AMRO-17.5	19	5	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	9	—	—	—	—	—
AMRO-193	13	1	1	—	—	1	2	—	—	—	1	—	—	—	—	—	—	—	2	1	—	1	2	1	—	—	—
Nursing																											
AMRO-28	13	1	—	—	—	—	3	2	—	—	2	—	—	—	—	—	—	—	—	3	—	2	—	—	—	—	—
Other health services																											
AMRO-10	24	11	2	—	—	—	1	—	—	—	—	—	—	—	2	—	1	—	1	4	—	2	—	—	—	—	—
AMRO-72	6	—	—	—	—	—	1	1	—	—	1	—	—	—	—	2	—	—	—	—	—	—	1	—	—	—	—
AMRO-85.5	9	—	—	—	—	—	4	1	—	—	—	—	1	—	1	2	—	—	—	—	—	—	—	—	—	—	—
AMRO-54	5	—	—	—	—	—	2	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
Communicable diseases																											
AMRO-77.11	17	1	—	1	—	—	—	2	1	—	—	2	2	1	2	1	2	2	—	—	—	—	—	—	—	—	—
AMRO-77.12	18	4	—	3	—	3	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	6	—	—	—	—	—
AMRO-81.1	24	7	1	1	—	1	1	1	—	—	2	—	2	—	—	2	—	1	1	2	—	—	2	—	—	—	—
AMRO-92	8	1	—	2	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	1	1	—	—	—	—
AMRO-114	40	2	—	12	—	—	2	—	4	1	—	3	5	—	4	—	2	2	1	—	—	—	1	1	—	—	—
AMRO-137	11	—	1	—	—	—	4	1	1	—	1	—	1	—	1	—	—	—	—	1	—	—	—	—	—	—	—

— None. ^aCorresponds to the period December 1, 1958 - November 30, 1959. ^bSee Table XXI for description of courses organized or assisted by PAHO/WHO.

TABLE XXI. FIELD OF STUDY, PROJECT NUMBER, NAMES, PLACES, AND DATES OF COURSES ORGANIZED OR ASSISTED BY PAHO/WHO

Field of Study and project number	Course or visit	Place	Date
Sanitation AMRO-1	Environmental sanitation training: three courses for sanitary inspectors	University of São Paulo, Brazil	Jan.-Dec. 1959 Jan.-Dec. 1960
	two courses for sanitary engineers	University of Chile University of São Paulo, Brazil	June-Dec. 1959 Jan.-Dec. 1960
AMRO-17.5 AMRO-193	Waterworks training course Training course on preparation of auxiliary sanitation personnel	University of Chile Montevideo, Uruguay	March-Dec. 1960 Oct. 16-Nov. 25, 1959
Nursing AMRO-28	Advanced nursing education	San José, Costa Rica University of Chile, Santiago, Chile	Jan.-Dec. 1959
Other Health Services AMRO-10	Inter-American program for education in biostatistics	University of Chile	March-Dec. 1959
AMRO-72	Public health dentistry course	University of São Paulo, Brazil	Jan.-Dec. 1959
AMRO-85.5 AMRO-54	Classification of diseases course Nutritional surveys at INCAP	Caracas, Venezuela INCAP, Guatemala	Aug. 31-Sept. 12, 1959 May 1959-April 1960 Jan.-April 1960 March-July 1960
Communicable Diseases AMRO-77.11	XI course of the Pan American Foot-and-Mouth Disease Center	Turrialba, Costa Rica	November 9-22, 1958
AMRO-77.12	XII course of the Pan American Foot-and-Mouth Disease Center	Buenos Aires, Argentina	Sept. 1959-Aug. 1960 November 8-28, 1959 Jan.-April 1960
AMRO-81.1	Courses of study for three weeks and for 12 months for four fellows at the Pan American Zoonoses Center	Azul, Argentina	June 22-July 10, 1959 April 1959-March 1960 July 1959-June 1960 Oct. 1959-Sept. 1960 Jan. 1960-Jan. 1961 Nov. 15-Dec. 12, 1959
AMRO-92 AMRO-114	Course on virus techniques Malaria eradication: two courses for sector chiefs	Cali, Colombia Mexico City, Mexico	Feb. 16-April 25, 1959 July 13-Sept. 19, 1959
	two courses for physicians and engineers	Mexico City, Mexico	April 6-July 11, 1959 Aug. 10-Nov. 14, 1959
AMRO-137	III course for malaria eradication techniques Medical entomology (course oriented toward malaria)	University of São Paulo, Brazil University of São Paulo, Brazil	April 13-June 30, 1959 Aug. 1959-Feb. 1960

TABLE XXII. PARTICIPANTS IN SEMINARS AND WORKING GROUPS ORGANIZED BY PAHO,
BY REGION, COUNTRY, OR AREA OF ORIGIN, 1959

Region, country, or area of origin	Seminar on Teaching of Public Health in Schools of Veterinary Medicine (AMRO-48)	Working Group on Education and Training on Medical Certification (AMRO-98)	Seminar on Malaria Eradication Evaluation Techniques (AMRO-125)	Conference of Directors of Schools of Public Health (AMRO-152)	Conference on Live Polio-virus Vaccines (AMRO-200)
Total	53	12	72 ^a	32 ^b	61
Argentina	3	1	—	3	—
Bolivia	—	—	2	—	—
Brazil	6	3	4	6	—
Canada	3	—	—	—	2
Chile	1	1	—	3	—
Colombia	2	2	2	—	1
Costa Rica	—	—	1	—	2
Cuba	1	—	1	—	1
Dominican Republic	—	—	1	—	—
Ecuador	2	—	2	—	—
El Salvador	—	—	2	—	—
Guatemala	1	—	2	—	—
Honduras	—	—	2	—	—
Mexico	2	1	3	4	2
Nicaragua	—	—	2	—	1
Panama	—	1	2	—	1
Paraguay	1	—	2	—	—
Peru	1	—	1	1	—
United States	27	1	8	4	37
Uruguay	1	1	—	—	1
Venezuela	2	1	2	3	—
British Territories	—	—	6	—	—
Depts. of France in the Americas	—	—	1	—	—
Surinam and Netherlands Antilles	—	—	1	—	—
Other Regions:					
Europe	—	—	—	—	10
Africa	—	—	—	—	3

— None. ^a Includes one from WHO and 24 from PAHO. ^b Includes eight from PAHO.



Planning Nursing Services—PAHO/WHO nurse-consultant (center) and district nurse supervisor (right) discuss distribution of districts for visiting nurse assignments with a staff nurse (left), Celaya, Guanajuato, Mexico.

EDUCATION AND TRAINING

Student-nurse takes blood pressure of patient who awaits admission to Maternity Institute, La Paz, Bolivia.



National School of Nursing—Trainees arriving at residence in outskirts of La Paz, Bolivia, after their day's practice at the General Hospital.



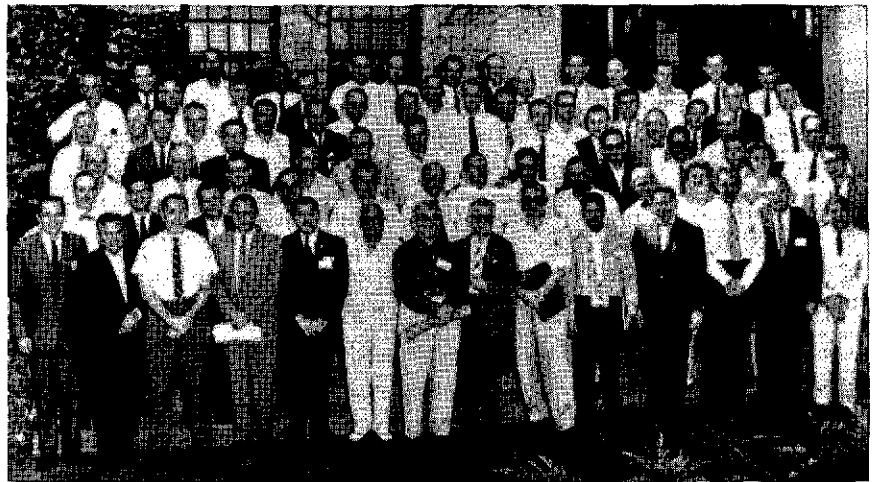
Students at National School of Nursing participate in routine X-ray examination of soldiers of the Bolivian National Army, La Paz, Bolivia.





Doctor of the Pan American Zoonoses Center staff supervises a trainee during a brucellosis agglutination test, Pan American Zoonoses Center, Azul, Argentina.

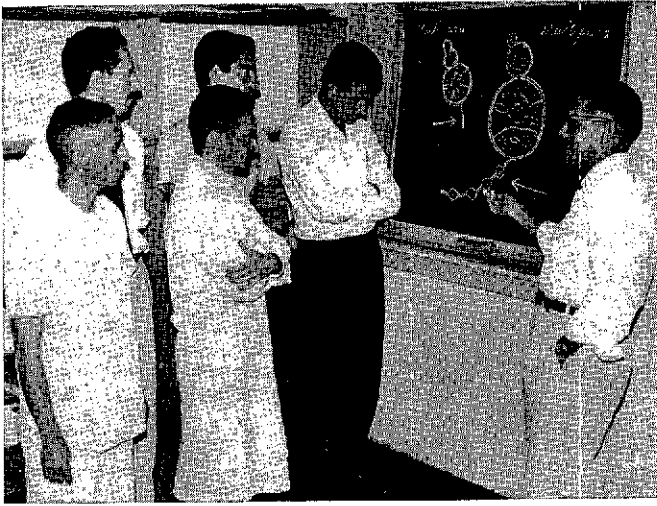
Participants in the Seminar on Teaching Public Health in Schools of Veterinary Medicine in the Americas, University of Kansas City, Mo., U.S.A., August 16-22, 1959.



Nursing auxiliary demonstrates infant care to a group of mothers and children, Tegucigalpa, Honduras.



A class on water filtration at the School of Sanitary Engineering, Mexico City, Mexico.



Chief of the Central Laboratory of the Malaria Eradication Commission teaching techniques to determine age of female anophelines, Rio de Janeiro.



Nursing auxiliary, under training as part of the rural health services training program, attending mother and newborn child, Uruguay.



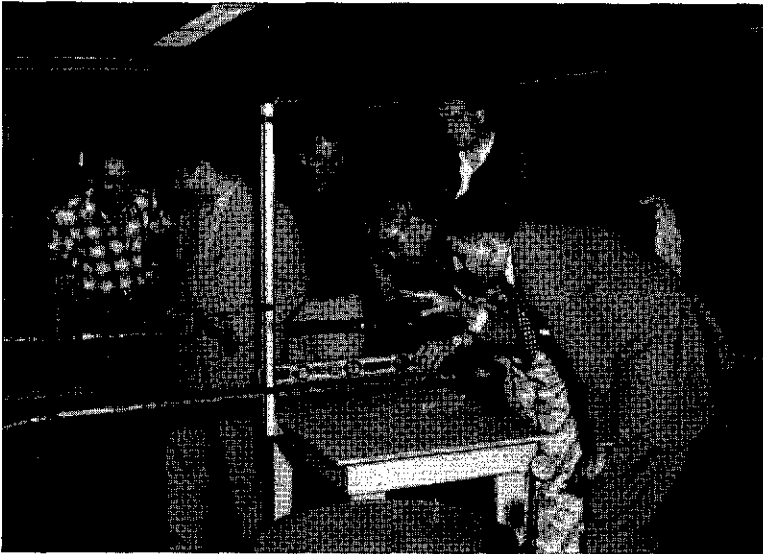
Future spraymen undergo training under an employee of Brazil's Malaria Eradication Commission, Santa Rita, Paraiba, Brazil.



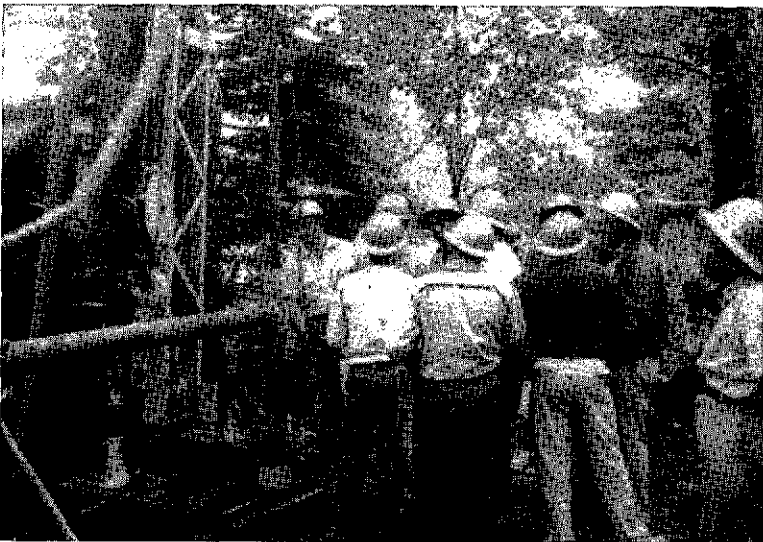
Four PAHO/WHO sponsored malariology students being briefed by members of the Venezuelan Division of Malariology, before going on a field observation trip, Trujillo State, Venezuela.

Laboratory demonstration in the annual course on zoonoses, at the Pan American Zoonoses Center, Azul, Argentina.



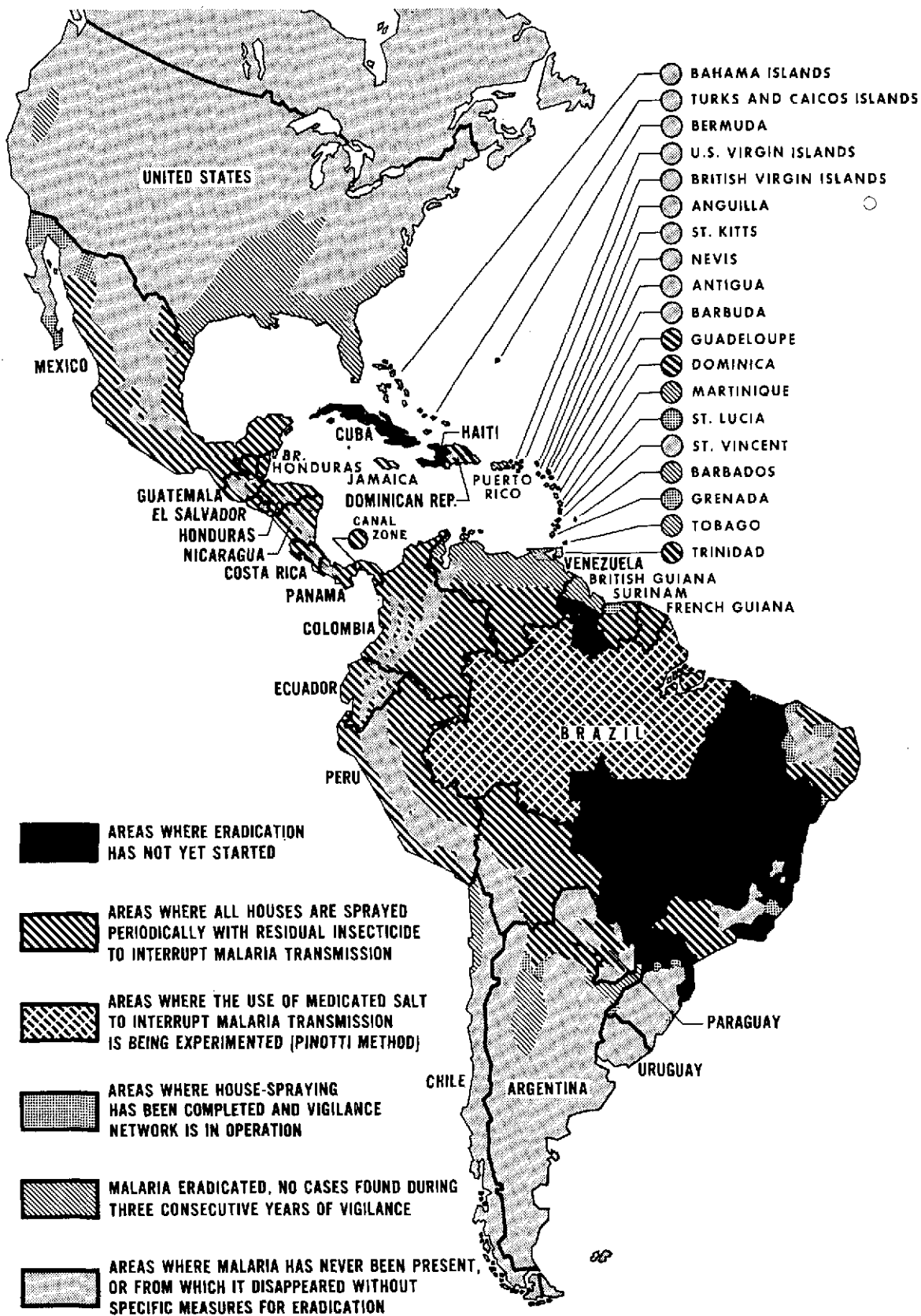


Water supply for rural and urban communities and frequently utilized ground water sources to supply the system. During the past year, PAHO/WHO has sent a number of engineers for advanced training in well-drilling and ground-water development study. The pictures on this page show the students at the special international course given on this subject at the University of Minnesota.



MALARIA ERADICATION IN THE AMERICAS

DECEMBER 1959



DISEASE CONTROL AND ERADICATION

Malaria Eradication

The continental program of malaria eradication continued its expansion during 1959. Argentina and Brazil commenced the attack phase, the latter by stages as planned, while the Government of Cuba requested and received technical assistance from the Organization in a malaria survey preparatory to planning for eradication of the disease. These programs complete the hemispheric coverage, with the exception of Haiti where financial difficulties have briefly halted operations. By the end of the year no malarious country was without a program; six have completed the first year of spraying, six the second, and one third year. Two countries have eradicated malaria from a large percentage of the population and, for them, eradication will be nation-wide upon solution of relatively small special problems. The map on page 50 shows the status of the campaign as of December 31.

In spite of delays, financial crises, and the appearance of unexpected obstacles, the continental campaign for the eradication of malaria moved steadily forward. A summary of progress made in each country or area is presented later in this chapter.

Resistance Problem

Appearance of the resistance problem led to increased activity in all programs in 1959 in the testing of anopheline species for susceptibility or resistance to insecticides. A Manual *Supplementary Instructions for the Use of the WHO Test Kit for Adult Mosquitoes* was prepared and distributed. This publication improved and standardized procedures for testing susceptibility of adult mosquitoes against the chlorinated hydrocarbon insecticides. Standard reporting forms and charts to assist in plotting and interpreting results have also been prepared and distributed throughout the Hemisphere. Development and standardization of testing methods and the production of equipment made it possible to furnish to all programs the basic material for carrying out these investigations. Establishment by the

TABLE XXIII. SUMMARY OF TESTING FOR ANOPHELINE RESISTANCE BY SPECIES AND INSECTICIDE IN THE AMERICAS, TO DECEMBER 31, 1959

Item	Number of countries
Total with testing	20
Total with some resistance	15
Resistance by species and insecticide	
<i>A. albimanus</i> DLN	11
DDT	4
<i>A. pseudopunctipennis</i> DLN	3
DDT	2
<i>A. aquasalis</i> DLN	3
<i>A. albitarsis</i> DLN	1
<i>A. quadrimaculatus</i> DLN	1
<i>A. triannulatus</i> DLN	1

Organization of a regular service of analysis and interpretation sharpened and guided field activities and focused attention on areas where resistance was commencing to appear, thus permitting early change of insecticide.

By the end of 1959 the following vector species were found resistant to one or both of the two presently available insecticides (dieldrin and DDT) used in the eradication campaign: *A. albimanus*, *A. pseudopunctipennis*, *A. aquasalis*, *A. quadrimaculatus*, *A. triannulatus* and *A. albitarsis* (See Tables XXIII and XXIV).

It has been observed that resistance to dieldrin is much more widespread than to DDT. In some instances, resistance to both insecticides has been discovered. Of the above species, *A. albimanus* is the leading one. This very important vector is resistant to both dieldrin and DDT in

TABLE XXIV. ANOPHELINE RESISTANCE TO DIELDRIN AND DDT IN THE AMERICAS, TO DECEMBER 31, 1959

Area	Number of States, Provinces, or Departments								Resistance in other species by insecticide and year discovered ^a	
	In malarious area	With tests for resistance	Where resistance was found by species, insecticides and year discovered						Negative to DLN and DDT	Positive to DLN
			<i>albimanus</i>		<i>pseudo-punctipennis</i>		<i>aquasalis</i>			
			DLN	DDT	DLN	DDT	DLN	DDT		
Bolivia	8	4	...	...	neg.	neg.	...	...	a,h,s	
Brazil	25 ^b	6	...	...	...	...	1 in 59	...	a,d,g,h	
Colombia	17 ^c	5	1 in 59	...	...	...	...	...	h,j,n	a in 59
Costa Rica	7	3	...	...	...	...	...	...	n	
Cuba	Not available	1	1 in 59	...	...	...	...	...	...	...
Dominican Republic	23	6	3 in 59	...	...	...	...	...	...	...
Ecuador	17	5	2 in 59	...	...	...	...	...	n	
El Salvador	14	9	8 in 58	6 in 58	neg.	...	...	...	...	...
Guatemala	20	12 (7 DLN) (10 DDT)	6 in 58	2 in 58	neg.	neg.	...	...	t	
Honduras	17	4	4 in 58	1 in 58	...	...	...	...	...	...
Mexico	28	22	2 in 58	...	6 in 58	...	...	...	c,o,t	p in 59
Nicaragua	17	11(9 DLN) (11 DDT)	9 in 58	6 in 58	(2)1 in 59	(2)1 in 59	...	...	...	...
Panama	10	5	neg.	...	...	...	neg.	...	neg. DLN only: b, i,n,s	
Paraguay	11	9	...	...	...	...	...	...	a,r,s	
Peru	23	19	neg.	neg.	8 in 58	3 in 58	...	...	e,t	
Venezuela	23	9	...	...	...	...	1 in 59	...	k,m,r	a,s in 59
British Honduras	6	4	2 in 59	...	...	...	...	...	...	...
Jamaica	14	10	6 in 58	...	...	...	...	...	...	...
Surinam	7	1	...	...	...	...	neg.	neg.	...	...
Trinidad and Tobago	all	4 (localities)	...	...	...	...	4 in 59	neg.	...	...

... No tests reported.

^a Resistance found in only one state per country where it was found at all. Mostly rare species, and few tests done. Key to species:

- | | | | |
|-----------------------|---------------------------|---------------------------|-------------------------|
| a) <i>albitarsis</i> | f) <i>braziliensis</i> | k) <i>nuñez tovari</i> | q) <i>rangeli</i> |
| b) <i>apicimacula</i> | g) <i>cruzii</i> | m) <i>oswaldoi</i> | r) <i>strodei</i> |
| c) <i>aztecus</i> | h) <i>darlingi</i> | n) <i>punctimacula</i> | s) <i>triannulatus</i> |
| d) <i>bellator</i> | i) <i>neomaculipalpus</i> | o) <i>punctipennis</i> | t) <i>vestitipennis</i> |
| e) <i>benarrochi</i> | j) <i>neivai</i> | p) <i>quadrimaculatus</i> | |

^b Includes four Federal Territories and one Federal District.

^c Includes eight "Intendencias" as one unit.

Guatemala, Honduras, El Salvador, and Nicaragua. Resistance to dieldrin only is seen in the Dominican Republic, Ecuador, British Honduras, and Jamaica. *A. pseudopunctipennis* was found resistant to dieldrin in Mexico and Peru, but, fortunately, in very limited areas. *A. aquasalis* has shown resistance to dieldrin in small areas of Trinidad and Venezuela.

As a countermeasure, the Organization recommended a

shift to DDT, on a country-wide basis, for the affected countries of Central America, Jamaica, and Trinidad, and this was done in 1959. Available information at the end of the year in the other countries did not justify such a costly shift, which necessitates not only additional insecticide, but also an increase in labor, transportation, and supervision.

Such a measure, however, could solve only part of the

problem, since in some areas the main vector is resistant not only to dieldrin, but also to DDT. In these cases the Bureau has advised that spraying be discontinued if dual resistance appeared to a marked degree, and that mass chemotherapy be substituted to protect the population until a new, effective insecticide was found. Meanwhile, the Bureau, in participating in the search for a new insecticide, has cooperated with the Government of El Salvador and the Communicable Disease Center, USPHS, in making field tests of new organo-phosphorus compounds which may last for a sufficiently long period on mud surfaces.

Other entomological activities which received attention during 1959 included precipitin testing of anophelines. This testing is done at the Lister Institute, London, England through a cooperative agreement with the World Health Organization. The proper use of this service by national programs, and the interpretation of the results, throws additional light on vector habits and permits early correction or reinforcement of spraying operation standards.

During 1960 it is expected that increasing attention will be paid to problems of anopheline ecology, in order to elucidate the reasons for continuing transmission in certain areas which have been under spraying operations for some time. Studies have already begun on problems of possible behavioristic changes in vector habits and possible transmission out-of-doors, and these are scheduled for further investigation.

Other Problems

The advancing eradication campaign, with ever more and larger areas of disappearing malaria, brings to light problems hitherto hidden. Even where spraying appears wholly adequate, malaria transmission continues in some highly localized areas. Superficial study indicates that either the vector is biting outdoors, the population is sleeping outdoors, or some other factor is operating. These and other observations have led the Bureau to commence organizing epidemiological research teams to solve these and other problems. To speed these researches, as well as to ascertain the minimum dosage and cycle of existing or new insecticides, the Bureau is organizing a special team for testing insecticides.

The special problems mentioned above do not invalidate previous statements that the most economical method to eradicate malaria is to spray residual insecticides inside human dwellings. It has been observed, for example, that malaria transmission was not halted in certain communities because most, or all, families had two houses—one occupied regularly and the other temporarily during the harvest season and vacations. In some rural areas, spray operators have been hampered because isolated houses were closed at the time of the visit and no law existed to permit en-

trance by force. These are some of the reasons for the rising costs of the malaria eradication programs, as they make necessary the maintenance of special sprayers or squads. It is easy to understand that an unsprayed house in a town does not represent a serious problem because the anophelines which visited a non-sprayed house may go to a sprayed one for the next feeding, but in rural areas where houses are far apart the problem is completely different, and no house can be left unsprayed. The Organization expects that the governments concerned will give serious consideration to this problem and enact laws or regulations to facilitate the task of the spraying squads.

Of no less importance is establishment by law, or other means, of a case-finding system which will give malaria eradication program authorities the right to question any officially reported case if not supported by a laboratory confirmation made by the central laboratory of the program. Experience has shown that microscopists in field laboratories of some malaria services are not sufficiently accurate. In general, the field laboratories send to the central laboratory all the positive slides and at least 10 per cent of the negatives for checking. Other laboratories, although not maintained with malaria funds but willing to cooperate, should follow the same pattern.

Alterations of Sprayed Surfaces in the Interval between Sprayings

A number of countries have studied the amount of alteration, rendering the insecticide ineffective, which occurs at various time intervals following spraying. The data reflect variations from one country to another, but in general it may be said that the amount of alteration may be a serious factor in continuing malaria transmission. The study points up the need for a greater understanding, on the part of the general public, of the objectives of the campaign. In some instances the ideal of non-alteration of surfaces in the interval between sprayings conflicts with long-standing customs of the population which call for periodic painting or resurfacing on certain festive occasions.

Cooperation with Other Agencies

Close cooperation was maintained with other agencies, particularly the United Nations Children's Fund (UNICEF) and the U. S. International Cooperation Administration (ICA), both of which are collaborating directly and actively in the malaria eradication campaign in the Americas. Of great importance is the contribution of UNICEF which, in recognizing the importance of malaria as a cause of disease and death in children, is devoting a substantial part of its resources to the furnishing of supplies and equipment for the campaign. As new problems are encountered and the task becomes more complex, continued close cooperation is essential for eventual success.

The Rockefeller Foundation has cooperated in initial discussions regarding technical equipment to improve laboratory methods. The Foundation has continued to make available the services of one of its scientific staff who provides valuable consultant advice to the Organization in the field of epidemiology.

Through the collaboration of the USPHS, the National Commission for Eradication of Malaria (CNEP) of Mexico, and the Government of British Guiana, lecturers in a variety of specialties were made available for augmenting the teaching resources of the Malaria Eradication Training Center in Jamaica. The Baltimore City Health Department likewise furnished the services of a lecturer in statistics at the Jamaica Center.

The USPHS, at the request of the Organization, provided technical personnel for collaboration in the AMRO-196 project (Insecticide Testing Team), and in the AMRO-220 project (Epidemiology Team). A USPHS staff member was also made available for special consultation on drugs. At the request of the USPHS, PASB project staff carried out a field evaluation of new equipment for the application of insecticides.

Professional Meetings

In a campaign where what one country does has a direct effect on its neighbors it is of particular importance to bring scientific workers and administrators together. For this purpose the Bureau continued its policy of promoting and assisting professional meetings. Principal meetings in 1959 were: a) the Annual Meeting of Directors of Malaria Eradication Services of Central America, Panama, and Mexico (Panama City in April); b) the Seminar on Epidemiological Evaluation Techniques (Petropolis, Brazil in November); c) border meetings between authorities of Colombia and Peru, Ecuador and Colombia, and between El Salvador and Guatemala to coordinate frontier operations; and finally; d) a special meeting of malariologists with geneticists, biochemists, and experts in the field of insect physiology to discuss plans for solving problems arising from anopheline resistance to insecticides which has appeared in a few countries.

These meetings not only provided opportunities for valuable exchange of ideas and experiences, but also constituted forums where new problems came under examination and where opinions were debated. Most important was the general agreement reached at the Seminar on Epidemiological Evaluation Techniques that in practically all places lay people can be used in the case-finding process. It has been found that lay people are willing to cooperate, can be instructed easily and quickly, and their participation, where tested, is effective. In fact, it was the consensus that, by virtue of their constant presence and the trust of their neighbors, lay people, serving as voluntary collaborators, constituted the best source of

information concerning the presence or absence of malaria transmission. Also, this method of case-finding is the least costly. Networks of local lay collaborators are now being organized to identify every focus of malaria transmission. Elimination of these foci achieves eradication.

The border meetings assessed frontier problems and resulted in coordination of national programs to prevent gaps in the attack phase of the hemispheric campaign and assure full coverage during surveillance.

The meeting on insect resistance brought assurance of full cooperation from a number of laboratory directors and a recommendation that resistant mosquitoes be colonized and made available to research laboratories. This has been done by sending material leading to colonization of *A. albimanus* at Johns Hopkins School of Hygiene and Public Health in Baltimore, Md. By arrangement, this laboratory not only carries on studies, but supplies other laboratories with mosquitoes susceptible to insecticides and mosquitoes resistant to both dieldrin and DDT to be used in similar or correlated research.

A description of progress in the malaria eradication campaign in each country or area follows:

Developments by Country or Area

Argentina. The tri-partite agreement of the government, UNICEF, and the Organization was signed during the year. Total coverage with DDT of the still malarious areas began in August with the first cycle of spraying scheduled to be completed early in 1960. By the end of 1959, evaluation operations had organized a network of 609 collaborators.

A total of 61,375 houses received at least one spraying, thereby protecting a population of 404,798. Insecticide used was DDT (61,637 lbs.). Of 52,675 slides examined, 5,104 were found positive.

Bolivia. The first year of total coverage with insecticides was completed in July, and spraying continued throughout the year. Heavy rains caused floods in a number of areas, which seriously affected the chronology of operations and which also may have rendered the previously applied insecticide ineffective. Evaluation operations concentrated on the development of a network of volunteer notifiers, and by the end of December 1314 such posts had been installed. A total of 140,029 houses received at least one spraying, thereby protecting a population of 642,617. Insecticides used were DDT (188,243 lbs.), and dieldrin (2,631 lbs.). Of 63,862 slides examined, 1,856 were found positive. Collaboration from both UNICEF and ICA was received.

Brazil. Eradication operations, by stages, began in Brazil. In June the use of the Pinotti Method for mass chemotherapy, employing chloroquinized salt, was begun in the Amazon Basin. Pre-operational planning was completed for the States of Ceará, Rio Grande do Norte, and Paraíba, and in September total coverage with in-

secticides was inaugurated. Pre-operational planning continued in three states of the northeast and in three states in the south. In June 1959, the medicated salt program was started throughout the Amazon Valley. Preparations are continuing to start the total sprayings, by areas, during 1960. ICA collaborates in this program.

For the State of São Paulo, the state service completed its pre-operational planning, which included several operational pilot areas. Training activities were emphasized. Total coverage with insecticides is scheduled to begin early in 1960. Preparations are continuing toward the start of total sprayings, by areas, during 1960. This program also received collaboration from ICA.

Colombia. The first year of spraying operations terminated in 1959. Some difficulties were experienced in spraying all houses within the malarious area. Intensive training at all levels continued. Susceptibility testing of anophelines was emphasized and plans are being made to study the ecology of a number of the vectors. Evaluation operations were somewhat delayed in implementation and the formation of a network of notification posts will be emphasized during 1960. A total of 1,218,565 houses received at least one spraying, thereby protecting a population of 9,236,128. Insecticide used was DDT (2,209,117 lbs.). Of 204,433 slides examined, 2,586 were found positive. UNICEF and ICA collaborate in the campaign.

Costa Rica. The second year of total coverage with insecticides was completed. A marked reduction in the incidence of malaria in the Caribbean region was observed. In the region of the Pacific coast malaria transmission has continued in several localities, although the vectors remain susceptible. Epidemiological investigations were emphasized and a visit by the special epidemiological team (AMRO-220) suggested additional study methods. The volunteer network comprised 675 posts at the end of the year. A total of 122,526 houses received at least one spraying, thereby protecting a population of 387,199. Insecticide used was DDT (149,640 lbs.). Of 55,507 slides examined, 1,899 were found positive. UNICEF collaborates in the program.

Cuba. At the request of the government, the Organization assisted in planning a malaria survey to delineate the malarious area and provide data for the plan of eradication. Medical, parasitological, and entomological personnel received training, and the survey was begun in May. By the end of the year, 350 localities in three provinces had been studied. The survey is expected to be completed early in 1960, when the attack program is expected to begin.

Dominican Republic. The first year of total coverage with dieldrin was completed and the second year's operations begun. Resistance of *A. albimanus*, the vector, was shown in several localities, while in others it remained susceptible. Plans were made for a shift of insecticides in 1960. A network of volunteer notifiers, totalling 329 posts, had been organized by the end of the year. A total

of 393,896 houses received at least one spraying, thereby protecting a population of 2,293,202. Insecticide used was dieldrin (97,582 lbs.). Of 21,011 slides examined, 3,743 were found positive. UNICEF collaborates in the program.

Ecuador. The second year of total coverage with insecticides was completed. Guayaquil and its environs were given special study, and a combination of residual spraying and larval control introduced. This has proved effective. Resistance to dieldrin by *A. albimanus* was demonstrated, and at the end of the year plans were being made to shift insecticides in areas where dieldrin is now applied. A network of 3,196 volunteer posts of notification has been established. A total of 340,109 houses received at least one spraying, thereby protecting a population of 2,415,505. Insecticides used were DDT (143,097 lbs.), and dieldrin (78,775 lbs.). Of 99,024 slides examined, 5,885 were found positive. UNICEF and ICA collaborate in the campaign.

El Salvador. After the second year of total coverage, resistance of the vector to dieldrin was discovered, and plans were made to use DDT in six month cycles beginning in August 1958. In some localities it has been demonstrated that *A. albimanus* is also resistant to DDT. In spite of this, spraying operations are continuing until special epidemiological studies demonstrate its ineffectiveness.

Testing of new insecticides in field conditions was conducted during the year (see AMRO-196). Evaluation activities included 946 volunteer notifier posts by the end of December. A total of 270,719 houses received at least one spraying, thereby protecting a population of 1,439,405. Insecticide used was DDT (630,590 lbs.). Of 71,295 slides examined, 17,521 were found positive. This program receives collaboration from UNICEF.

Guatemala. The first year of total coverage with DDT was completed, following the change from dieldrin late in 1958. Evaluation operations were increased and by the end of the year a total of 1,647 volunteer notifier posts had been installed. There are indications of a reduction in malaria incidence except in two areas in which anopheline resistance is a problem. A total of 357,104 houses received at least one spraying, thereby protecting a population of 1,544,144. Insecticide used was DDT (706,247 lbs.). Of 108,084 slides examined 7,894 were found positive. UNICEF and ICA are collaborating in the program.

Haiti. The program was temporarily suspended during 1959 for financial reasons. The government and the other interested agencies continued to study means for financing the resumption of activities at an early date. An entomological aide was trained, and tests for the susceptibility or resistance of the vector are being carried out in the interim. By the end of the year, plans were being made for resumption of the eradication program early in 1960.

Honduras. Because of the finding of resistance by *A. albimanus* to dieldrin, spraying activities were interrupted until a change to DDT could be effected. Spraying

was then resumed in June. Evaluation activities included the establishment of 1,220 volunteer notifier posts by the end of the year. A total of 236,963 houses received at least one spraying, thereby protecting a population of 1,347,000. Insecticide used was DDT (211,811 lbs.). Of 65,391 slides examined, 6,675 were found positive. The program receives collaboration from UNICEF and ICA.

Mexico. The third year of total coverage with insecticides was completed. At the request of UNICEF, a special report on the progress of the campaign was prepared which pointed out the significant progress made toward completely interrupting transmission. Evaluation activities received increasing attention, and efforts are being made to establish notification posts in all localities with 500 or more inhabitants. Epidemiological investigation of positive localities was also emphasized. On the basis of continuing negativity, it has been possible to withdraw spraying operations from a number of localities; it is planned to increase this number during 1960. In collaboration with the Ministry of Public Health and Welfare of Mexico, the toxicological aspects of dieldrin in malaria eradication programs are being studied. Under this project, a physical examination will be given at regular intervals to a selected group of persons handling dieldrin, and a careful study and analysis will be made of results. A total of 3,501,565 houses received at least one spraying, thereby protecting a population of 16,979,483. Insecticides used were DDT (6,020,713 lbs.), and dieldrin (73,170 lbs.). Of 819,598 slides examined, 3,202 were found positive. UNICEF collaborates in the campaign and has decided to extend its collaboration beyond the limits originally fixed.

Nicaragua. Total coverage with DDT was begun and has improved throughout the year. Evaluation operations have been increased through the installation of 1,158 volunteer notifier posts. Susceptibility testing was emphasized and has revealed several areas of resistance to both dieldrin and DDT. A special epidemiological team (AMRO-220) visited the program and made suggestions as to additional studies required. A total of 218,493 houses received at least one spraying, thereby protecting population of 1,317,285. Insecticide used was DDT (399,299 lbs.). Of 38,966 slides examined, 1,875 were found positive. The program receives the collaboration of UNICEF and ICA.

Panama. The second year of total coverage with dieldrin was completed despite certain administrative difficulties. Extensive tests for susceptibility have so far revealed no resistance by the vectors. Evaluation operations have been increased, and by the end of the year, 1,352 volunteer notifier posts had been established. Malaria transmission is still occurring in several provinces and epidemiological investigations are being increased in an effort to determine the causes. A total of 142,848 houses received at least one spraying, thereby protecting a population of 960,000. Insecticide used was dieldrin (19,504 lbs.). Of 79,755 slides examined, 5,043 were found positive. UNICEF

collaborates in the program.

Paraguay. The second year of total coverage with dieldrin was completed. No evidence of resistance by the vectors has been shown so far. A redefinition of the malarious area was made and several localities were included on the basis of recent epidemiological findings. Evaluation activities included the establishment of 633 notification posts, both within and without the malarious area. A total of 161,261 houses received at least one spraying, thereby protecting a population of 1,055,000. Insecticide used was dieldrin (53,129 lbs.). Of 11,447 slides examined, 648 were found positive. UNICEF and ICA provide assistance to the campaign.

Peru. The second year of total coverage with insecticides of the coastal region of Peru was completed. In the eastern region, spraying activities were carried out in all Departments with the exception of Loreto. An interesting development was an agreement between the Malaria Eradication Service and the Ministry of Defense, whereby the military will assume responsibility for conducting spraying operations in Loreto under supervision and technical guidance of the Malaria Eradication Service. Evaluation activities were increased through a total of 6,374 notification posts. Surveillance activities in the coastal region of the Department of Tacna revealed no malaria in that region, and there are indications that transmission has been completely interrupted in a number of valleys to the north of Tacna. A special report on the financing and administration of the program was prepared at the request of the government. A total of 593,845 houses received at least one spraying, thereby protecting a population of 4,722,745. Insecticides used were DDT (253,154 lbs.), and dieldrin (88,598 lbs.). Of 150,976 slides examined, 4,390 were found positive. UNICEF collaborates in the program.

Venezuela. The government continues its activities in those portions of the country in which malaria transmission still occurs. No international participation is included in the program administration. However, at the request of the government, the evaluation team (AMRO-121) visited Venezuela to study the situation in those areas from which malaria has disappeared. Increased attention was paid to anopheline testing for susceptibility and resistance. A total of 161,833 houses received at least one spraying, thereby protecting a population of 647,332. Insecticides used were DDT (355,397 lbs.), and dieldrin (101,117 lbs.). Of 503,777 slides examined, 897 were found positive.

British Guiana. No malaria was found in the coastal regions from which it had been eradicated. A plan of operations for the eradication of malaria from the interior, using the Pinotti Method, was agreed upon by the government, UNICEF, and the Organization, and will be put into operation early in 1960. Meanwhile, mass chemoprophylaxis is being used in areas contiguous to Venezuela.

British Honduras. Conversion from dieldrin to DDT

for spraying operations was carried out, due to the demonstration of dieldrin resistance by *A. albimanus*. The administration of the Malaria Service was carefully studied and plans were made to provide for more effective execution of the program. Evaluation operations are being carried out through the network of government hospitals and dispensaries, and by the visiting nurse. Health education aspects of the campaign also received special attention. A total of 17,516 houses received at least one spraying, thereby protecting a population of 90,000. Insecticide used was DDT (16,316 lbs.). Of 11,307 slides examined, 1,019 were found positive. UNICEF provides assistance to the program.

Canal Zone. Anti-malaria operations within the Canal Zone include the residual spraying of selected localities, control of breeding places through periodic cleaning and use of larvicides, and treatment of cases. Close coordination is maintained with the authorities of Panama.

Dominica. Spraying operations, using DDT, were begun in the portion of the island where malaria is still found. Training of personnel was carried out, and evaluation activities were begun. A total of 3,403 houses received at least one spraying, thereby protecting a population of 10,563. Insecticide used was DDT (1,944 lbs.). Of 1,818 slides examined, 46 were found positive. UNICEF collaborates in the campaign.

French Guiana. No international participation is included in the anti-malarial services of French Guiana. DDT residual spraying continues, and the population is reported to be under surveillance. During 1960 it is planned to arrange a meeting with the authorities of French Guiana and Surinam for consideration of problems common to the border regions.

Grenada. Surveillance operations were established on Carriacou and are functioning satisfactorily. Spraying operations on Grenada were completed at the end of 1959, and the island will be placed under surveillance in 1960. The surveillance network is functioning satisfactorily, and, in addition, full-time personnel will be employed for house-to-house visits and special surveys. No malaria has been found on Grenada since October 1958, except two cases which were found in March 1959 from a non-malaria area and had not been included in the spraying program before September 1958. These cases were submitted to radical cure. A total of 8,077 houses received at least one spraying, thereby protecting a population of 30,188. Insecticide used was DDT (4,311 lbs.). Of 5,685 slides examined, two were found positive. UNICEF collaborated during 1959 and will continue during the surveillance period.

Guadeloupe. A large segment of the population has been freed of malaria infection and is under surveillance. In the remainder, spraying operations, using DDT, have been carried out along with the search for malaria cases. No international assistance has been provided.

Jamaica. Because of the demonstration of resistance to dieldrin by *A. albimanus*, a shift to DDT was made and two cycles of spraying were carried out. Evaluation operations were increased and there are indications that malaria transmission has been interrupted in the northern parishes. Some foci of transmission are still found in localized situations along the south coast and are being studied epidemiologically to determine the most effective measures to be used. A total of 277,626 houses received at least one spraying, thereby protecting a population of 1,348,000. Insecticides used were DDT (99,003 lbs.), and dieldrin (138,552 lbs.). Of 35,766 slides examined, 339 were found positive. UNICEF and ICA provide collaboration to the program.

St. Lucia. Spraying operations were terminated on St. Lucia in August, following the close of the final cycle of DDT. Increased evaluation activities have shown no evidence of malaria transmission and the entire island has been placed under surveillance. In addition to the network of notification units, full-time evaluation personnel make house-to-house visits and periodic surveys, all of which have been negative for malaria. A total of 15,347 houses received at least one spraying, thereby protecting a population of 62,324. Insecticide used was DDT (9,312 lbs.). Of 11,427 slides examined, three were found positive.

Surinam. The first year of total coverage with insecticides was completed. DDT is employed in the coastal region and in the savannahs; dieldrin is used in the interior. So far, no evidence of resistance has been shown. Operations in the interior have been hampered by difficulties in locating all houses used in scattered agricultural activities. Evaluation operations were developed with the establishment of 20 official posts for notification. The results from the coastal region are favorable. A total of 50,560 houses received at least one spraying, thereby protecting a population of 326,903. Insecticides used were DDT (51,095 lbs.), and dieldrin (14,678 lbs.). Of 48,050 slides examined, 2,755 were found positive. UNICEF provides collaboration.

Trinidad and Tobago. The island of Tobago continues under malaria surveillance, with no cases reported during 1959. On Trinidad, a shift from dieldrin to DDT was made because of the demonstration of resistance by *A. aquasalis* to the former insecticide. In the area of *A. bellator*, mass chemoprophylaxis is being carried out. Evaluation operations were increased, and the majority of cases found have been traced through epidemiological investigations to previously unsuspected villages deep within the forest. These villages have now been included in the drug campaign. Results during the latter part of the year have been most encouraging. A total of 149,228 houses received at least one spraying, thereby protecting a population of 822,000. Insecticides used were DDT (48,080 lbs.), and dieldrin (22,209 lbs.). Of 88,609 slides examined, 97 were found positive. The program receives collaboration from UNICEF.

Aedes Aegypti Eradication and Yellow Fever

Three events helped to provide new impetus to the *Aedes aegypti* eradication campaign in the Americas during 1959: 1) intensification of the Venezuelan campaign after obtaining greater technical and administrative autonomy; 2) the financial contribution of Cuba for organizing a campaign consistent with the importance of the problem; and 3) the favorable outcome of the preliminary survey of the status in Mexico. On the other hand, there was increasing concern over *A. aegypti* resistance to DDT in certain of the Caribbean areas, particularly in Isla Verde, Puerto Rico, where a serious situation arose and where there is resistance as well to the other insecticides currently in use. This phenomenon will have to be evaluated from every aspect to determine its extent and establish the necessary means to cope with it adequately.

The XI Meeting of the Directing Council, which met in September, studied the status of *Aedes aegypti* eradication in the Americas. Two additional countries, Guatemala and Honduras, reported that their territories were free of the mosquito, and the Council called upon the other countries and territories that are still infested to intensify their anti-*aegypti* activities, and recommended that those countries in which the vector has already been eradicated maintain a strict vigilance in order to prevent reinfestation.

A summary of the *A. aegypti* eradication campaign at the end of the year, by countries and areas, is presented below. No reference is made to Bolivia, Brazil, Ecuador, Nicaragua, Panama, Paraguay, Peru, Uruguay, British Honduras, French Guiana, and the Canal Zone, which were declared free of *A. aegypti* at the XV Pan American Sanitary Conference, and which are at present under a surveillance system.

Argentina. The campaign has been under way since 1955 with the cooperation of PAHO/WHO. A number of difficulties have delayed the work, so that less than half of the program has been completed up to now. Of the 2,398 localities inspected, 149 were found infested, and of these, 145 are already free of the mosquito. The majority of these localities are in the northern and northeastern areas, which are considered the most highly infested in the country and which border on Bolivia, Paraguay, and Brazil. Little work was done in the central and southeastern areas. The capital, located in the southeastern region, was partially inspected and found negative, but

A. aegypti was found in three nearby localities within the Greater Buenos Aires area. During the last months of the year certain difficulties were overcome which will permit more rapid advance of the campaign.

Chile. Final activities are scheduled to commence in January 1960, with the collaboration of PAHO/WHO, and should be completed by the end of the year.

Colombia. Latest checks made are confirming *A. aegypti* eradication in the country, except in Cúcuta, near the Venezuelan border, where a small area was found still infested, believed attributable to egg resistance. Of the 3,759 localities inspected since the start of the campaign, 354 were found with *A. aegypti*; of these, 353 are already negative. Final checks to establish eradication throughout the country are scheduled to be completed in the early part of next year.

Costa Rica. Final verification is scheduled to begin within a short time, with the assistance of PAHO/WHO technical staff, to confirm *A. aegypti* eradication in the country, where the vector has not been found since 1952.

Cuba. The government is giving full support to the campaign, which now has ample resources. Of the 84 localities inspected since the start of the campaign, 69 were found infested, and checks made in 18 of these after treatment showed 14 localities still positive.

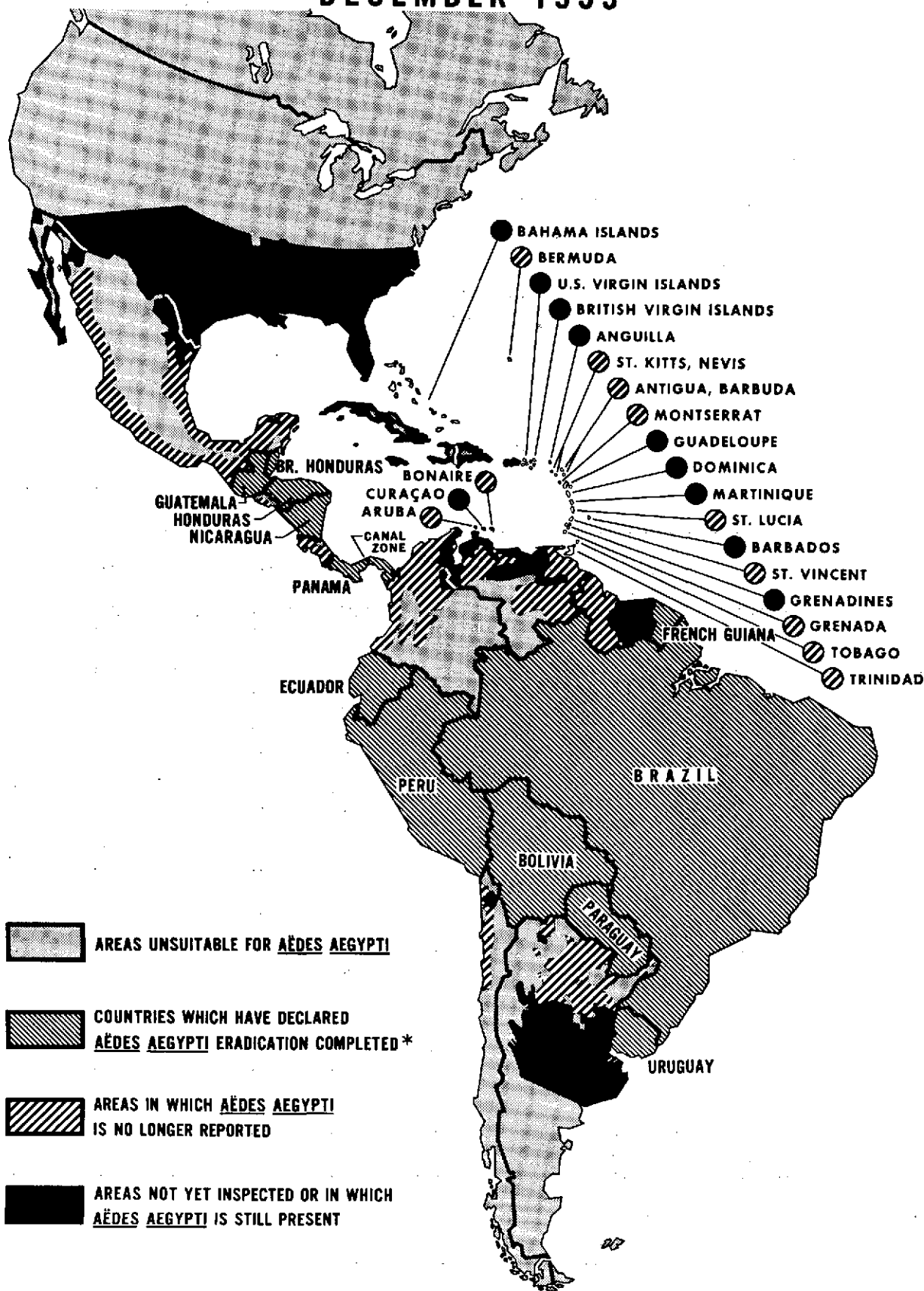
Dominican Republic. Work in the capital has been suspended since the existence of DDT resistance was confirmed. Available personnel are being utilized in certain cities in the interior of the country. Spraying with dieldrin against malaria has covered all the rural areas and it is hoped that *A. aegypti* has been eliminated as a result. It is expected that the campaign will be intensified next year upon the approval of a new agreement.





El Salvador. Final verification, with PAHO/WHO assistance, was completed in November, confirming the eradication of *A. aegypti* in the country.

Guatemala. Eradication was confirmed, with the aid of PAHO/WHO and the country was declared free of *A. aegypti* at the XI Meeting of the Directing Council.

Haiti. Although some areas were found highly infested and resistance to DDT is present in the capital, this country was forced to suspend anti-*aegypti* activities in the latter part of 1958 because of economic reasons. It is expected that the campaign will be resumed within a short time.

STATUS OF THE AÈDES AEGYPTI ERADICATION CAMPAIGN DECEMBER 1959



-  AREAS UNSUITABLE FOR AÈDES AEGYPTI
-  COUNTRIES WHICH HAVE DECLARED AÈDES AEGYPTI ERADICATION COMPLETED*
-  AREAS IN WHICH AÈDES AEGYPTI IS NO LONGER REPORTED
-  AREAS NOT YET INSPECTED OR IN WHICH AÈDES AEGYPTI IS STILL PRESENT

*ERADICATION VERIFIED IN ACCORDANCE WITH THE STANDARDS ESTABLISHED BY PASB

Honduras. Having completed the campaign in accordance with PAHO/WHO standards, this country was declared free of *A. aegypti* at the XI Meeting of the Directing Council.

Mexico. Sprayings with DDT and dieldrin against malaria and direct anti-aegypti activities in urban areas

have considerably changed the problem in the country. Preliminary evaluation made during the last quarter of 1959 by a special squad that inspected 34 localities in the formerly most infested areas of the States of Yucatán, Campeche, Tabasco, Veracruz, Oaxaca, and Chiapas, revealed *A.*

TABLE XXV. SUMMARY OF THE AËDES AEGYPTI ERADICATION CAMPAIGN IN THE AMERICAS FROM ITS START THROUGH DECEMBER 1959 OR LATEST REPORTED MONTH

Area	Date started	Latest report	Area assumed initially infested (Km ²)		Localities inspected					Present status
			Total	Inspected (%)	Number	Initially positive				
						Total	Treated	Verified		
Number	Number	Still positive								
Argentina	April 1958	1959	1,500,000	30.4	2,458	149	149	145	—	A
Bolivia	June 1932	Dec. 1956	100,000	100.0	282	65	65	65	—	E
Brazil	Jan. 1931	Sept. 1959	5,358,822	100.0	270,588	36,119	36,119	36,119	—	E
Chile	June 1945	May 1958	50,000	100.0	81	44	44	44	1	A
Colombia	Nov. 1950	Dec. 1959	280,000	99.5	3,759	354	353	353	1	A
Costa Rica	April 1949	Dec. 1959	20,000	100.0	1,238	104	104	104	—	N
Cuba	March 1954	Nov. 1959	100,000	1.0	84	69	63	18	14	A
Dominican Republic	Oct. 1952	Dec. 1959	42,020	80.4	1,358	344	344	313	45	A
Ecuador	June 1946	Dec. 1959	69,454	100.0	2,824	337	337	337	—	E
El Salvador	April 1949	Dec. 1959	18,675	100.0	989	190	190	190	—	N
Guatemala	Jan. 1949	Sept. 1959	36,423	100.0	2,485	138	138	138	—	E
Haiti	Oct. 1953	Sept. 1958	27,750	49.4	2,379	605	602	435	27	I
Honduras	Sept. 1949	July 1959	64,929	100.0	600	53	53	53	—	E
Mexico	Jan. 1951	July 1959	1,000,000	100.0	...	...	...	397	60	A
Nicaragua	Jan. 1950	June 1959	65,263	100.0	3,126	18	18	18	—	E
Panama	Feb. 1949	Dec. 1959	56,246	100.0	2,853	44	44	44	—	E
Paraguay	Jan. 1948	Sept. 1959	200,000	100.0	1,561	98	98	98	—	E
Peru	Jan. 1940	Sept. 1958	638,000	100.0	4,320	191	191	191	—	E
United States	...	...	777,000	...	...	...	...	...	...	P
Uruguay	Oct. 1948	Oct. 1958	187,000	100.0	1,020	133	133	133	—	E
Venezuela	June 1948	Dec. 1959	600,000	85.0	3,602	413	413	319	48	A
France										
French Guiana	May 1949	March 1958	91,000	100.0	222	55	55	55	—	E
Guadeloupe	Jan. 1957	Dec. 1959	1,619	4.9	53	38	38	32	14	A
Martinique	Nov. 1953	March 1958	1,813	100.0	34	34	34	34	27	I
Netherlands										
Aruba	March 1952	Dec. 1959	174	100.0	9	9	9	9	—	N
Bonaire	Sept. 1952	Sept. 1959	246	100.0	6	6	6	6	—	N
Curacao	Oct. 1951	Dec. 1959	448	100.0	155	155	155	155	10	A
Saba, St. Eustatius and St. Martin	Aug. 1958	Aug. 1959	60	100.0	34	30	30	30	—	N
Surinam			143,000							P

TABLE XXV. SUMMARY OF THE *AËDES AEGYPTI* ERADICATION CAMPAIGN IN THE AMERICAS FROM ITS START THROUGH DECEMBER 1959 OR LATEST REPORTED MONTH—Continued

Area	Date started	Latest report	Area assumed initially infested (Km ²)		Localities inspected					Present status
					Number	Initially positive				
			Total	Treated		Verified				
						Total	Inspected (%)	Number	Still positive	
United Kingdom										
Antigua	Aug. 1954	Dec. 1959	280	100.0	50	47	47	47	—	N
Bahamas	June 1954	Dec. 1959	11,396	1.3	13	11	11	11	9	A
Barbados	March 1954	Dec. 1959	171	100.0	95	95	95	95	17	A
Bermuda	Jan. 1951	Dec. 1951	53	100.0	9	9	9	9	—	N
British Guiana	March 1946	Dec. 1959	4,662	100.0	93	93	93	93	—	N
British Honduras	Oct. 1950	June 1959	22,965	100.0	84	2	2	2	—	E
Dominica	Feb. 1951	Oct. 1956	789	90.0	136	66	66	66	16	I
Grenada	Nov. 1952	June 1959	311	100.0	8	8	8	8	—	N
Grenadines	Nov. 1952	June 1959	65	100.0	7	5	5	5	1	A
Jamaica	Feb. 1950	Dec. 1959	11,424	77.3	67	45	45	31	16	A
Montserrat	May 1956	Dec. 1959	83	100.0	33	16	16	16	—	N
St. Kitts-Nevis-Anguilla										
Anguilla	May 1950	Dec. 1959	396	100.0	62	33	33	33	17	A
Saint Lucia	May 1953	Dec. 1959	259	100.0	50	50	50	50	—	N
Saint Vincent	March 1953	March 1959	332	100.0	8	8	8	8	—	N
Trinidad and Tobago	Jan 1951	Dec. 1959	3,108	100.0	128	122	122	122	—	N
Virgin Islands			174							P
United States										
Canal Zone	...	June 1959	1,432	100.0	21	21	21	21	—	E
Puerto Rico	May 1950	Dec. 1959	8,896	61.8	481	248	248	248	114	A
Virgin Islands			124							P

Abbreviations and symbols: P = preparatory; A = active; N = negative; E = eradicated; I = interrupted; ... data not available; — none.

aegypti in only one locality—Motul, Yucatán. With the recommendations made, it is possible that *A. aegypti* eradication may be achieved in Mexico with one additional year of systematic activities.

United States. Twenty-five airports were inspected in the cities of Florida in 1958, including Fort Pierce, Jacksonville, Miami, Pensacola, St. Petersburg, Tampa, and West Palm Beach; six were found positive with indices of about four per cent. Also, 10 docks in Florida ports were found to have a nine per cent index. One dock on the coast of North Carolina was also infested. The island of Key West, Florida, considered to be negative since 1948, was found to be positive in 1958. Through inspections made previously, many cities were found to be infested in the States

of Alabama, Arizona, Arkansas, Florida, Georgia, Kansas, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia.

Since November 1957 the Communicable Disease Center, Atlanta, Georgia, has maintained an experimental area in Pensacola, Florida, for the purpose of collecting data on the methodology, feasibility, and cost of an *A. aegypti* eradication program in the southeast of the United States, such data to be utilized also in other areas of the country where the problem may arise.

Venezuela. This may be considered the first year of program activities with PASB/WHO collaboration. Internal difficulties delayed personnel recruitment, which is now progressing more rapidly.

A survey of the metropolitan area of Caracas was completed and revealed small, infested areas in the old part of the city called Palos Grandes—in two places near the locality of Petare, and in rural areas—in the parishes of Sucre and Antimano. The survey will be continued in the rural districts around Caracas and those of the State of Miranda, where the capital, Los Teques, is infested. Activities are also being carried out in the coastal area of the Federal District, including the international airport of Maiquetia and the port of La Guaira, which were found to be negative.

Work is progressing in San Cristobal, the capital of the State of Táchira, where infestation is diffuse, and in San Antonio, near the Colombian border, where a small infested area was found. The area of Urefia, along the border, was inspected completely and found negative.

It is expected that the campaign will be intensified in 1960 when there will be twice as many personnel available as in 1959.

In British Guiana the 93 previously infested localities continue to be considered negative but it is necessary to make final verification.

In Surinam no effective activities have as yet been carried out to eradicate *A. aegypti*. It is known that the indices are high and infestation widespread. DDT resistance has already been observed in some urban areas, and in areas near the French Guiana border, which was reinfested this year with mosquitoes coming from Surinam. Measures are being taken to organize the campaign in this area and to combat the reinfestation in French Guiana.

Caribbean Area. The islands in this area can be subdivided into three groups covered by 20 *A. aegypti* eradication programs: 1) islands showing negative results that can soon be declared free—Aruba, Bermuda, Bonaire, Antigua and Barbuda, Grenada, Montserrat, Saint Vincent, Saint Lucia, Saint Kitts, Nevis, and Trinidad; 2) islands with programs under way—Anguilla, Bahamas, Barbados, Curaçao, Grenadines, Jamaica, Saint Martin, Saint Eustatius, Saba, and Tobago; and 3) islands with little activity and which require better organization—Dominica, Guadeloupe, Martinique, Puerto Rico, and the Virgin Islands.

The program in the Lesser Antilles presents serious obstacles because of the geographic dispersion of the islands and various administrative problems in a majority of them.

Table XXV, and the accompanying map, show an over-all picture of the work accomplished thus far and that which needs to be done to complete this campaign.

Yellow Fever

Reported cases of yellow fever for the year were 30. All were of the jungle type and occurred in Bolivia, Brazil, Colombia, Peru, Venezuela, and Trinidad-Tobago. In addition, yellow fever virus was isolated from the liver of a howler monkey (*Alouatta sp.*) that was found dead in

TABLE XXVI. REPORTED CASES OF YELLOW FEVER,
IN THE AMERICAS, 1950-1959

Area	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
Total	391	312	341	89	95	39	28	80	61	30
Bolivia	354	3	1	18	—	4	6	19	2	2
Brazil b	4	50	221	39	9	8	2	10	26	3
Colombia b	12	26	16	11	12	22	16	35	21	21
Costa Rica	—	180	93	5	—	—	—	—	—	—
Ecuador	—	42	—	—	—	—	—	—	—	—
Guatemala b	—	—	—	—	—	—	—	3	—	—
Honduras b	—	—	—	—	1	—	—	—	—	—
Nicaragua b	—	—	7	8	—	—	—	—	—	—
Panama	2	3	1	—	—	—	1	4	—	—
Peru	16	4	1	—	26	—	—	3	6	1
Venezuela b	3	4	1	8	29	5	3	6	6	1
British Honduras	—	—	—	—	—	—	—	—	—	—
Trinidad and Tobago b	—	—	—	—	18	—	—	—	—	2

— No case. a Jungle yellow fever, with the exception of three cases in Trinidad in 1954. b All cases with laboratory confirmation. c Evidence of activity of the virus of yellow fever in vertebrates other than man.

Venezuela. No isolations of yellow fever virus were made from mosquitoes, but one non-fatal human case was diagnosed by isolation of the virus from his blood serum. This case occurred near Florencia, Intendencia de Caquetá, Colombia, where an extensive epidemic of jungle yellow fever occurred. Most of the people attacked were newly arrived settlers from the Upper Magdalena Valley of Colombia where there is no yellow fever. They had settled on the fertile lands in the piedmont area to the east of the Cordillera Oriental of the Andes.

In addition to its long-term program of manufacturing 17D yellow fever vaccine and making epidemiological studies of yellow fever and other arbor-virus infections, the staff of the Carlos Finlay Institute (Colombia-52, in Bogota, to which the Organization makes both financial and technical contributions, has been engaged since 1957 in assessing the feasibility of applying 17D by cutaneous scarification, instead of by the usual method of subcutaneous injection.

It has been found that if the skin was scratched deeply enough to draw a small amount of blood, a success rate of 98 per cent could be attained in experimental trials. With this information in hand, it was worthwhile to develop a standard procedure for the preparation of the vaccine and its application in the field without refrigeration.

Additional tests showed that 17D vaccine for scarification had to have a titer of at least 100,000 units of virus per

0.03 cc. portion. Twenty-dose containers of vaccine were prepared by placing 0.2 cc. portions of such high-titer chick embryo material in small tubes with an outside diameter of 8 or 9 mm—for compactness. When rehydrated, a dose of 0.01 cc. could be easily measured out with a capillary tube, using a separate sterile tube for each person. In addition, such vaccine had to pass a "Heat Stability Test" before it was issued for use. This test is quite simple but takes a month to do, for tubes of the dried vaccine are exposed to a temperature of 37°C for 30 days in an incubator, and the virus content again determined. Some loss of titer is permissible, but it must not be excessive.

This test provides a large factor of safety, because in actual use in the field the vaccine is not exposed to ambient temperatures for much more than a week, and the temperatures rarely reach a high of 37°C.

Actual field trials of the technique revealed that a vaccinator on horseback, working house-to-house, could vaccinate between 60 and 100 persons per day, or about 500 persons per week. These studies were done in areas that had not been reached effectively by previous vaccination campaigns. The feasibility of the procedure is well established, but the effectiveness of the field application has not yet been determined. This is being done at present by the simple measure of bleeding a group of 250 persons thus vaccinated and testing their blood for the presence of yellow fever neutralizing antibody.

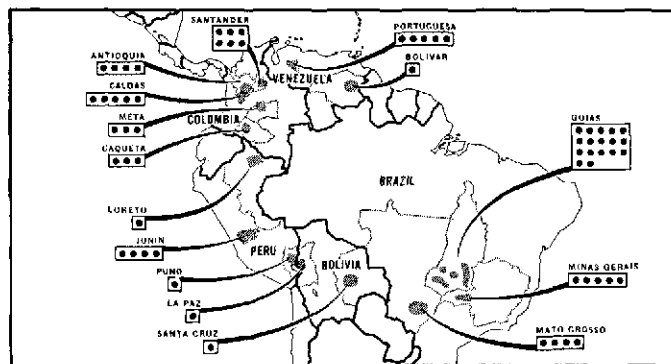
It is confidently expected that the increased unit cost of applying the 17D vaccine on a house-to-house basis will be more than compensated for by the increased effectiveness of each vaccination. When it is given house-to-house, much more of the vaccine is given to persons at higher risk than when it is given to groups of people assembled at vaccination "points".

During the year the Carlos Finlay Institute prepared 1,192,820 doses of 17D vaccine and distributed 453,545 doses (by the end of October) to various countries and areas of the Hemisphere as follows: Aruba, 810; British Guiana, 6,010; Chile, 2,000; Cuba, 2,000; Curaçao, 1,100; Ecuador, 20,000; Guatemala, 20,010; Jamaica, 850; Mexico, 250,025; Panama, 42,220; Peru, 40,020; Trinidad, 2,000; and Venezuela, 66,500.

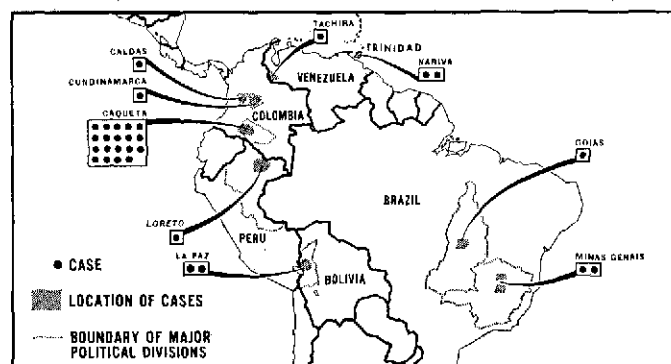
The Organization also contributes to the manufacture of 17D vaccine at the Oswaldo Cruz Institute in Rio de Janeiro (Brazil-51). During the year (up to November 30), the Institute prepared 1,877,000 doses of vaccine, adding this to its already existing stock (as of January 1, 1959), of 3,906,400. It distributed 3,901,800 doses. Argentina received 50,000 doses; Bolivia, 110,000; and Venezuela, 240,000.

Another research matter is of interest: the identification of the arbor-viruses that are associated with yellow fever

REPORTED CASES OF JUNGLE YELLOW FEVER IN THE AMERICAS, AND LOCATION, BY MAJOR POLITICAL DIVISIONS OF EACH COUNTRY, 1958



REPORTED CASES OF JUNGLE YELLOW FEVER IN THE AMERICAS, AND LOCATION, BY MAJOR POLITICAL DIVISIONS OF EACH COUNTRY, 1959



virus in its forest habitat. It has been evident for some years that even in an endemic area, such as the Magdalena Valley of Colombia, yellow fever virus does not remain continuously in any one limited area in the valley. Instead, the virus seems to wander about, revisiting certain areas at intervals of about four or five years. At least this is the picture given by viscerotomy, which deals only with fatal cases. Thus it becomes necessary to make long-term studies in typical localities if the presence of the virus is to be detected. The best place to look for virus is in the mosquitoes that attack man during the day. Collection with light traps in the early evening has also yielded interesting results.

Accordingly, in the field study area in San Vicente de Chucuri, Santander, Colombia a modest program of collecting mosquitoes for virus isolation was begun late in 1958 by the staff of the Carlos Finlay Institute. In the succeeding 12 months, 30,000 mosquitoes were captured and tested for virus. Twelve strains of virus were isolated, none of them yellow fever. The details of these isolations are to be published elsewhere, and the studies are continuing.

Smallpox

The XV Pan American Sanitary Conference (San Juan, Puerto Rico, 1958), after a detailed study of the problem of smallpox in the Western Hemisphere, declared in Resolution VI that smallpox eradication is a problem that urgently requires the attention of all countries; urged that nation-wide eradication plans be carried out where the disease still exists; requested the cooperation of the Member Governments in supplying smallpox vaccine and technical advice; recommended that the Bureau take all measures necessary to attain the goal of continent-wide eradication; and requested the Bureau to undertake the necessary studies to establish a definition of eradication suitable for uniform application in the different countries.

Such a definition should be suitable for universal application, so that there may be a uniform criteria for judging when success has been reached. Thus, the process of drawing up an adequate definition has required much time, for it has been necessary to carry out consultations with authorized persons in the various countries, as well as to ensure correlation with other regions of the world, through WHO Headquarters.

Although there has been substantial progress in recent years, smallpox continues to be a serious public health problem in the continent. There were 89,663 cases of smallpox reported in the 10 year period 1950-1959 in 18 countries or areas.

Table XXVII shows the geographic distribution of smallpox cases reported to the Bureau during this period, by year. Some countries, such as Chile, Mexico, Peru, and Venezuela, which formerly had a high incidence have reported no cases of the disease in recent years, a fact undoubtedly due to the eradication campaigns conducted by those countries. The number of reported cases has been decreasing in other countries, such as Bolivia, Paraguay, and Colombia, which also have been carrying out such campaigns. No cases have occurred in the past five years in Central America and the Caribbean area, with the exception of Panama, which in 1958 had an outbreak of eight cases in a town bordering on Colombia.

In 1959, 34 cases were reported in Argentina; 1,354 in Brazil; 867 in Colombia; 1,184 in Ecuador; and 7 in Bolivia. Chile, where no cases had been present since 1954, reported the occurrence of three imported cases, followed by one secondary indigenous case.

To assist governments in organizing and developing campaigns, the Bureau has provided technical advice in the production of smallpox vaccine and furnished equipment to a number of countries for the preparation of dried vaccine. It has also assisted several countries in obtaining prepared vaccine ready for use. It has provided the services of consultants specialized in the organization and operation of vaccination campaigns, as well as fellowships for the training of national personnel. In addition, the Bureau has made available the services of an accredited laboratory to test the purity and potency of the vaccines produced by the national laboratories.

Table XXVIII shows the most recent data received by the Bureau on vaccinations applied in 1959; and Table XXIX contains data on vaccine production during 1958 and 1959.

REPORTED CASES OF SMALLPOX IN THE AMERICAS, BY MAJOR POLITICAL DIVISIONS OF EACH COUNTRY, 1959

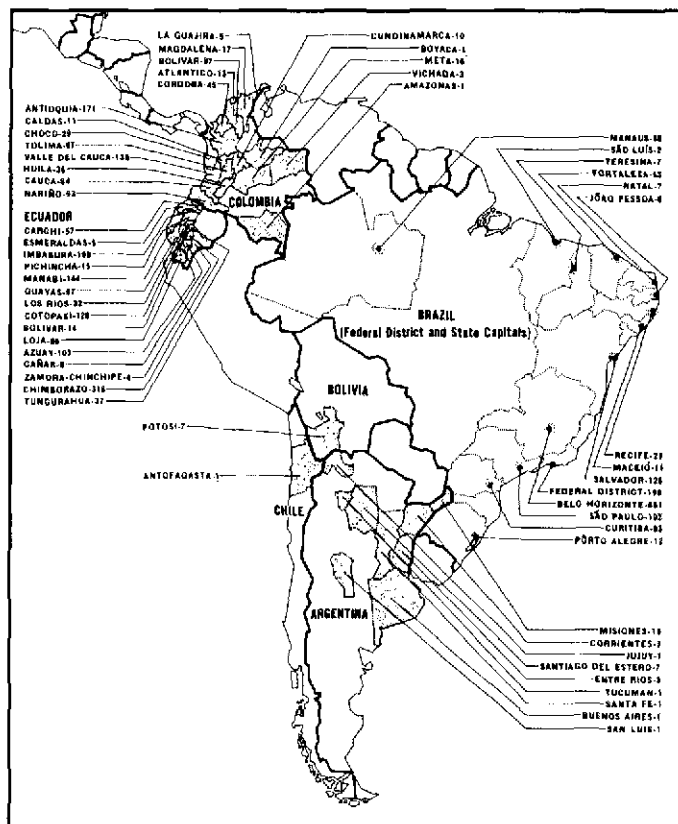


TABLE XXVII. REPORTED CASES OF SMALLPOX IN THE AMERICAS, BY COUNTRY, 1950-1959

Area	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959
Total	21,485	9,221	9,301	8,930	11,979	8,348	6,389	6,220	4,343	3,447
Argentina	4,788	1,404	982	309	256	55	86	335	27	34
Bolivia	594	728	432	429	624	372	499	1,310	183	7
Brazil ^a	706	1,190	1,668	923	1,035	2,580	2,385	1,411	1,232	1,354
Chile	3,414	47	15	9	—	—	—	—	—	1
Colombia	4,818	3,844	3,235	5,526	7,203	3,404	2,572	2,145	2,009	867
Cuba	—	—	—	—	—	—	—	—	—	—
Ecuador	251	174	665	708	2,516	1,831	669	913	863	1,184
Guatemala	10	3	1	1	—	—	—	—	—	—
Mexico	762	27	—	—	—	—	—	—	—	—
Panama	—	—	—	—	—	—	—	—	8 ^b	—
Paraguay	304	282	797	770	207	57	132	103	21	—
Peru	3,612	1,218	1,360	172	115	—	—	—	—	—
United States	39	11	21	4	9 ^c	2 ^c	—	1 ^c	—	—
Uruguay	3	—	16	7	1	45	42	2	—	—
Venezuela	2,181	280	109	72	13	2	4 ^d	—	—	—
British Guiana	—	11	—	—	—	—	—	—	—	—
Martinique	—	1	—	—	—	—	—	—	—	—
Netherlands Antilles	3	1	—	—	—	—	—	—	—	—

— None. ^a Data for the Federal District and State Capitals, excluding: Salvador, 1953 and Niteroi, 1955; incomplete data for 1959. ^b Including four imported cases. ^c These cases do not fulfill the generally accepted criteria for a diagnosis of smallpox. ^d Clinical diagnosis not supported by epidemiological evidence.

A summary of the status of activities in various Member Countries is given below.

Progress by Country

In Bolivia several outbreaks occurred in 1957 in Cochabamba and in La Paz Department, as a result of which emergency vaccination campaigns were carried out with dried vaccine obtained from Chile and Peru. Later, a nation-wide program was undertaken with the aim of covering a minimum of 80 per cent of the country's population. The vaccine was provided by the *Institut de Vaccine* of Paris and by the National Institute of Health of Peru. The house-to-house method was employed and, where appropriate, vaccination of persons not vaccinated in the home was applied in temporary centers. All inhabitants were vaccinated with the exception of infants under four weeks old and persons severely ill or suffering from skin diseases. By the end of 1959, a total of 422,945 vaccinations

had been carried out. The program is now being consolidated by extending vaccination to certain sparsely populated areas and to areas that have not yet been covered. To maintain a high level of immunity, services are being established in urban vaccination center and rural mobile units. ICA is collaborating actively in this program. The dried vaccine production laboratory, for which equipment was provided by the Organization, entered the production state and turned out 363,000 doses of dried vaccine during the first half of 1959.

Smallpox constitutes a serious public health problem in Brazil; 1,098 cases were reported in 1959. The principal cities affected were the State capitals of Minas Gerais, São Paulo, and Rio de Janeiro. PAHO sent equipment for the dried vaccine production laboratories in the States of Rio Grande do Sul and Pernambuco, only one of which has begun to produce vaccine. Such equipment was also recently provided to the Oswaldo Cruz Institute in Rio

TABLE XXVIII. NUMBER OF SMALLPOX VACCINATIONS
IN THE AMERICAS, BY COUNTRY, 1958 AND 1959

Area	1958	1959
Argentina	714,393	107,630 ^a
Bolivia	2,432,186	422,945
Brazil	4,139,772	7,856,294
Chile	...	...
Colombia	2,557,615	2,185,053 ^b
Costa Rica	25,395	15,820
Cuba	7,996	25,083
Dominican Republic	4,511	5,027
Ecuador	301,112	428,365 ^b
El Salvador	43,620	26,238
Guatemala	99,200	44,428
Haiti	443,119	...
Honduras	32,328	17,824
Mexico	5,000,000	3,000,000 ^a
Nicaragua	10,108	10,521
Panama	48,610	29,335
Paraguay	594,003	589,361
Peru	1,273,017	441,445
Uruguay	102,054	87,324
Venezuela	862,585	894,082
British Guiana	2,720	4,248
British Honduras	...	3,325 ^c
Martinique and Guadeloupe	...	17,140

... Data not available. ^a As of June 30. ^b As of October 30. ^c As of November 30.

de Janeiro. The Organization awarded a fellowship to a professional to visit scientific centers that produce dried vaccine.

In Chile the regular vaccination program is the responsibility of the local public health services, which work to maintain the protection level of the population, particularly in rural areas. As a consequence of the three imported smallpox cases and one indigenous case, authorities undertook an intensive vaccination program. Measures are also being taken to increase the national production of dried smallpox vaccine, and PAHO provided additional equipment in 1958 for that purpose.

The national campaign in Colombia commenced in October 1955 with the aim of vaccinating 80 per cent of the population, estimated at 9,600,000 inhabitants, over a period of five years. Another objective of the program is the incorporation of smallpox vaccination in the activi-

ties of the local public health services, on a logical basis and directed in such a way as to maintain a permanent immunity level in the population. The Organization has been providing the services of a consultant to cooperate with the national authorities in the development of the program. It also furnished the services of a consultant specialized in dried vaccine production, awarded fellowships to three professionals for study abroad of vaccine production and the organization and operation of vaccination campaigns, and provided vehicles to transport personnel and equipment. UNICEF provided equipment for the production of dried vaccine. A systematic house-to-house vaccination campaign was carried out in the Departments of Santander del Norte, Santander, Boyaca, Tolima, and Cundinamarca, the Federal Department of Bogota, Caldas, Valle, Antioquia, and Cauca. From the beginning of the program and by October 30, 1959, 7,207,511 vaccinations in all had been applied.

The program in Ecuador was started in 1958 with the goal of vaccinating at least 80 per cent of the country's population over a period of five years. As of October 1958, 428,365 vaccinations had been applied; by the same month in 1959, 729,477 vaccinations were administered. PAHO provided the services of a consultant for a three-month period during 1958, and in 1959 designated a long-term consultant to collaborate with the government in this program.

As a result of a campaign that covered the entire national territory in Mexico, no cases of smallpox have occurred since 1952. Adequate levels of immunity are maintained through regular vaccinations applied by the local public health services.

In Paraguay the vaccination campaign was begun in September 1957 with the cooperation of the Organization. A total of 1,371,973 persons, or approximately 80 per cent of the country's population, had been vaccinated as of December 31, 1959. It is expected that the intensive program will be completed during the early months of 1960 and that the entire country will be covered. Glycerinated vaccine produced in Uruguay has been used in the campaign.

In Peru the smallpox eradication campaign was launched in October 1950 with the cooperation of PAHO. A total of 7,672,892 persons, or 87 per cent of the country's population, were vaccinated. The results of this well-organized campaign are evidenced by the fact that no cases have occurred there since December 1954.

A vaccination campaign was organized in Uruguay, in the area bordering on Brazil, and is expected to be extended throughout the country.

The campaign in Venezuela was successfully completed throughout the national territory, and no cases of smallpox have occurred since 1957. To consolidate the results achieved, it is planned, among other measures, to increase production of dried vaccine (the Organization has provided

TABLE XXIX. PRODUCTION OF SMALLPOX VACCINE IN 20 COUNTRIES IN THE AMERICAS IN 1957, 1958, AND FIRST HALF OF 1959

Country	Number of doses produced					
	1957		1958		1959 ^a	
	Glycerinated vaccine	Dried vaccine	Glycerinated vaccine	Dried vaccine	Glycerinated vaccine	Dried vaccine
Argentina	20,000,000	110,000	6,500,000	83,000	4,099,400	...
Bolivia	...	...	...	37,000	...	363,000
Brazil	12,000,000	...	8,196,555	...	17,217,090	...
Chile	2,500,000	500,000	862,500	885,000	600,000	510,000
Colombia	6,688,300	550,600	2,125,800	4,087,980	2,125,800	5,260,225
Costa Rica	...	...	...	...	...	...
Cuba	190,000	...	180,000	...	150,000	50,000
Dominican Republic	...	...	...	...	...	...
Ecuador	...	942,425	161,830	337,900	...	1,210,820
El Salvador	221,500	...	210,000	...	125,660	...
Guatemala	143,000	...	92,345	...	214,105	...
Haiti	...	...	...	...	...	...
Honduras	31,200	...	31,100	...	15,870	...
Mexico	9,482,820	9,500	8,819,023	...	17,820,299	3,039,000
Nicaragua	25,870	...	35,880	...	12,350	...
Panama	...	...	...	...	...	...
Paraguay	...	...	...	...	...	...
Peru	865,365	2,101,200	932,100	3,896,255	1,101,585	2,808,810
Uruguay	1,500,000	110,000	2,100,000	...	1,726,700	...
Venezuela	...	...	6,000,000	200,000	4,751,000	...

... Data not available. ^a As of June 1959.

the necessary equipment) and to integrate smallpox vaccination as a routine activity in the local health services. In 1959, 894,082 persons were vaccinated, and 4,751,000 doses of glycerinated vaccine produced.

Campaign Moves Slowly

The smallpox eradication campaign in the Americas is progressing at a slower pace than was expected. Achieving eradication throughout the Hemisphere will require the concerted efforts of all interested countries, both to protect their own inhabitants and to safeguard other countries that have already taken the necessary steps to eradicate the disease. It is known that in many countries the delay has been due to financial and administrative difficulties,

among which are lags in the acquisition of supplies and equipment, shortage of well-disciplined and adequately remunerated workers, lack of adequate transportation facilities, and deficient systems for payment of salary and travel expenses of field workers.

Upon examination of the status of smallpox eradication in the Americas, the XI Meeting of the Directing Council, in September, expressed its satisfaction that in some countries of the Americas smallpox has already disappeared, and that other countries of the continent are conducting nation-wide and intensive campaigns against this disease. It was recommended that the governments give special attention to the continuation of programs directed toward the maintenance of high levels of immunity, that they

undertake nation-wide smallpox vaccination programs where these have not yet been initiated, and that they study ways and means of producing and storing vaccines and furnish the PASB the information needed to keep up-to-date a record of the supplies of vaccine available for use in the control of any new outbreak or in any emergency situation.

Expenditures required for completion of the hemisphere-wide campaign to eradicate smallpox are relatively small when compared with the enormous costs of campaigns to eradicate other major diseases. It is hoped that govern-

ments will soon be in a position to ensure the necessary provision in their national budgets for the prosecution of smallpox eradication activities.

For more than 150 years there has been an effective vaccine available, which, when properly and systematically applied, will ensure complete protection of the population. With the sustained interest of national and local authorities, there is no doubt that the eradication of smallpox from the Americas can and should be achieved promptly.

Rabies

In all the countries of the Region, except Uruguay, rabies exists and at times flares up in serious epidemics in animals. Even in Uruguay, where the last indigenous cases were reported in man in 1947 and in animals in 1949, there is a problem or "imported rabies" through dogs crossing the border from neighboring countries. In 1958 "imported cases" existed to the extent that 40 persons were submitted to the Pasteur Treatment because of bites from rabid or suspected animals.

In preparation for the Fourth Meeting of the Expert Committee on Rabies, WHO distributed a questionnaire in 1959 on data concerning rabies to 107 countries and territories throughout the world. This action was taken in accordance with the recommendations of the third report of the Expert Committee. Interest of the authorities varied among the countries and was revealed by the extent to which the questionnaires were completed and returned. Table XXX shows the information that was supplied on rabies in man during 1958 from countries in the Americas.

Additional reports of rabies in man during the year were received as follows: Brazil (Federal District and State Capitals, except Niteroi), 48 deaths; Colombia, 23 deaths; Peru, 10 deaths; and Venezuela, 31 deaths.

During 1959 the Bureau undertook to gather information from Member Countries on the incidence of certain zoonoses in animals. Data reported on rabies in animals in 1958 are summarized in Table XXXI, and compared with the information on human cases in Table XXX, reveal that much of the former must be incomplete.

Rabies has been reported in tropical, temperate, and arctic regions, and is a problem of greater importance in the more populated areas where the dog is the greatest source of human infection. However, in 1959, as in recent years, the role of wild animals has increased in the rabies problem, involving particularly the fox, skunk, and bat. Wild animals accounted for most of the animal rabies in

TABLE XXX. RABIES IN MAN, 1958

Country	Number of treatments in man	Number of deaths	
		untreated	treated
Argentina (Province of Buenos Aires)	6,834	2	—
Brazil (State of São Paulo)	54	—	—
Brazil (State of Minas Gerais)	895	—	—
Canada	2,250	—	—
Dominican Republic	48	—	—
Ecuador	2,938	10	3
Guatemala	357	3	...
Honduras	600	—	—
Mexico	39,160	43	...
United States	...	3	3
Uruguay	40	—	—

... Data not available. — None reported. ^a Totals for the State of North Carolina are 188 in 1958 and 235 in 1959.

Canada, Mexico, Panama, and over half of the animal rabies in U.S.A. Of only indirect public health significance are the many rabies deaths in cattle, inflicted mostly by wild animals. Besides the financial losses involved and the reduction in protein foods these deaths represent, the rabid cattle are an indication that rabies is enzootic in the area.

Wildlife rabies constitutes a dangerous situation mainly because prevention, other than by destruction of the wildlife, cannot be practiced. Destruction and control of wild animals to reduce the possibility of the spread of rabies involves special techniques which vary with the type of animal and topography. Advice and assistance in wildlife control and the vaccination of livestock were

TABLE XXXI. RABIES IN ANIMALS, 1958

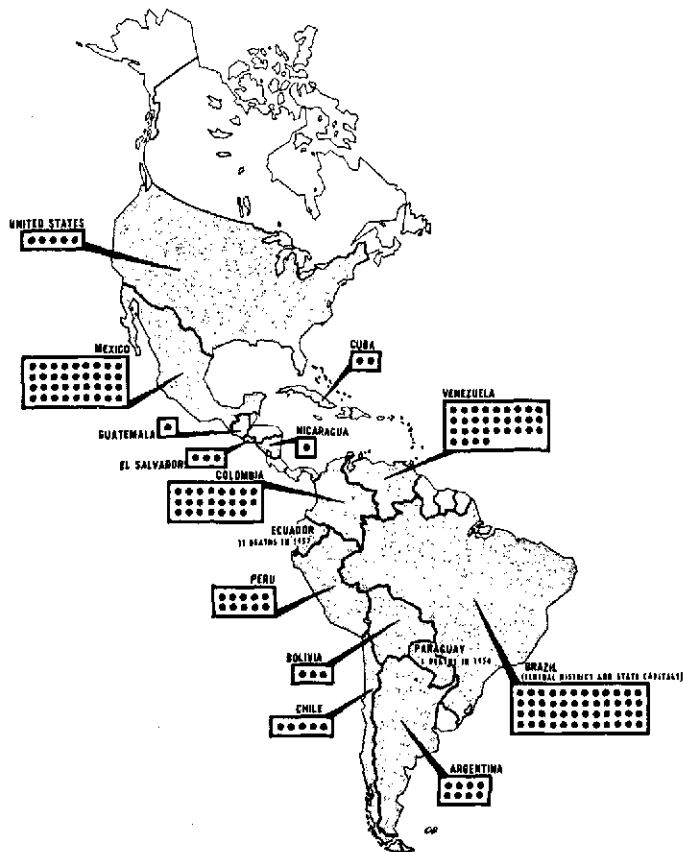
Area	Number of cases
Argentina	987
Brazil	334
Canada	582
Chile	304
Costa Rica	13
Dominican Republic	4
El Salvador	48
Guatemala	64
Haiti	7
Honduras	44
Nicaragua	57
Paraguay	29
Peru	297
United States	4,815
Venezuela	64
British Guiana	29
French Guiana	25
Trinidad and Tobago	11

provided to Brazil, the Central American countries, Colombia, Mexico, Panama, and Paraguay through the Zone Offices and the Pan American Zoonoses Center. Collaboration in work in northern Mexico was obtained from the U.S. Fish and Wildlife Service by the Field Office, El Paso.

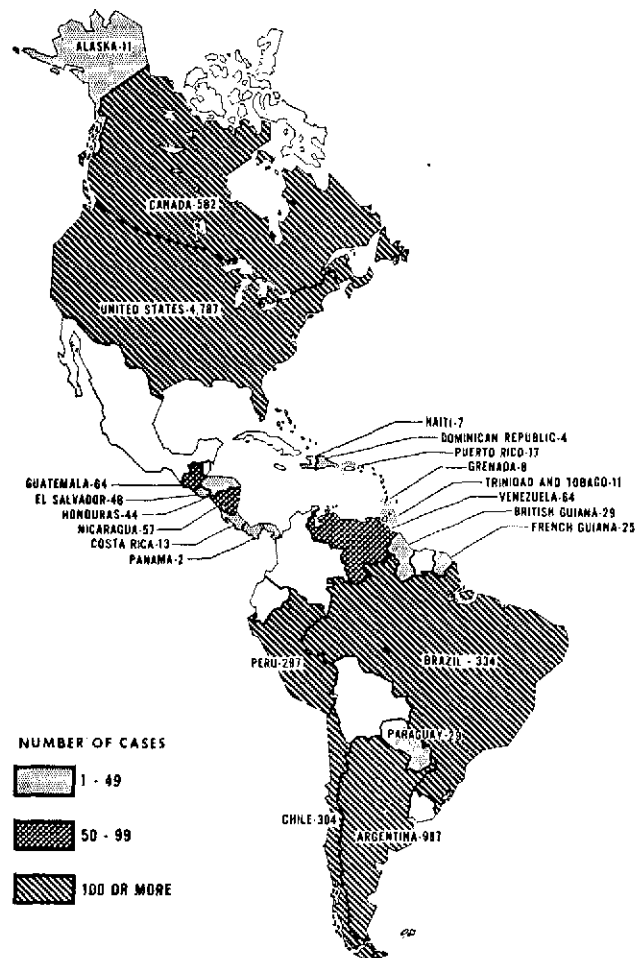
By far the most important source of human infection is the dog, especially in cities where ownerless or uncontrolled dogs are permitted to exist in large numbers.

Stray-dog control and immunization of dogs against rabies constitute the major practical means of preventing human rabies. Throughout 1959 the Bureau provided technical assistance, including in some cases fellowships and small amounts of supplies and equipment, to most of the countries for improvement of their anti-rabies programs, through either regular staff or through projects (Argentina-11, Brazil-42, AMRO-61, and AMRO-81). In addition, the Bureau provided special emergency help when epidemics of rabies occurred, such as the one late in the year in the area of Baja California, along the U.S.-Mexico border. In such cases the Bureau provides the services of a staff

REPORTED CASES OF RABIES IN MAN IN THE AMERICAS, 1958



REPORTED CASES OF RABIES IN ANIMALS IN THE AMERICAS, 1958



member specialized in rabies control and sufficient supplies to support an immediate stray-dog removal and dog immunization campaign, until national supplies arrive on the scene.

One of the most prevalent problems concerning rabies is that of producing vaccines which are reliable and sufficient in quantity. Production strains of virus, challenge strains, and standard vaccines and sera have been sent in response to requests from countries (AMRO-61 and AMRO-45). On the other hand, samples of vaccines produced in countries have been received and sent to reference laboratories for testing (AMRO-61, AMRO-76, and AMRO-81). In addition, the Bureau provided purchasing service, often on an emergency basis, to a number of countries for various rabies biologicals and strychnine tablets. The following table demonstrates this activity.

The majority of vaccine for human use is Semple type (i.e., killed virus, brain tissue source). There is no production of Duck Embryo Vaccine (i.e., killed virus) other than in the United States. The latter vaccine has the advantage of producing less post-vaccinal reactions, sometimes experienced with a brain tissue vaccine. In animal vaccination both Semple type and Flury type (i.e., live, attenuated virus, chicken embryo source) are used, with an increasing amount of the latter. In the Flury type, a low egg passage (LEP) is available for use in dogs, and a high egg passage (HEP) for use in puppies, cats, and cattle. For some years research has been conducted in an effort to develop a single Flury type vaccine which is efficacious and safe when used in all animals. During the

TABLE XXXII. RABIES MATERIALS PURCHASED FOR COUNTRIES, 1959

Materials	Country	No. of Shipments	Quantity Purchased
Human Rabies Vaccine— Semple Method	Nicaragua	2	6,300 doses
Anti-rabies Hyperimmune Serum— 1,000 units per vial	El Salvador	1	53 vials
“ “ “ “	Guatemala	1	300 “
“ “ “ “	Nicaragua	2	40 “
“ “ “ “	Paraguay	1	34 “
Canine Avianized Rabies Vaccine — Low Egg Passage	El Salvador	1	30,000 doses
“ “ “ “	Guatemala	1	26,000 “
“ “ “ “	Mexico	2	6,000 “
“ “ “ “	Nicaragua	1	500 “
“ “ “ “	Paraguay	1	5,500 “
“ “ “ “	Panama	1	5,000 “
“ “ “ “	Venezuela	1	6,000 “
Strychnine Predator Tablets	El Salvador	1	40,000 tablets
“ “ “ “	Mexico	7	556,000 “
“ “ “ “	Panama	1	7,500 “
“ “ “ “	British Honduras	1	3,000 “

year one company in Canada produced and began to sell a single vaccine for use in all animals. Samples of this vaccine were obtained and sent to the Pan American Zoonoses Center (AMRO-81) where they are being tested.

Poliomyelitis

Vaccination with an adequate and practical vaccine is still the only effective means of controlling poliomyelitis. The limitations of the killed or Salk vaccine indicate the need for a better type of immunizing agent against this disease.

It is an accepted observation in immunology that the most effective protection against a virus disease is attained through acquiring the disease and recovering from it. An ideal vaccination, therefore, would be one capable of reproducing the long-lasting immunity conferred by the natural infection, and induced by an agent which cannot produce clinical disease with its potentially undesirable aftereffects. An excellent example of such a vaccine currently available for immunization of man is that for yellow fever.

During the past 10 years considerable experience has

been accumulated with the use of live attenuated strains of poliovirus as a vaccine against poliomyelitis. By growing the virus under special conditions, attenuated strains have been produced which appear to have a high degree of immunizing effectiveness and to be safe.

The Pan American Health Organization has pioneered in encouraging and collaborating in the field studies of this type of vaccine, including the first large scale community-wide program with all three types of poliovirus in May 1958 in Andes, Colombia. Since then over 450,000 children have received the attenuated viruses in Colombia, Costa Rica, Nicaragua, in programs sponsored and assisted by PASB. Evidence indicates that the vaccine is entirely safe and while it is still too early to be sure it appears to be effective.

Live Poliovirus Vaccine Studies

Last year's Report described in detail the programs in Colombia and Nicaragua.

Costa Rica. In 1954 Costa Rica suffered one of the most severe epidemics of type 1 poliomyelitis in medical history. In a population of approximately one million inhabitants there were 1,081 cases of paralytic poliomyelitis. Since that time, the endemic level of the disease has risen steadily with a smaller epidemic occurring again in 1956. A vaccination program with Salk vaccine was carried out in 1956-1958, but was gradually discontinued when it became evident that the economic resources of the country could not support an adequate campaign with this vaccine.

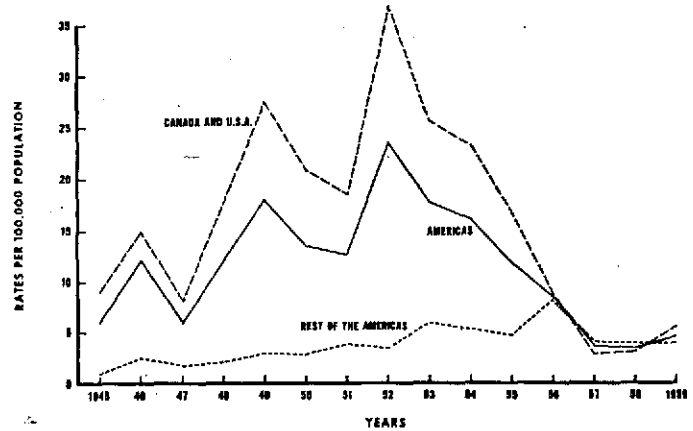
On March 16, 1959, with the collaboration of PASB, a nation-wide vaccination program with the live poliovirus vaccine was started (Costa Rica-19). Type 2 virus was given first, followed by types 1 and 3, at intervals of approximately one month. The monovalent vaccine was used, house-to-house, in the urban areas, but this became difficult in the rural parts of the country with sparsely settled populations. A trivalent vaccine was therefore introduced, given in two doses, eight weeks apart. By the end of the year, 120,327 children under 11 years of age had received the three types of virus in the monovalent vaccine program, and 89,138 had been vaccinated with the trivalent vaccine. This program is expected to cover approximately 350,000 children and should be completed by April 1960. Acceptance of the vaccine has been almost universal. No incident implicating the safety of the strains has been encountered.

With the collaboration of the Yale Poliomyelitis Study Unit a project was set up in the village of Heredia, near San José, with the objective of evaluating the problem of interference in live poliovirus immunization. The role of enteroviruses as potential interfering agents, and the part played by flies in the spread of these viruses, are receiving primary consideration in this study.

Nicaragua. In Nicaragua, following a sudden increase in the occurrence of cases of paralytic poliomyelitis early in July 1958, a mass house-to-house program was carried out for the rapid vaccination of all children between two months and 10 years of age in the capital city of Managua. Since the epidemic had been identified as due to type 2 poliovirus, vaccination was started with the type 2 strain, and followed by types 3 and 1 at three-week intervals. At the time the program was completed (May 15, 1959), approximately 50,000 children had received all three types of poliovirus vaccine in the Department of Managua.

After the oral vaccination program was started in Managua, three cases of paralytic poliomyelitis were reported within the area of operation, but none of them in vaccinated children or their contacts. During the

REPORTED CASES OF POLIOMYELITIS PER 100,000 POPULATION IN THE AMERICAS, CANADA AND THE UNITED STATES, AND THE REST OF THE AMERICAS, 1945-1959



succeeding eight months there were no further cases of poliomyelitis reported in Managua, a fact not previously observed in the preceding eight-and-one half years. Between June 15 and December 1, 1959, two cases of clinically diagnosed poliomyelitis were reported in the city in children who had received the vaccine (eight and 11 months previously). These cases probably represent vaccine failures.

First International Conference on Live Poliovirus Vaccines

Under PAHO and WHO sponsorship, and with the financial assistance of the Sister Elizabeth Kenny Foundation, an International Conference was held in Washington, June 22-26, 1959 for the purpose of enabling active workers in the field of live poliovirus vaccination to pool their experiences and provide means for dissemination of the information gathered. The Conference was attended by 61 scientists from 17 countries, and reports covering over five million vaccinations were discussed and evaluated. In the official summary of the Conference it was said that "no evidence has been produced that the use of any of the vaccines has been followed by either paralysis or ill-defined illnesses in either group greater in number than has been observed in a control group or in the community at large among non-vaccinated persons." Regarding effectiveness, "the studies have uniformly shown significant increases of antibody for all three types of virus and therefore presumed protective value." However, because of "the known low attack rate of paralytic poliomyelitis, the extreme variability in the occurrence of the disease, and the shortness of time that has elapsed since the vaccines have been fed," it was not possible, "to shed light on the value of the vaccines in preventing paralysis."

TABLE XXXIII. REPORTED CASES OF POLIOMYELITIS AND RATES PER 100,000 POPULATION IN THE AMERICAS, 1955-1959

Area	1955		1956		1957		1958		1959 ^a	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Argentina ^b	435	2.3	6,496	33.3	760	3.8	842	4.2	998	4.8
Bolivia	^{1b} 0.0	0.0	^{18b} 0.5	0.5	14	0.4	^{3b} 0.1	0.1	^{5b} 0.2	0.2
Brazil ^c	368	4.1	698	7.4	722	7.6	1,032	10.5	432 ^d	...
Canada ^e	1,021	6.5	607	3.8	273	1.6	323	1.9	1,778 ^b	10.2
Chile	416	6.2	719	10.4	333	4.7	328	4.5	495	6.6
Colombia ^f	155	1.4	108	0.9	169	1.4	230	1.9	187	...
Costa Rica	45	4.7	170	17.2	51	4.9	63	5.9	22	2.0
Cuba	267	4.4	56	0.9	96	1.5	103	1.6	288	...
Dominican Republic ^b	—	—	18	0.7	4	0.1	5	0.2	...	...
Ecuador	40	1.1	30	0.8	42	1.1	37	0.9	42	1.0
El Salvador ^{b, f}	9	0.9	54	4.9	68	5.9	43	3.4	59	...
Guatemala	86	2.6	146	4.4	107	3.1	85	2.4	155	...
Haiti	—	—	15	0.4	45	1.3	238	7.0	122	3.5
Honduras	...	...	17	1.0	20	1.1	87	4.8	13	0.7
Mexico ^b	1,824	6.1	594	1.9	1,562	5.0	904	2.8	1,835	5.5
Nicaragua ^b	113	9.1	48	3.7	68	5.1	255	18.5	16	...
Panama	9	1.0	144	15.3	8	0.8	11	1.1	23	2.2
Paraguay ^f	^{37b}	5.2	115	12.3	35	3.4	18	1.6	24	...
Peru ^f	203	4.9	294	6.7	291	6.1	491	10.1	426	...
United States	28,985	17.6	15,140	9.1	5,485	3.2	5,787	3.3	8,577 ^g	4.9
Uruguay	551	21.1	^{71b}	2.7	^{49b}	1.8	^{162b}	6.0	^{54b}	...
Venezuela ^f	390	11.7	340	9.8	468	13.0	359	9.6	399	...
Alaska	57	27.3	11	5.3	4	1.9	2	1.0	^g	^g
Bahama Islands	—	—	—	—	^{2b}	1.6	1	0.8	7	...
Bermuda	—	—	—	—	^{1b}	2.4	—	—	—	—
British Guiana	2	0.4	4	0.8	100	19.4	—	—	2	...
British Honduras	1	1.3	—	—	—	—	6	7.1	9	...
Canal Zone	4	10.3	16	43.2	—	—	1	2.8	1	...
French Guiana	—	—	9	30.0	—	—	—	—	—	—
Guadeloupe	13	5.5	4	1.6	—	—	1	0.4	1	...
Hawaii	185	33.0	62	10.6	10	1.6	78	12.3	5	0.8
Martinique	2	0.8	—	—	—	—	—	—	—	—
Netherlands Antilles	15	8.2	21	11.4	—	—	3	1.6	—	—
Puerto Rico	434	19.2	54	2.4	44	1.9	48	2.1	9	0.4
Trinidad and Tobago	16	2.2	9	1.2	300	39.2	27	3.4	14	1.7
Virgin Islands (USA)	1	4.2	—	—	—	—	—	—	...	...
West Indies:										
Barbados	—	—	—	—	1	0.4	—	—	6	...
Dominica	—	—	7	11.3	9	13.8	—	—	—	—
Grenada	...	...	...	...	31	34.4	—	—	—	—
Jamaica	71	4.6	14	0.9	395	24.8	92	5.6	17	...
St. Kitts-Nevis-Anguilla	—	—	1	1.8	—	—	—	—	1	...
St. Lucia	1	1.1	8	9.0	4	4.4	—	—	—	—

— No case. ... Data not available. ^a Provisional. ^b Paralytic poliomyelitis. ^c Federal District and State capitals, except Niteroi 1955, 1957, and 1958. ^d Six months. ^e Excluding Northwest Territories 1955-1958. ^f Reporting area. ^g Data for the United States include Alaska.

The proceedings of this Conference have been published (PASB Scientific Publication No. 44), and a second conference has been scheduled for June 6-10, 1960 in Wash-

ington, D. C. to re-evaluate the remaining problems of a biological and epidemiological nature still connected with this vaccine.

Tissue Culture Laboratory

This laboratory was established by PASB in cooperation with the Department of Preventive Medicine, University del Valle, Cali, Colombia with the following objectives: a) provide laboratory support for the studies connected with live poliovirus vaccination programs; and b) train local and international personnel in cell and tissue culture techniques as applied to virology under conditions comparable to those prevailing in the laboratories of their respective countries.

The laboratory started operations in February and during the year collaborated in the surveillance phase of the programs in Colombia and Costa Rica, in the latter sharing the responsibility with the Middle America Research Unit of the United States Public Health Service, in Panama.

A four-week international course on cell and tissue culture techniques, as applied to virology, was given by the laboratory to 10 students from eight countries (Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Uruguay, and Venezuela), beginning on November 16. The course emphasized the use of simple equipment, which in many instances is already available in most laboratories, and

the utilization of non-expensive growth media for the maintenance of established cell strains in continuous culture.

The course, in an expanded version to include other aspects of virology, will again be offered in 1960.

Rehabilitation Activities

With the assistance of the Sister Elizabeth Kenny Foundation, the Organization made available to the Dominican Republic, in August, the services of a rehabilitation expert and two physical therapy consultants. These personnel cooperated with the health authorities in evaluating the extent of the poliomyelitis outbreak which occurred in that country earlier in the year, assisted in the organization of a unit for the care of acute cases, and helped procure facilities and personnel for their post-acute physical rehabilitation.

A basic training program was established to instruct a small group of selected nurses and physicians in physical therapy and nursing of poliomyelitis patients with the hope that such a program would provide a nucleus of personnel capable of continuing the treatment of these patients and others with similar needs.

Leprosy

Effective promotion and coordination of the attack on leprosy involves detailed studies of the magnitude and extent of the problem in the Americas.

Epidemiological surveys have therefore been carried out progressively in the several countries and territories of the Region, aimed mainly at obtaining a better knowledge of the problem as well as of the human and material resources available in the countries. As the Organization has pursued these studies, help has also been given to organize national leprosy control programs.

In 1955 a consultant completed surveys in Surinam and Trinidad, and in 1956 in British Guiana, French Guiana, Grenada, Guadeloupe, Martinique, and St. Lucia. In 1957 surveys were extended to Bolivia, Colombia, Ecuador, Paraguay, and Peru, and in 1958 to Argentina, Costa Rica, Jamaica, and Uruguay. During 1959 the consultant carried out surveys in El Salvador, Honduras, Mexico, Nicaragua, Panama, and British Honduras. It is hoped to complete these surveys in 1960.

Central America and Panama

Judging by data available the prevalence of leprosy in Central America and Panama is remarkably low. Table XXXIV shows the known data for 1958 and 1959, by country or area.

Based on the data, these countries are included among the areas of very low endemicity, and thus, it is unnecessary to take an over-all census to detect new cases of leprosy, allowing concentration instead on all activities related to surveillance of contacts.

Among the known cases in the area an accentuated predominance of contagious forms is recorded regularly—demonstrating that the endemic disease has a high potential for spread. The situation in Honduras is different. Here the percentage of clinical forms is just the reverse, as the non-contagious, tuberculoid type of cases predominates. Nevertheless, the cause or epidemiological factors justifying this contrast are unknown, and are particularly difficult

TABLE XXXIV. PREVALENCE OF LEPROSY IN
CENTRAL AMERICA AND PANAMA, 1958 AND 1959,
BY COUNTRY OR AREA

Country or Area	Population	Total number of cases	Number of cases per 100,000 inhabitants
Total	11,122,630	1,015	9.0
Costa Rica	1,033,128	493	37.0
El Salvador	2,434,430	153	6.8
Guatemala	3,497,888	85	2.4
Honduras	1,769,906	47	2.0
Nicaragua	1,334,332	115	8.0
Panama	974,950	121	12.0
British Honduras	78,004	1	1.8

to understand in the light of the fact that all the cases that originate in Honduras and reside outside the country (El Salvador and British Honduras) present clinical forms classified within the lepromatous type.

Table XXXV shows the distribution of known cases by clinical form.

TABLE XXXV. DISTRIBUTION OF KNOWN CASES OF
LEPROSY IN CENTRAL AMERICA AND PANAMA,
BY CLINICAL FORM (CASES RECORDED UP TO 1959)

Country	Clinical Forms				
	Lepromatous	Tuberculoid	Indeterminate	Borderline	No indication
Costa Rica	56%	20%	18%	0.2%	4%
El Salvador	54%	18%	28%	—	—
Guatemala	81%	7%	10%	2%	—
Honduras	28%	53%	19%	—	—
Nicaragua	90%	8%	2%	—	—
Panama					

— None.

It is difficult to understand why in an area such as Central America and Panama, with such a high potential for spread and when adequate control measures are not used, prevalence rates are not higher than those registered. It seems likely that the explanation lies in detection and case-finding techniques.

Costa Rica's example in this respect is quite convincing. There is a good anti-leprosy prevention organization that conducts extensive activities to detect new cases by means of rigid surveillance of contacts, and apparently as a result, the prevalence of leprosy in this country is markedly higher than that of the other countries in the area.

From available knowledge, no epidemiological, social, public health, or economic factors provide more favorable conditions for dissemination of the disease in Costa Rica than in any other country. With an essentially identical potential for spread, and with other constant epidemiological factors, dissemination of leprosy elsewhere should be about the same as that recorded in Costa Rica.

The scant data available show that leprosy predominates in the older age groups, with higher prevalence of the lepromatous forms, indicating that case detection occurs too late.

Distribution of foci in Central American countries constitutes one of the curious aspects of the endemic disease. The first fact to note is that the disease is localized in some areas where a large percentage of patients are concentrated. Secondly, there are other places with a small number of foci—two or three cases—scattered about in localities of the same departments or provinces. Thus, the extent of the leprosy area is reduced, making the execution of a control program considerably easier.

Mention must also be made of the geographic distribution of endemic leprosy in the area. The general impression is that endemic leprosy follows a definite pattern, although the consultant was unable to define the factors responsible for the pattern. The situation is as follows: a) in Costa Rica and Panama the areas of most intensive leprosy are located along the Atlantic Ocean; b) in El Salvador, Guatemala, Honduras, and Nicaragua, the areas are, on the contrary, along the Pacific coast; c) there are certain adjoining leprosy areas as follows:

- Zacapa (Guatemala) — Chalatenango (El Salvador)
- La Unión (El Salvador) — Choluteca (Honduras)
- Vale (Honduras) — Chinandega (Nicaragua)
- Limón (Costa Rica) — Bocas del Toro (Panama)

The bordering localization of these foci makes the nature of the Honduras focus even less understandable, as the tuberculoid form predominating there is "boxed in" between the predominantly lepromatous forms.

In summary, the studies made by the Organization reveal that, even though the leprosy problem in Central America and Panama is not of the same magnitude as that of some

other countries, there are active foci of disease which could be readily controlled whenever the techniques used are modernized and the activities of the public health services are expanded. The limitation of the problem itself shows the need for implementing an adequate program aimed at establishing effective control of existing foci and preventing their spread to other areas. With this objective the Organization will provide specialized services in 1960 to all countries in that Zone.

Mexico

Despite existing differences, such as those mentioned by the national leprologists themselves, endemic leprosy in Mexico is perhaps the one that is best known throughout the American continent. Considered as a whole, the endemic area in Mexico, with a prevalence rate of 42 per 100,000 inhabitants, can be classified as in the median range. No State in the Republic is exempt, but two principal areas can be readily differentiated: a) an area of high endemicity (prevalence rates of from 50 to 300 per 100,000), forming a continuous belt along the Pacific coast (Sinaloa, Nayarit, Jalisco, Colima, and Michoacán), penetrating into some central States (Aguascalientes, Guanajuato, and Querétaro) toward the Atlantic. With an estimated population of 7,187,300 inhabitants distributed over an area of 280,323 square kilometers, there are 10,424 cases of leprosy (representing 76 per cent of the total number of known cases), a fact giving evidence to the importance of the public health problem in that region; b) an area of

low endemicity, which includes zones where the prevalence rates do not reach 50 per 100,000. In some zones the prevalence rate is from 10 to 50 per 100,000, usually adjacent to areas of high endemicity, such as Sonora to the north, Durango and Zacatecas from the center northward, Mexico City, including the Federal District; Morelos from the center toward the Atlantic, and Guerrero on the Pacific. Veracruz and Yucatán are isolated on the Gulf of Mexico. In the remaining area of the country the prevalence rates are low under—10 per 100,000.

Other Countries

The Organization continued its collaboration with the leprosy control programs carried out by the Governments of Colombia (Colombia-19) and Paraguay (Paraguay-9).

The phase of mass examination of population groups in Paraguay was discontinued, and efforts were concentrated instead on assigning personnel, vehicles, and materials to the health centers in areas already surveyed. According to available data, 2,235 patients (71.6 per cent of the total) are under regular treatment and epidemiological control. The number of patients registered in June was 3,164; this represents a prevalence rate of 130 per 100,000.

Arrangements went forward in Argentina toward carrying out a nation-wide control program. The Organization cooperated in the preparation of the plan while UNICEF is expected to contribute the materials. The Minister of Health presented a proposed law to the Congress which modifies the former legislation on leprosy.

Tuberculosis

In the preparation of tuberculosis control programs, as for any other communicable disease, it has been necessary to consider certain general principles, such as: a) not only caring for patients, but also protecting healthy persons; b) adopting control measures that are directed primarily toward preventing transmission of the infectious agent, together with other measures that tend to decrease the risk of exposed persons becoming ill; c) applying control measures on a wide scale and based on a firm knowledge of where the infectious agent exists in the community (man, animals, and environment), how it is transmitted to healthy persons, and the conditions under which the infection is converted into the disease; and d) using simple and effective methods and techniques that are applicable on

a broad scale at a cost and with personnel that may be financed by the community, and which cause the least possible inconvenience to the normal life of the inhabitants.

With the advent of the new anti-tuberculosis drugs of recognized efficacy, the development of simple chest X-ray methods, and the continuous advances in the methods of preparing vaccine against tuberculosis, it has been possible to formulate public health programs against the disease.

In accordance with the ideas set forth above, activities in the field of tuberculosis have been and continue to be directed toward the following: 1) surveys on prevalence, in a representative population sample, to determine the magnitude and extent of the problem, as well as to evaluate thereafter the effectiveness of the control program.

Such a prevalence survey which was supposed to begin in Argentina in 1959 had to be postponed to 1960. A specialized team will be responsible for conducting the survey.

An agreement concluded between the Government of Peru, UNICEF, and PAHO provides for conducting a tuberculosis prevalence survey throughout that country's territory.

The Government of Mexico has requested PAHO's assistance also in carrying out a tuberculosis prevalence survey throughout the Mexican territory; 2) regional and national projects for the prevention of tuberculosis, based on modern techniques and procedures for the control of the disease.

In the Dominican Republic, between November 1958, based on the agreement for the BCG vaccination program, made by the government, UNICEF, and PAHO/WHO, work began, and until November 1959, 538,287 tuberculin tests were given, and 322,257 BCG vaccinations were performed.

Upon the satisfactory completion of a national BCG vaccination campaign in 1958, the Government of Guatemala decided to cover the tuberculosis problem in the country on a more thorough basis—through a national control program whose basic purposes are: a) to detect and treat the greatest possible number of patients in the country; b) to treat their contacts so long as contagiousness of their family foci lasts; and c) to approach, as far as possible and within the shortest period of time, the final goal of eradicating the disease. With the advice of a consultant of the Organization, the Ministry of Health drew up a national six-year plan which was implemented on September 1, 1958, in the Department of Escuintla. This Department, which borders on that of Guatemala, is where the first stage of the national plan will be applied. If the results of this first stage show that the program is feasible and effective, it will be extended progressively to other areas until it covers the entire national territory.

The method consists in: a) mass miniature X-ray examinations of the inhabitants over 15 years of age, and supplementary examinations (radiological-bacteriological) of those presenting abnormal lung images; b) miniature or regular X-ray examinations (depending upon the ages) of the contacts of the confirmed tuberculosis patients or those having abnormal lung images; c) intensive treatment with isoniazid of the patients for a period of two years, or for at least three months after bacteriological examinations show negative, and of the healthy contacts for a period of six months, or until the bacteriological results are negative.

From September 1, 1958 to August 31, 1959, 80,252 photofluorographs were made and interpreted; 3,472 (4.3 per cent) abnormal images were found. Of this number, 3,230 (93 per cent) completed their examinations and 2,422 (69.7 per cent) were confirmed as tuberculosis patients. Of the confirmed cases, 50 per cent presented minimal forms, 30 per cent moderately advanced forms, and 24 per cent advanced forms.

Of a total of 2,553 persons treated exclusively on the basis of isoniazid (as, initially, they were presumed to have the disease), 542 were eliminated for various reasons. Of the remaining 2,011, 1,695 (84.2 per cent) followed the treatment regularly; 42 (2.2 per cent) followed it irregularly; 74 (3.6 per cent) did not follow the treatment; and of 199 (9.8 per cent) it was not possible to obtain information.

The Organization will increase its contribution to this program, furnishing the services of personnel specialized in various aspects of tuberculosis.

Better methods for evaluating the consumption of the drug still have to be determined; 3) training of national personnel in the new techniques and procedures for carrying out prevalence surveys and for organizing and conducting tuberculosis control programs. In this connection, fellowships were awarded to five medical officers (two from Brazil, one from Chile, one from Honduras, and one from Peru) for study abroad.

Treponematoses

The Organization continued to collaborate in 1959 with health administrations that are conducting campaigns against the treponematoses. This consisted of provision of technical advice on planning, initiating, and developing pertinent services and in designating consultants.

As of November 1959, infectious cases of yaws in Haiti had been reduced to zero in the Northeastern, Northern, Artibonite, and Western Departments; at the same time intensive activities were under way in the Southern De-

partment in locating and treating an estimated 300 cases of yaws which were expected to be the last, and which should be eliminated in early 1960. Surveillance activities are organized throughout the country and cases reported are given careful attention as to their examination and epidemiological survey. Only in exceptional instances had infectious forms of the disease been confirmed in the cases reported by the end of the year. They, as well as their contacts, received treatment. In the remaining

cases, diseases other than yaws have been diagnosed.

A random sampling survey of the population was carried out in 1958 in areas already covered by the yaws eradication campaign. This was done in order to ascertain the number of remaining infectious yaws forms and to serve as a guide for the future development of the campaign. In the survey 82,905 persons, or 2.3 per cent of the population of the country, estimated at 3,600,000 inhabitants, were examined. The survey results led to a new investigation of cases in the different areas until all cases were cleared up. Another nation-wide survey, scheduled for mid-1960, will be made before the disease is declared eradicated.

The venereal disease project in the Dominican Republic continued its normal development. The phase of case finding and initial treatment was extended to seven provinces in 1958 (Barahona, Bahoruco, Independencia, Pedernales, El Seibo, Altigracia, and San Pedro de Macoris) and to nine in 1959 (Benefactor, La Vega, Puerto Plata, San Rafael, Santiago, Santiago Rodríguez, Montecristi, Valverde, and Libertador). During 1958, 433,682 persons were examined and treated, with 898 cases of infectious forms detected. In 1959 the number of persons examined and treated rose to 818,412, and the number of infectious forms detected amounted to 181. Supervisory activities were started in 1958 in the Provinces of Samaná, Julia Molina, Duarte, Sánchez Ramírez, and Trujillo. In 1959 the supervision phase was completed in the above Provinces, as well as in those of Espaillat, Salcedo, Trujillo Valdez, and Azua. The case-finding phase is expected to be completed throughout the country in 1960, and a random sampling survey of the population is planned to determine the number of remaining infectious forms of the disease.

A field course for "practicantes" (trainees—persons trained in certain general and specific practices of care and cure of patients) was conducted during the year on the relevant clinical, therapeutic, and epidemiological aspects of the yaws eradication campaign. Fifteen trainees attended the instruction, which included theoretical and practical demonstration classes and field work.

In order to achieve uniformity in the eradication activities, detailed, written instructions were prepared on the role and functions of the various employees (supervisors, squad chiefs, and "practicantes") engaged in the work.

The program for the control of venereal diseases in the Dominican Republic likewise made important progress. Objectives for the year were as follows: a) training of personnel at various technical levels; b) reorganization of anti-venereal disease centers; and c) coordination and integration of anti-venereal disease activities in the regular work of the public health services. With respect to a), three courses were given for 55 members of the medical profession, and a course in venereology was held for 15 contact investigators. Since 1957 training has been provided to 325 physicians and laboratory technicians and to 70 contact investigators and field trainees. Thus, 395

persons have received training during the last three years of activity.

In the reorganization of anti-venereal disease centers, the aim continues to be directed toward making this type of service uniform in the various health agencies and hospitals. In 1959 preferential attention was given to all the agencies located in Ciudad Trujillo. An important aspect was improving and making the serological diagnosis of syphilis uniform. The government contributed new laboratory equipment to various establishments in an effort to support the changes that have been introduced.

Meetings were held in the Ministry of Health and Welfare through the year in order to discuss coordination and integration of venereal disease control activities in the regular work of the public health services. The sessions were attended by physicians responsible for anti-venereal disease clinics. The plan of coordination set forth the following principal objectives: a) ascertain true venereal disease morbidity in accordance with standard diagnostic nomenclature; b) intensify epidemiological activities through case-reporting and search for uncontrolled sources of infection; c) adopt a uniform therapeutic plan; and d) adopt a uniform system of serological investigation.

The plan, as it was drawn up, implies provision of maximum services to the population, depending on available facilities; prevention of duplication of functions; expansion of activities of existing preventive and care-service centers through more effective coordination; and development of a much more complete venereal disease control program.

In May the Government of the Dominican Republic made free care, related to venereal diseases, available to the national and foreign merchant seamen engaged in coastal trade or those who arrive at that country's ports.

The Organization continued to provide consultant services in the epidemiological and laboratory aspects, to collaborate in yaws eradication and venereal disease control programs in the Caribbean area.

In the areas where the campaign has been completed (Saint Kitts-Nevis-Anguilla, Grenada, Saint Vincent, Saint Lucia, Dominica, and Tobago) surveillance activities are being carried out with a certain amount of variation in intensity and diligence.

Total coverage of the endemic area in Trinidad was completed in June, reaching 76 per cent of population; 49 infectious yaws cases were detected. A second check of that same area was started in July without any new cases being reported.

In Jamaica, where considerable progress had been made in eradicating yaws, a notable recession has taken place. It appears that the teams responsible for checking and surveillance were abandoned prematurely. In 1959, 415 new cases of infectious yaws were reported. It is hoped that regular and methodical activities will soon be resumed so that the disease can be finally eradicated.

The health authorities of British Guiana, with the co-operation of the international consultant, are planning a survey to determine the prevalence of yaws.

The Government of Brazil began a yaws eradication campaign in September 1956. At that time, it was estimated there were approximately 600,000 infectious cases in areas where the disease is endemic. By August 1959, after three years of activity, it was estimated that the number had been reduced to 100,000. The campaign includes two phases: a) mass house-to-house treatment of the population in areas of endemic yaws (patients over 15 years of age receive a 1,200,000 unit dose of slow acting penicillin, and children under 15, as well as contacts, receive 600,000 units of the same substance); and b) periodic surveys to determine the case prevalence in areas already covered, and surveillance of the treated areas to detect cases that have entered the community, whether they are new cases or those who escaped initial treatment. For purposes of treatment, a yaws patient is considered to be any person having ulcerations of the skin.

By the end of the year the campaign reached 402 municipalities in 14 states and three territories. Persons receiving its benefits have totalled 9,600,000 in rural sections in a

3,550,000 square kilometer area. Prevalence of the disease in the groups examined varied from 3.8 per cent in Rio Grande do Norte to 27.1 per cent in Minas Gerais. The average figure for the entire country is 7.1 per cent.

In addition to the initial coverage, during which the average prevalence of 7.1 per cent was found, for the country as a whole, two checks were later made that revealed a prevalence rate of from 2.2 to 1.8 per cent. A further check was being conducted as the year ended. The first of these checks covered 2,443,786 persons, and the second, 2,100,251 persons. Evaluation operations are entrusted to specialized teams composed of one physician and five inspectors. The campaign will be extended in the near future to the States of Goiás and Mato Grosso. As of August, 1,900,000 houses had been visited; 7,185,227 persons examined; 515,637 patients, and 430,034 contacts treated.

Venezuela. Latest reports made available to the Organization indicate that since the inauguration of the yaws eradication campaign in Venezuela, 372,835 persons have been treated, or approximately 80 per cent of the exposed population.

Filarial Diseases

In the latter part of the year a staff member of WHO Headquarters with special experience in these diseases visited many of the countries of the Region, with the specific purpose of observing existing and potential laboratories and sites for collaboration in the WHO medical research program. Besides those areas where the diseases are well recognized, there are a number of countries where health officials reported meager or circumstantial evidence of one or more of the diseases and demonstrated an interest in determining their extent and magnitude.

Filariasis is known to exist in northeast Brazil, Colombia, the Guianas, some islands of the West Indies, and Venezuela. The greatest known problems are in British Guiana and Surinam, as illustrated by prevalence rates and the existence of specific anti-filariasis programs. In Surinam there were 22,031 filariasis patients registered as of October 26, while in British Guiana, of 839 persons who volunteered for blood examination at an annual fair, 12 per cent were found positive.

During the year an international consultant on filariasis visited British Guiana and Surinam to assist in appraisal of current problems and programs and to provide advice on these matters. The consultant made a number of recommendations regarding epidemiological and clinical studies needed, the training and use of personnel, and the improvement of control programs. These recommendations have been presented to the corresponding health authorities.

The establishment and maintenance of human filariasis is a multifaceted complex of host-parasite relationships, influenced by a number of factors, including the particular bionomics of each insect vector, the cultural mores of the inhabitants, the environmental characteristics, the human population density, and possible animal reservoirs. Compared to other diseases, knowledge of the epidemiology of filariasis and techniques for its control are relatively rudimentary. There is need in the Region for studies on the extent of filariasis and in practical control measures.

Onchocerciasis has been reported in Guatemala, Mexico,

and Venezuela. In some areas the population has been found to be 80–100 per cent infected. It may exist in other countries where the environment is suitable. Anti-onchocerciasis measures consist of treatment of patients or infected cases and control or eradication of the simulium vectors. The treatment with available drugs has a slow and unreliable effect on the adult worms, thus allowing further production of microfilariae and requiring long periods of treatment, often with unreliable results. Elimination or insecticide treatment of the breeding places of the blackflies, where practical, produces good results; in

some areas, however, many of the breeding places are inaccessible.

During 1959 a consultant with special experience in onchocerciasis collaborated with Venezuelan health authorities in planning and initiating an onchocerciasis survey, and made recommendations regarding education of staff and medical practitioners, as well as on the medical aspects and the simulium control campaign.

In addition, as part of the WHO study of the ophthalmological aspects of this disease, an ophthalmologist visited Venezuela and provided advice to national personnel on this aspect of the problem.

Plague

Cases of plague were reported in 1959 in Brazil, Ecuador, Peru, and the United States—all but one (laboratory acquired) being cases of the sylvatic type. No cases occurred in ports or important cities of the continent.

Table XXXVI shows the number and geographic distribution of cases reported in the Americas for the period 1955–59.

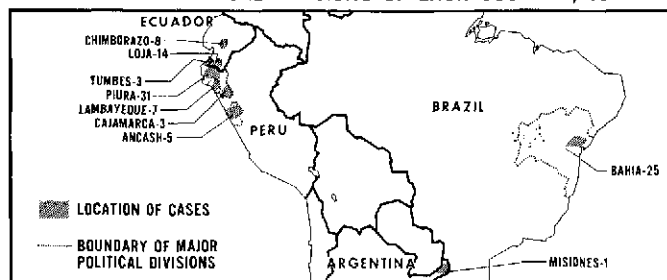
In 1959 the Organization continued its cooperation with several countries in campaigns for the control and research on the disease. It provided consultant services for epidemiological studies in the endemic areas of Bolivia, Brazil, Ecuador, Peru, and Venezuela.

TABLE XXXVI. REPORTED CASES OF PLAGUE IN THE AMERICAS, 1955 — 1959

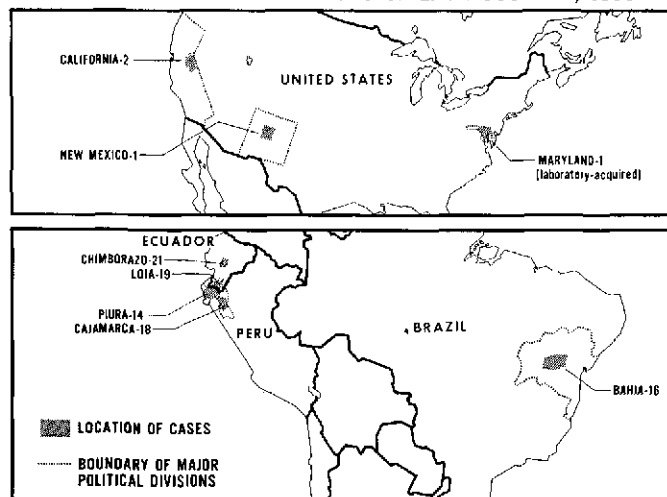
Country	1955	1956	1957	1958	1959
Total	87	115	154	97	92
Argentina	—	—	—	1	—
Bolivia	45	3	—	—	—
Brazil	27	4	37	25	16
Ecuador	7	80	79	22	40
Peru	8	24	37	49	32
United States	—	1	1	—	4
Venezuela	—	3	—	—	—

— No case.

REPORTED CASES OF PLAGUE IN THE AMERICAS, AND LOCATION, BY MAJOR POLITICAL DIVISIONS OF EACH COUNTRY, 1958



REPORTED CASES OF PLAGUE IN THE AMERICAS, AND LOCATION, BY MAJOR POLITICAL DIVISIONS OF EACH COUNTRY, 1959



Public Health Laboratories

Eradication or control of communicable diseases, as well as development of integrated health programs, have made the need increasingly evident for the services of efficient public health laboratories. The majority of the Member Countries are paying particular attention to this phase of health work, and on numerous occasions have requested Bureau cooperation in solving special technical and administrative problems so that the laboratories can operate on a better and more effective basis.

The form of PAHO/WHO collaboration has varied, depending on the circumstances in each country. In some cases such collaboration is limited to provision of biological reagents; in others, consultants have been provided on a short-term basis, having as their objective the analysis of certain special aspects and provision of advisory services to governments. More ambitious programs, tending toward a complete revision of services, have been implemented in a few cases, and, finally, and of no less importance, considerable attention has been given to training specialized professionals and laboratory technicians.

Specific laboratory projects have been in operation in six countries (Argentina-4, Brazil-8, Ecuador-11, Haiti-9, Mexico-20, Mexico-28, and Venezuela-18); and in two others consultation in laboratory services has been provided as a part of integrated health projects (Panama-1 and Paraguay-10). Laboratory services also form part of two inter-country projects (AMRO-47, Treponematoses; and AMRO-81, Zoonoses). Furthermore, attention must be given to the laboratory aspects of programs relating to specific diseases, e.g., tuberculosis, malaria, or smallpox.

During 1959 the biological reagents provided to the national laboratories can be classified in various groups: 1) microbial strains, antigens, and sera for diagnosing diseases such as salmonellosis and shigellosis, brucellosis, leptospirosis, influenza, and rickettsial infections; 2) various materials for vaccine production (anti-typhus, anti-pertussis, and anti-rabies), diphtheria and tetanus toxoids, sera (anti-diphtheria, anti-tetanus, and anti-gangrene), and helminth, fungi, bacteria, rickettsia, and various virus antigens; 3) standardized reagents for the control of biological products for prophylactic and therapeutic use; and 4) reagents for carrying out epidemiological studies and other investigations. Technical advice provided by the Bureau also includes detailed procedures for execution of certain specific activities, such as diagnostic tests and methods for controlling and producing biological products.

Another part of the permanent collaboration with the

public health laboratories is that concerning control of drugs, biological products, and foods. This is reported on in another chapter of the Report. Since it is deemed desirable that the facilities of specialized laboratories be made available to the Member Countries so that vaccines, sera, and other biological products may be examined, the Bureau has submitted to reference tests those biological products received from national laboratories for that purpose; these tests have been particularly useful in the programs of smallpox eradication (AMRO-60) and of rabies control (AMRO-61), and constitute an effective stimulus to the manufacture of high-quality biological products.

Laboratory animals are among the most important elements of a public health laboratory; the quantity and quality of those animals have a great bearing on performance and determine the degree of reliability that can be attributed to the laboratory work in many diagnostic tests and epidemiological investigations. Without a healthy and plentiful supply of animals it is not possible to keep good control over drugs and biological products. Neglect of basic standards in housing premises, in feeding and reproduction methods, and in hygienic conditions all too often make colony maintenance costly and inefficient and, what is even more serious, sick animals are used in tests and, occasionally, the animals are exterminated because of epizootic diseases. Improvement of systems for breeding animals in national laboratories has always been an immediate objective of the AMRO-45 project and one of the functions of the Pan American Zoonoses Center.

During November-December 1959, one of the Bureau consultants studied the colony of laboratory animals of the National Institute of Hygiene of Caracas, Venezuela (Venezuela-18), and suggested standards for its improvement, besides organizing training of personnel.

Also during the year, the National Public Health Laboratory of Mexico, with the advice of another PASB consultant and the collaboration of ICA and the Rockefeller Foundation, undertook a complete reorganization of its laboratory animal colonies which will be housed in two new pavilions now under construction. The consultant also gave a series of lectures in the School of Veterinary Medicine and planned the School's training courses using the premises of the National Public Health Laboratory as a demonstration center.

This same Laboratory also received advice from a Bureau consultant in organizing the control of biological products

for diagnostic and preventive or therapeutic use, in order to establish the technical standards that are to be applied for such control and for training of personnel.

A technical advisory program was conducted in Venezuela which had as an objective the organization and expansion of activities of the virus section of the National Institute of Hygiene. The consultant left the plan of work already under way and organized a course on applied virology, with special emphasis on diagnostic techniques.

With collaboration of two PAHO/WHO consultants, the tissue culture laboratory in the Universidad del Valle, Cali, Colombia began to operate in February (AMRO-92). In addition to the role the laboratory plays in the field of research on poliomyelitis vaccination with live virus, it will contribute toward stimulating and facilitating use of tissue culture techniques in other countries of the Region, through advisory services, provision of cell lines and antisera for enteric viruses and, training of local and international personnel.

Interest shown by Brazilian public health authorities

in promoting training programs has resulted in an agreement between PAHO/WHO and the Governments of Brazil and of the State of São Paulo, through which an annual course for laboratory techniques was established in the Adolfo Lutz Institute of São Paulo, Brazil, the first one of which will be held during 1960. The Bureau is cooperating in planning the course, and the printing of a manual is about to be completed.

PASB technical assistance to the countries of Central America in their efforts toward establishing a laboratory that is to be supported by all of them, and designed for preparing biological products, has already completed the preliminary stages, and during the early months of 1960 a Bureau consultant will make an estimated evaluation of the present and future needs of those countries, as well as of the quantity and quality of the biological products that are being produced at present. With these data and the technical advice of the consultant, a plan of operations will be drawn up for construction and operation of the new laboratory.

Food, Drug, and Biologics Control

Regulatory responsibilities in connection with drugs, biologics, and foods are a matter of increasing concern to most ministries of health in the Region. Basis of the concern is the lack of services, legislation, and trained personnel to handle properly the problems that exist today. Hence, the Organization is being asked for many and varied types of assistance.

In the last decade, the rather explosive development of the "wonder drugs" and other pharmaceuticals, the increased use of biologics because of new or extended disease prevention and control programs, and the rapidly growing and expanding food manufacturing industry with attending problems of food additives have created a situation wherein the types of regulatory services conducted in the past are no longer adequate for present needs. A high percentage of pharmaceuticals, biologics, and manufactured foods being sold or used today in many of the countries are not under supervision that will protect the public health interests of the people of those countries.

During the year the Organization's plans progressed for the conduct of a survey of food, drugs, and biologics control services in the countries of the Americas (AMRO-150). With the expert assistance of a short-term consultant in this field a plan of operation for the survey was prepared, as well as guides and forms to be used in gathering the necessary information. Recruitment of suitable survey team

members was rigorously prosecuted. Obtaining persons with sufficient training and experience to undertake properly this type of survey has proven extremely difficult.

Technical references, guides for the examination of pharmaceutical preparations and for the standardization of nomenclature, and reports on various aspects of drug control were distributed or provided to countries in response to requests. Guides for the listing of acceptable and non-acceptable food additives, samples of food hygiene legislation, procedures for the detection and control of antibiotics and insecticides in food were among the types of technical consultation given. In the field of biologics control, samples of minimum requirements have been furnished; standard vaccines, sera, and antigens (when existent, WHO standards) have been procured and shipped to requesting countries (AMRO-45); and reference testing of nationally produced biologics (AMRO-76) has been provided upon request.

Training was an important aspect of the Organization's program in this field during the year. National ministry of health employees from various levels and various countries were given an opportunity to study specific or general aspects of their work through fellowships abroad. With the introduction of many new laboratory techniques, often requiring the use of new equipment, it is necessary that one or two key persons in each laboratory become

acquainted with the techniques and equipment through experience in a laboratory where they are in use. Most of these fellowships were for practical training rather than academic study.

In addition to fellowships, assistance was provided in the field of training through advice to schools of public health and schools of veterinary medicine for expansion and improvement in the teaching of food hygiene. Arrangements were made to obtain the English text for translation and publication in Spanish of what has become a standard manual, (the new 11th edition) *Standard Methods for the*

Analysis of Milk and Dairy Products of the American Public Health Association. As a companion guide for the Organization's publication *Plan para un Matadero Municipal*, a text and illustrations were prepared for a new scientific publication N° 45 *Aspectos Sanitarios a Consideración en la Construcción y Operación de Mataderos*. Also during the year, studies were made and possibilities explored of developing, with Organization assistance, one or two sites in the Region which would become training centers in food hygiene, particularly meat and milk hygiene.

The Pan American Zoonoses Center

The Pan American Zoonoses Center was officially inaugurated on April 25, 1959, with more than 400 visitors present, in a ceremony which included addresses by the Argentine and Paraguayan Ministers of Health and the Director of the Pan American Sanitary Bureau. Although the Center was founded in August 1956, the official inauguration served to underline the fact that it had passed the initial stages of its development and was actively engaged in a diversified program designed to collaborate with the countries of the Americas in programs against zoonoses.

The activities of the Center may be divided into three broad categories: education; service; and research. The technical activities carried out during 1959 are reported here in brief narrative form within those categories. A more schematic presentation of the activities is contained, in tabular form, in the accompanying chart.

Education

The Center provides special training for both professional and lay technical personnel in methods and techniques to be used for investigating and combatting the zoonoses. Trainees received include graduate students—usually veterinarians or physicians—who spend a full year in advanced study; special students who are received for shorter periods in order to observe and practice methods to be used in one or more phases of work with the zoonoses; and group students attending courses.

The graduate study program of the Center began in January 1959, with the arrival of the first long-term fellow and was expanding during the year with the arrival of an additional fellow every three months. The four graduate students received were from Colombia, Guatemala, Panama, and Peru, all on fellowships provided by the Organization.

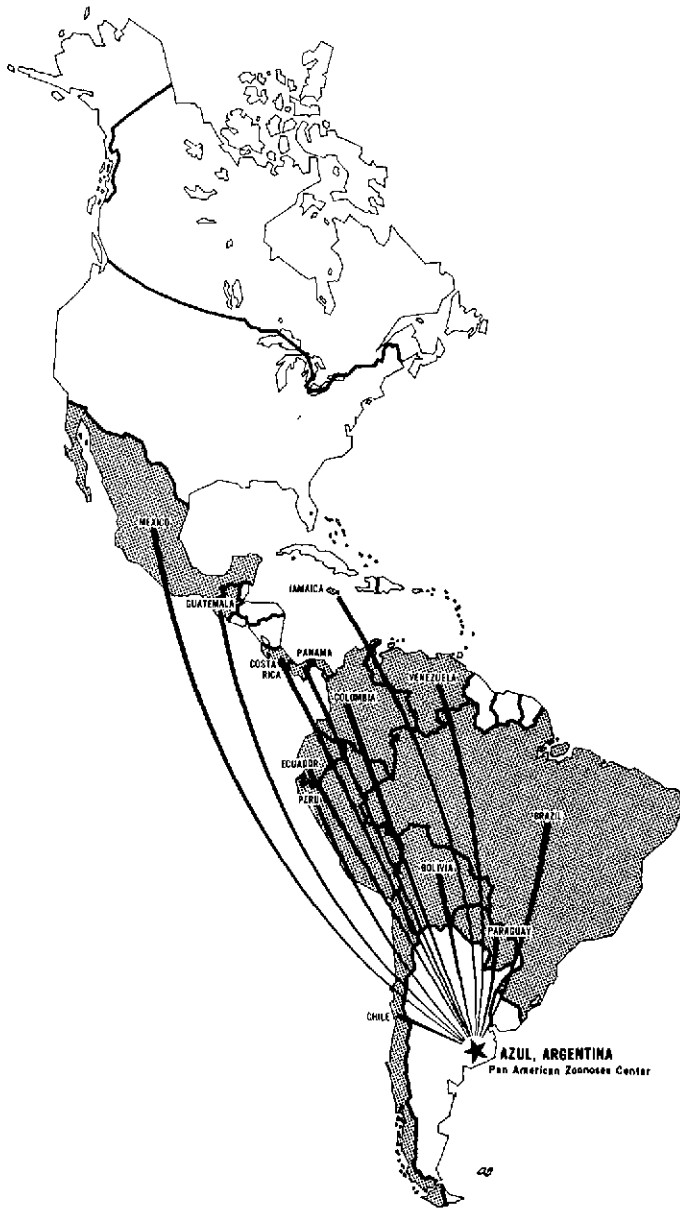
This system provides a rotating schedule of arrivals, with a constant group of four, the maximum number that can be accepted with the present limitations of staff and physical facilities at the Center.

The training provided to these students gives emphasis to the specific zoonoses, or field of work with the zoonoses, in which each individual has declared his interest. In addition, these students are required to observe and practice techniques applicable to the other zoonoses and the various phases of work in which the Center is engaged. Each graduate student is assigned two research projects in which he has the major responsibility and which he must complete during the year. These projects, carried out with the guidance of the senior staff of the Center, provide excellent training in scientific methodology, of equal value whether the student is destined to devote his efforts to field control, teaching, or research. Weekly seminars are held in order that students may report on the plans and progress of their work and receive suggestions from the attending professors, visiting professionals, and other graduate students.

The six special students at the Center during the year included veterinarians from Brazil, Chile, and Jamaica and a physician from Paraguay, each of whom spent periods of from two to 10 days in discussion, observation, and field practice concerning procedures for studying and controlling the zoonoses. In addition, a technician from Chile studied and practiced laboratory diagnostic techniques for a four-month period, and another from Argentina received training for three months in the care and breeding of laboratory animals. Three of these trainees were supported by ICA fellowships, two had received PAHO/WHO awards, and one was supported by his own government.

Two group courses were conducted during 1959. The first, of three weeks duration, was held in January, and was attended by eight veterinarians and physicians from

COUNTRIES SENDING PHYSICIANS AND VETERINARIANS TO THE ZOOSES CENTER TRAINING COURSES DURING 1959



Argentina, Bolivia, Colombia, Paraguay, and Peru, five of them on fellowships awarded by PAHO/WHO. The second group course of the year, also of three weeks duration, was held in June and July, and was attended by 21 fellows from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Guatemala, Mexico, Paraguay, Peru, and Venezuela, and was financed by special funds from the Technical Assistance Program of the Organization of American States.

Service

The services that the Center provides to the countries of the Americas include information and consultation concerning the zoonoses and their control, demonstration of methods used in the investigation and control of these diseases, and a variety of laboratory services for supporting the anti-zoonoses activities in the countries.

Consultation was provided largely through correspondence and visits to the Center. The use of avianized vaccine for bovine rabies control and of bacteria for controlling bovine leptospirosis was continued in large-scale field demonstrations in Paraguay and Argentina, respectively, and collaboration was given in planning for a pilot program of brucellosis eradication in Argentina.

Publication in Spanish of an information bulletin entitled *Zoonosis* was started, with the preparation and distribution of four issues during the year. This mimeographed quarterly is intended to provide information on recent progress in the control or eradication of the zoonoses, on advances in the diagnosis and treatment of those diseases in man and in animals, and on results obtained from surveys and other research that might prove to be of immediate practical value. Another publication prepared and distributed was *Technique and Interpretation of the Serum Agglutination Test for Bovine Brucellosis*. The library continued to develop with the purchase of some of the principal reference books and current journals and the incorporation of some valuable gift collections.

Laboratory services included the preparation and distribution of standard strains of viruses and bacteria for use in diagnosis, as well as for preparation and testing of vaccines. The antigen for conducting the brucellosis milk ring-test was prepared and made available for official use in the countries. Rabies and brucellosis vaccines were tested for potency and safety, as requested by interested government agencies of several countries, and a large amount of material was processed. The volume and type of samples received at the Center's laboratories during 1959 (until November 20) are presented in Table XXXVII.

The colonies of experimental animals served not only the internal needs of the Center, but were also used for training and demonstration on methods of care and breeding, and for provision of foundation stock to other institutions.

Research

Research at the Center is of an applied nature, undertaken with the intention of providing facts needed for planning and executing control or eradication activities. Research projects are also of prime importance in the training program at the Center, especially in the advanced work provided for graduate students. Investigation is conducted

PAN AMERICAN ZOOZOSES CENTER
RÉSUMÉ OF SOME TECHNICAL ACTIVITIES DURING 1959

	Information	Training	Investigation	Laboratory services	Demonstration	Consultation
Zoonoses (General)	<p>Information provided, upon request, on various zoonoses and related topics of research, laboratory and field control officials throughout the Americas and in other countries.</p> <p>Four issues of quarterly information bulletin "ZOOZOSIS" prepared and distributed.</p> <p>Paper presented: "The Medical-Social Aspect of the Pan American Zoonoses Center."</p>	<p>Four graduate students (from Colombia, Guatemala, Panama and Peru) received for advance study, each for periods of one year.</p> <p>Annual Zoonoses Course held in Jan. for 6 veterinarians and physicians (5 countries).</p> <p>General Course on Zoonoses Control conducted in June/July for 21 veterinarians and physicians from 12 countries.</p> <p>Special training in basic techniques provided for laboratory technician from Chile (4 months); and to government officials from Brazil, Chile and Paraguay, for field and laboratory observations concerning the zoonoses in general, during short visits.</p>				<p>Wide variety of requests for advice on zoonoses matters handled by correspondence.</p> <p>Officials visitors from numerous countries received for discussion of zoonoses problems.</p>
Brucellosis	<p>Technical Note (N° 2), "Technique and Interpretation of the Serum Agglutination Test for Bovine Brucellosis" prepared and distributed.</p>		<p>Field trial of Elberg-Meyer vaccine in goats—in progress.</p> <p>Comparative study of laws and regulations in the American countries—in progress.</p> <p>Collaboration with local agency in serological study of selected occupational groups.</p> <p>Comparative study of methods for conducting serum agglutination test on goat serums.</p> <p>Renoux caprine vaccine tested for safety.</p>	<p>Antigen for milk ring test prepared, and distributed upon request.</p> <p>Tube and plate antigen for standardization purposes prepared, and distributed on request.</p> <p>Reference tests made on Strain 19 vaccine performed on samples submitted.</p> <p>Serological diagnosis performed as special service.</p>	<p>Collaboration in development of pilot eradication program in Argentina.</p>	

PAN AMERICAN ZOOSES CENTER
RÉSUMÉ OF SOME TECHNICAL ACTIVITIES DURING 1959—Continued

	Information	Training	Investigation	Laboratory services	Demonstration	Consultation
Hydatidosis			<p>Evaluation of drugs in search for improved canine treatment initiated on limited scale.</p> <p>Comparative study of intradermic and laboratory tests for diagnosis of human hydatidosis—in progress.</p> <p>Evaluation of fraction of cyst fluid as possible immunogenic substance for sheep—in progress.</p> <p>Wildlife survey continued on limited scale.</p>	<p>Tests performed on hydatid cyst fluid submitted by local agency.</p>		
Rabies		<p>Special training in laboratory diagnostic techniques provided for government official from Jamaica.</p>	<p>Study of vampire-bat rabies transmission continued.</p> <p>Limited study of possible reservoir in sylvatic carnivores.</p>	<p>Reference tests made on vaccines submitted from Argentina, Brazil, Canada and Ecuador.</p> <p>Standard challenge viruses and production viruses prepared, and distributed on request.</p> <p>Virus isolation performed on bovine samples submitted from Paraguay.</p>	<p>Control of bovine rabies with avianized vaccine (Paraguay), involving 8,000 cattle, continued.</p>	
Tuberculosis		<p>Preliminary plans prepared for Seminar on Animal Tuberculosis and its public health repercussions, tentatively scheduled for 1960.</p>	<p>Survey of literature and other data for preparation of report on "Animal Tuberculosis and its public health implications in the Americas"—in progress.</p> <p>Spot checking of local dairy products for presume of tubercle bacilli, continued.</p>			<p>Preliminary plans made for inter-county meeting (Southern So. America) on standardization of tuberculin testing of cattle.</p>
Leptospirosis	<p>Paper presented: "Preliminary Note on Bovine Leptospirosis and its human health repercussion".</p>		<p>Serological survey of canine reservoir, using samples from four countries, continued.</p> <p>Epizootic-epidemiological study in an Argentine dairy establishment, continued (partial preliminary note presented).</p> <p>Epizootic-epidemiological study of equine leptospirosis—in progress.</p> <p>Wildlife survey continued on limited scale.</p>	<p>Leptospira serotypes provided at requests from official laboratories.</p>	<p>Control of bovine leptospirosis with bacterin (Argentina) involving some 2,000 animals—continued.</p>	

PAN AMERICAN ZONOSSES CENTER
RÉSUMÉ OF SOME TECHNICAL ACTIVITIES DURING 1959—Continued

	Information	Training	Investigation	Laboratory services	Demonstration	Consultation
Anthrax			Study on preparation and testing of Sterne vaccine—in progress. Study of dissociation pattern of the anthrax bacillus as a diagnostic method. Survey of literature and other data for preparation of report on the "Present Anthrax Situation in the Americas"—in progress.	Lyophilized sub-cultures of Sterne vaccine strain prepared and distributed on request.		
Trichinosis			Survey of problem in an epidemic area—in progress. Studies on use of bentonite flocculation diagnostic test—in progress.	Diagnostic tests made on samples submitted, as special service.		
Salmonellosis			Survey of infant diarrhea cases to define role of Salmonella and link with animal reservoir—in progress.			
Laboratory Animals		Special training (3 months) provided for technician from Argentina in methods of care and breeding.	Continued development of laboratory animal colonies, including guinea-pigs, rabbits, hamsters and two strains of mice, to supply internal needs, and serve for training and demonstration purposes. Foundation stock supplied to other institutions.			
Library	Progress continued in development of central library service on all aspects of zoonotic diseases and their control, for reference of staff, trainees and visitors, as well as for investigators and disease-control officials throughout the Americas.					

in the Center's laboratories, at its Farm Annex, and in field operations which are invariably carried out with the collaboration of interested government agencies. Special studies, often involving surveys of scientific literature, official reports, and unpublished data, form a valuable part of the research program. The accompanying chart includes a list of the research activities during 1959.

Personnel and Physical Facilities

The international personnel continued to be composed of three scientific and one administrative staff members. The non-professional, or local, staff increased from 22 to 25 including technicians, semi-skilled and non-skilled personnel.

The physical plant consisted of the main building in the city of Azul, and the Farm Annex some three miles distant. Plans for amplifying these facilities could not be carried out because of financial limitations. The need

TABLE XXXVII. SAMPLES RECEIVED AT PAZC LABORATORIES, BY TYPE, 1959^a

Type of samples	Number of lots received	Number of individual specimens received
TOTAL	298	5,214
Material for diagnosis		
Whole animals	95	149
Tissue specimens	171	4,930
Biological products for testing	31	108
Etiological agents for identification	1	27

^a Up to November 20, 1959.

for appropriate housing for supporting services and for the animal colonies was especially urgent. Minimum quantities of equipment and supplies were obtained during

the year, but limitations on the amounts and variety of items available were handicaps in the development of activities.

Pan American Foot-and-Mouth Disease Center

The general situation regarding the existence of foot-and-mouth disease (aftosa) in the Americas did not change during 1959. The disease was present in South America, except the Guianas, while the balance of the Hemisphere remained free.

Increased interest in this disease on the part of the countries can again be reported and a number of long-range plans, both national and international, were developed. Activities have been oriented toward eventual eradication of the disease, rather than conduct of mere control measures. An excellent example of this exists in the International Anti-Aftosa Conference, held in Bogota, Colombia, April 12-18, 1959, where technical officials of Colombia, Ecuador, Panama, and Venezuela convened to plan an area approach to the aftosa problem.

Throughout the year the Pan American Foot-and-Mouth Disease Center maintained close contact and working relationships with Ministries of Agriculture and, where existent, the anti-aftosa services in all the countries in the Americas. Liaison was maintained with appropriate personnel of Organismo Internacional Regional de Sanidad Agropecuaria, the United Nations Food and Agriculture Organization (FAO), and Office International des Epizooties.

Facilities of the Center

The new permanent facilities for the Center, which the Government of Brazil began to construct in 1958, were not completed at the end of the year. These will include offices, laboratories, general services buildings, and isolation stables for housing experimental cattle. While the temporary facilities have been reasonably satisfactory to date, the Center's site has never been provided with cattle isolation facilities. This deficiency has retarded and handicapped a number of aspects of the Center's work.

Training Program

One training course was held in Buenos Aires, November 8-28, 1959, with the collaboration of the Argentine Ministry of Agriculture and the Faculty of Veterinary Medicine,

University of Buenos Aires, devoted to strain typing and the importance of sub-types of the aftosa viruses. Fifty persons, including 37 veterinarians, attended from the following countries: Argentina, 33; Brazil, 3; Chile, 3; Paraguay, 3; and Uruguay, 8.

Three long-term fellows studied at the Center for a period of approximately 11 months, and a number of other persons spent periods of up to three weeks. One of the three long-term trainees was supported by a fellowship from FAO, and the other two by PAHO.

Reference Diagnostic Services

Some 544 field samples were received by the Center (from the anti-aftosa services of Argentina, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Nicaragua, Paraguay, Peru, Uruguay, and Venezuela) for typing and immunological studies. During the year 3,365 serum samples from various animals were examined.

The Center continued to distribute virus strains, antisera, and other reagents to requesting laboratories for typing studies. In addition, the Center conducted intensive studies on some of the samples for the possible detection and classification of variant strains and sub-types.

Field Consultations

One or more visits were made by Center staff to 17 countries and territories in the Americas. The purposes of these visits varied considerably. The number of requests for field consultation exceeded the Center's facility for this service, particularly in the length of stay of a staff member on any one country visit. Procedures were initiated to provide an additional technical field officer to the staff.

In addition to the consultative visits to countries, many questions were answered, guidance provided, and advice given through correspondence. The subjects covered ranged from clarification of a laboratory technique, to comments on a field program, to advice on the relative risks or safe procedures to follow in the importation of materials, meats, or animals from aftosa countries.

One of the periodic surveys of the Center in the Americas was again conducted through a questionnaire on the status

of vesicular diseases, and the information gained was organized, analyzed, and prepared in report form for publication. These survey reports have become references which are sought and valued by countries throughout the world.

Plans were made for a 16 mm sound film in color, based on the Center's publication "Plan of Action," to be used in training courses and loaned to governments for public showings in connection with anti-aftosa campaigns. A script was written, shooting script prepared, and photographing completed using the services of a motion-picture film company in Brazil. A number of the sequences to be used in the edited film were taken from film shot by Center staff members during visits to countries in the last two years. Copies of the completed film will be available early in 1960.

Bogota International Anti-Aftosa Conference

As a result of the interest expressed by Colombia, Ecuador, Panama, and Venezuela and with the valuable aid of the Colombian Government, a conference was organized to discuss intercountry collaboration aimed at the ultimate eradication of aftosa from their territories. The conference took place in Bogota, April 12-18, and was attended by senior officials of each Ministry of Agriculture who reviewed the aftosa problems and programs of the area. The participants drafted a series of important recommendations which should lead to greater uniformity of action and closer collaboration among the countries concerned. A report was written and approved at the end of the meeting and has since been prepared for publication.

Since the conference, a number of activities have taken place in the area which clearly indicate the benefits to be gained from such intercountry cooperation. The Bogota Conference has attracted wide interest and is also proving to be a guide to other areas which could benefit from similar intercountry cooperation.

Research Program

The research work of the Center is varied and in some phases extensive, and involves both basic and applied research. While a number of these studies have been productive, others cannot be completed until the Center is provided with the isolation stables necessary for appropriate work in cattle.

Major phases of the research program may be summarized as follows:

a) Nature of the Aftosa Virus. Various fundamental studies have been and are being pursued to determine more fully the true nature of the three major virus types of groups involved (i.e., "A", "O", and "C"), the ecology of the virus, and the character of the disease in various

animals. During the year more information was obtained on the characteristics of the virus, additional data were determined on the existence of sub-types, and further facts were elucidated on the pathology and immunology of the disease in cattle;

b) Adaptation of the Virus in Laboratory Animals. Aftosa is a disease natural to cloven-hoofed animals, and does not grow readily in other animals. To enable practical studies of the virus in the laboratory and for the production of virus for vaccine manufacture, it has been necessary to adapt the virus for growth in laboratory animals and in cultures of animal tissues. Adaptation work was continued throughout the year with various strains of the three types of virus in suckling mice, adult mice, suckling rabbits, baby chicks, and bovine kidney cells. In suckling mice nine different strains were studied, two of which have been worked through at least 50 passages. Work in adult mice has been done with three strains and by the end of the year the following passages had been reached: "O", 45; "A", 88; and "C", 67. Studies in suckling rabbits has progressed from the use of day-old rabbits to animals of 30-37 days of age. Three main strains (i.e., O, A, and C) have been studied in rabbits, and after a number of reversion in passages, they had reached the 111th, 67th, and 26th respectively. In the tissue culture studies seven different strains have been used;

c) Attenuation of Virus for Vaccine Preparation. This work has involved the passage of virus strains in different animals in a search for suitable strains (i.e., antigenic but nonpathogenic) for use in producing a live virus vaccine. The most productive results have been obtained in the work with suckling rabbits. Progress was such that during the year a number of field trials were conducted with vaccines developed through this work. Results are encouraging but more work with the three strains, especially two of them, is necessary before a satisfactory polyvalent vaccine can be made. Encouraging work in the new vaccine research was accomplished using tissue cultures. The lack of isolation stables has greatly handicapped progress in this work;

d) Production of Killed-Virus Vaccines. Methods currently in use for killed-virus vaccine production, using cultures of bovine tongue epithelium for the growing of virus, have been studied with the view of improving production techniques; and

e) Potency Test for Vaccines. Current methods for the potency and safety testing of aftosa vaccines involve the use of a number of cattle for each sample. This is extremely expensive, and as a result many vaccines which have not been tested are placed on the market. The Center made encouraging progress in studies to develop testing procedures, using laboratory animals—at this time, adult mice.

Scientific Publications

The following papers, drafted from the Center's work, were prepared for presentation at technical meetings and/or publication in scientific journals, or as separate publications: a) Survey on the Status of Vesicular Disease in the Americas; b) Propagation of Three Immunological Types of Virus in Chicks, One-29 Days Old; c) Propagation and Modification of Three Immunological Types of Virus in Embryonated Hen Eggs; d) Foot-and-Mouth Disease—A New Approach in the Americas; e) Chapter for Volume VI of "Advances in Veterinary Science," entitled "Foot-and-Mouth Disease and the Related Vesicular Diseases"; f) The Demonstration of an Immune Response to Foot-and-Mouth Disease Vaccine in a Protection Test in Young Adult Mice"; g) Report on the Incidence and Control of Foot-and-Mouth Disease and Other Similar Animal Diseases in the Americas; h) Research on the Development of a Modified Live Virus Vaccine in Foot-and-Mouth Disease; i) The Epizootiological Picture in Foot-and-Mouth Disease.

Financing of the Center

Since its establishment, the Center has been financed by the Technical Cooperation Program of the Organization of American States. This source of financing has been assured up to and including 1962. No definite funds are in sight to support the Center and its program beyond

that date.

In March 1959 the Bureau was requested to make a presentation on the current status of aftosa in the Americas, and the ways and means of eradicating this disease from the Hemisphere, before the Subgroup on Basic Products, Special Committee to Study the Formulation of New Measures for Economic Cooperation, Council of the OAS. Subsequently, a plan was prepared for expanding and intensifying the activities of the Pan American Foot-and-Mouth Disease Center and a budget estimate was made to carry out the plan during a period of 10 years, beginning in 1960. The plan and budget were approved for inclusion in the report of the Special Committee.

At the Special Meeting of the Council of the OAS, held in Buenos Aires, Argentina, in April 1959, and attended by the Ministers of Finance from the Member Countries of OAS, a resolution was passed instructing the Inter-American Economic and Social Council to expand the present work program of the Pan American Foot-and-Mouth Disease Center, as outlined in the report of the Special Committee. Furthermore, the resolution recommended that the Inter-American Economic and Social Council include in the Budget of the Program of Technical Cooperation the allotments for the plan of expansion beginning with the fiscal year 1960, and urged the governments of Member Countries to increase their contributions to the Program of Technical Cooperation of the OAS in order to make possible the program of expansion.

Mycoses

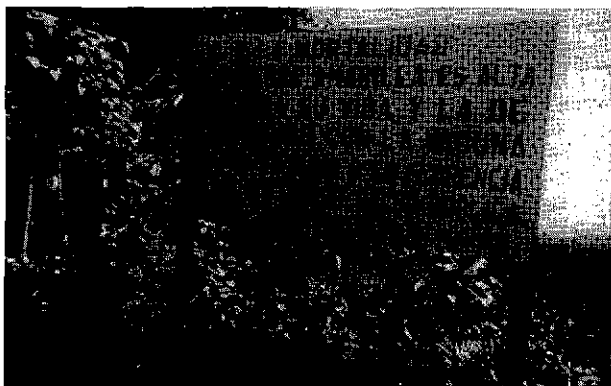
A subject discussed at the XI Meeting of the Directing Council was the study of mycoses in the Americas, and in this connection the Council recommended to the governments that they promote the creation of coordinating committees of nation-wide scope for the study of these diseases, and undertake epidemiological surveys to ascertain the magnitude of the problem of mycoses in the Americas.

Although a great deal of information has been accumulated regarding the prevalence of mycological diseases in

Latin America, much remains to be learned. The most intensive work has been done in Mexico, Costa Rica, Venezuela, Uruguay, and Argentina. In other countries little has been done. Therefore, well-planned surveys are needed to determine the prevalence and geographic distribution.

The Organization is studying the present situation in the Region in order to develop a program for technical assistance and training in this field.

Large sign erected in December 1959, during an epidemic of jungle yellow fever in the area, on the side of the road at the check-point outside of the city of Florencia, Caqueta, Colombia.



DISEASE CONTROL AND ERADICATION



Filariasis and Elephantiasis—Case of elephantiasis: a 14-year old girl, Belem, Para, Brazil.



Department of Health veterinarian recording information on dog that bit boy (center), Guatemala City, Guatemala.

Man blind from onchocerciasis. A trained national auxiliary prepares a second slide while the first is examined microscopically by a technician, Yepocapa, Guatemala.





Malaria eradication service personnel arrive at Koeli Depot, near Paramaribo, Surinam.

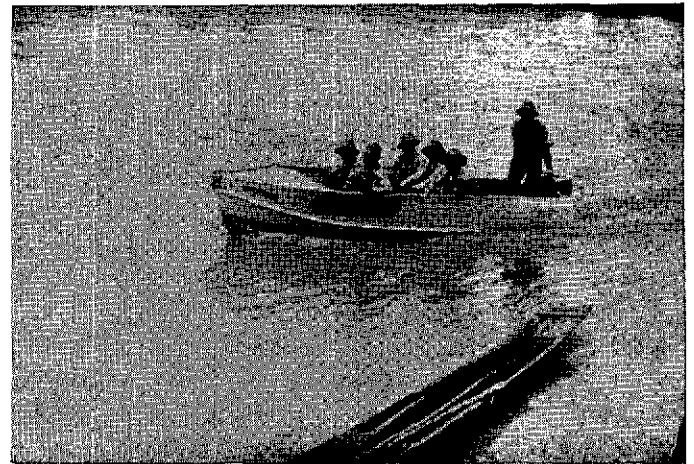
Entomologist aide extracting mosquitoes from cones which trapped them against a sprayed wall. The mosquitoes are then put into gauze-covered paper cups and returned to the National Malaria Eradication Service Insectary in San Salvador where they are kept for 24 hours. After that time they are observed and the percentage of mortality is recorded, in order to observe the effectiveness of the insecticide applied to the walls.



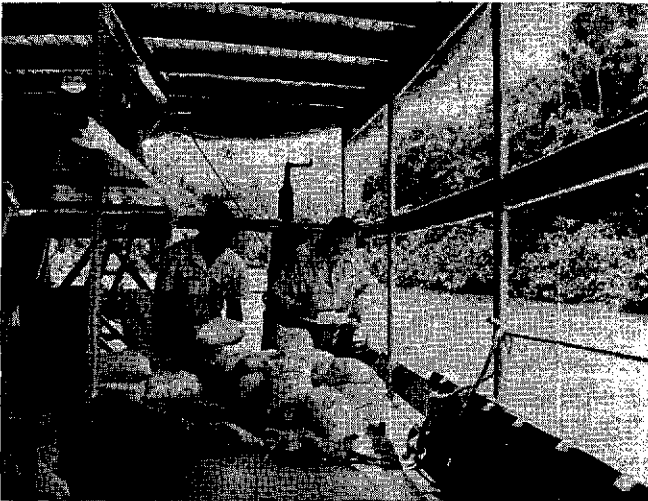
A sprayman working with dieldrin in the yard of a village house, Chilibré, Veraguas, Panama.



Under the supervision of an Evaluation Inspector from the National Malaria Eradication Service, a newly-trained volunteer collaborator makes a blood smear, Matapalo, Costa Rica.



Survey and census-taking trainees go on a field trip along the Atrato River, Quibdo, Choco, Colombia.



Entomologist of the National Malaria Service prepares records prior to distribution of salt treated with the antimalaria drug, chloroquine, State of Pará, Brazil.



Malaria eradication sprayers starting out on a day's work, Ceará Mirim, Rio Grande do Norte, Brazil.



Instructor (right) shown with part of a class of 26 students who will be employed under Mexico's malaria eradication program, Mexico City, Mexico.



Entomologist (right) and his aide, both assigned by PAHO/WHO to the residual insecticides testing project, set up their equipment for evaluating a newly-introduced insecticide, El Salvador.



PAHO exhibit on zoonoses shown at the Annual Meeting of the American Medical Association, Atlantic City, New Jersey, June 8-12, 1959.



A staff member of the Zoonoses Center takes a blood sample from farmer working in fields of Buenos Aires Province.



Testing anti-rabies vaccine to determine if it has been contaminated, Biological Laboratory, Guatemala City, Guatemala.



Preparing poison bait for wildlife in control of rabies, Casas Grandes, Chihuahua, Mexico.



Nursing auxiliary administers live polio virus vaccine to a young child, while others await their turn, Costa Rica.



Yellow fever 17D vaccine for cutaneous scarification does not have to be refrigerated in the field. This vaccinator in Colombia has a one-week supply of vaccine and vaccinating needles in the kit on his back.

INFORMATION AND PUBLICATIONS

Public Information

Public information activities expanded considerably in 1959. Magazine and newspaper coverage of PAHO/WHO programs and related developments was particularly encouraging. In line with the policy launched in 1958, contacts with representatives of the press were appreciably strengthened. As a result, the major wire services moved significantly more PAHO/WHO news than during previous years.

Radio coverage, mainly through the facilities of the Radio Service of the Organization of American States, the Voice of America, and the United Nations Radio, was also substantially greater than in past years. Taped interviews with high-ranking Bureau officials, "round-ups" of Bureau work in various public health fields, and direct short-wave broadcasts of PAHO/WHO news stories provided this increased radio publicity.

Work was also begun in 1959 on the first two productions in a new "PAHO Information Series." Number one in this series is entitled "Then and Now—Past and Present in the Fight for Better Inter-American Public Health." The title of the second is "Malaria Eradication in the Americas." This series will consist of a two or three-fold single-sheet text on the history, aims, structure, and work of the Organization.

A total of 4,167 information kits were mailed to individuals and groups who requested them during the year, and an estimated 250,000 pieces of information material were distributed to individuals, groups, non-governmental organizations, national health services, Bureau Zone Offices, and through displays and exhibits. In addition, 2,625 photographs of PAHO/WHO activities and the work of the health services of the Member Governments were placed with free-lance writers, publishing houses, civic groups, photo-wire services, lay and medical magazines, teachers, health educators, and schools.

Interested groups in Canada and the United States were also furnished lecturers on the work of PASB/WHO. In many cases the Bureau provided members of its own staff to fulfill these requests. Other speakers included former members of WHO Expert Committees. Accompanying literature, posters, and films supported the speakers'

programs. In this connection, efforts were initiated to stimulate interest in the establishment of WHO Citizens' Committees throughout Latin America.

Eighty-eight films, covering a wide variety of health topics, were loaned during the year. A number of additional copies of films were ordered and placed with the Zone Offices so that they may attend more directly to the increasing requests for these in Latin America. Copies of several films, previously available only in English or French, were made with Spanish dialogue.

The printing of the Portuguese edition of the bi-monthly magazine *World Health* was transferred from Washington to Brazil, where it is now being reproduced by a Brazilian commercial firm. This same firm now also translates, reproduces, and distributes to the Brazilian press all PAHO/WHO press releases and feature stories, and provides the Bureau with a clipping service of articles concerning PAHO/WHO as they appear in the Brazilian press.

On the occasion of World Health Day, April 7, distribution was made of a total of 19,500 special kits composed of articles, illustrations, and posters celebrating the 1959 theme—"Mental Illness and Mental Health in the World of Today"—to the press, national health services, and civic groups in all nations and territories of the Hemisphere.

Groundwork was also laid for several additional information projects and services, planned to make their appearance early in 1960. These include: a) an illustrated feature "mat" service, consisting of texts of 500 words or less, plus photographs mounted in a two-column "mat" ready for immediate reproduction as soon as it reaches editors. The first feature in this series will be entitled "Pure Water for a Thirsty City", a story of the new water plant in Asunción, Paraguay, and the lack of safe and adequate water throughout the Americas generally. "Mat" features are also planned on malaria eradication, the relationship between public health and economic development, and other Bureau and Member States activities; b) a photo-news service. This differs from the service listed above in that it consists of text and separate glossy prints rather than a single "mat" already set up for the printer. Furthermore, it will allow the Organization to reach limited, special, or sectional groups quickly with illustrated and timely news of PAHO/WHO activities and public

health work in Member States. The first of this series will be dedicated to malaria eradication; c) a timed-copy radio feature service. This series will reach radio stations throughout the Hemisphere with short news features, already timed and prepared for a specific number of radio-reading minutes; d) a TV-video "mat" service. This service will allow the Organization to reach television stations with the same sort of features and news contained in the "feature-mat" and photo-news services. It consists of prepared text, plus a "TV-video mat", or picture, capable of reproduction on the television screen.

Visual Aids

Expansion of communications media was also reflected in the area of PAHO exhibits. Exhibits were displayed in 12 states of the United States, the District of Columbia, as well as Canada. They were featured at such assemblies as: The Annual Meetings of the American Medical Association and the American Public Health Association (Atlantic City, New Jersey); the Annual Meeting of the United States-Mexico Border Public Health Association (Brownsville, Texas); the Seminar on Teaching Public Health in Schools of Veterinary Medicine (Kansas City, Missouri); the First International Conference on Live Poliovirus Vaccines (Washington, D.C.); and the IX International Congress of Pediatrics (Montreal, Canada).

After extensive showings of the Spanish language exhibits on Environmental Sanitation and Water Supply in Mexico and Central America, this exhibit was shipped to Colombia for display in Bogota and other sections of the country. Overlay panels, illustrating the results of a survey on pediatrics education in the Americas, were sent to the countries of Zone II where they were scheduled for display in several places as the year came to an end. The panels had been previously shown in the countries of Zone VI.

Publications

The monthly publication *Boletín de la Oficina Sanitaria Panamericana* began its 38th year in 1959. In response to the increasing demand for distribution of this Bureau monthly among public health workers and specialists in the different fields of medicine in the Americas, the *Boletín* reached an all-time high in its press-run, reaching 9,400 copies per month. Volumes XLVI and XLVII were published during the year, each consisting, as usual, of six monthly issues.

TABLE XXXVIII. PUBLICATIONS ISSUED IN 1959

Serial Number	Title	Number of pages	Number of copies
<i>Official Documents</i>			
27	Actas de la XV Conferencia Sanitaria Panamericana	571	1,000
27	Proceedings of the XV Pan American Sanitary Conference	548	1,000
28	Proyecto de Programa y Presupuesto, Organización Panamericana de la Salud, 1960-1961	254	400
28	Proposed Program and Budget of the Pan American Health Organization 1960-1961	254	400
29	Informe Financiero del Director e Informe del Auditor Externo, 1958	64	400
29	Financial Report of the Director and Report of the External Auditor, 1958	64	350
30	Informe Anual del Director de la Oficina Sanitaria Panamericana	177	2,000
30	Annual Report of the Director of the Pan American Sanitary Bureau	165	2,000
<i>Special Publications</i>			
23	Manual de Técnicas de Laboratorio Aplicadas a la Rabia (Reimpreso)	154	2,000
41	Seminario sobre el Control de la Lepra	88	1,000
42	Seminário Didático Internacional sobre Levantamentos de Enfermagem	77	1,000
43	Radiaciones Ionizantes y sus Efectos en la Población	62	2,000
44	Proceedings of the First International Conference on Live Poliovirus Vaccines	713	2,200
<i>Miscellaneous Publications</i>			
48	Intercambio Interamericano de Notificaciones de Casos de Tuberculosis Inter-American Exchange of Reports of Cases of Tuberculosis	4	50,000
50	Centro Panamericano de Zoonosis	10	5,000
50	Pan American Zoonoses Center	10	5,000
51	Enfermedades Venéreas—Estudio de la Legislación Vigente	48	1,500
52	XVII Curso Internacional de Malaria y otras Enfermedades Metaxénicas	13	500
<i>Other Publications</i>			
—	Reglamento Sanitario Internacional Edición anotada	153	3,000

The *PAHO Quarterly* and its Spanish edition, *Informaciones de la OPS*, was another periodical publication distributed to health authorities, public health agencies, teaching centers, the press, and other interested groups. This was the third year of publication for this semi-technical booklet which appeared in January, April, July, and November. As in previous years, the *Quarterly* contained information related to the work undertaken in connection with PAHO field projects and other activities of the Organization. In 1959, the number of copies of the *Quarterly* increased to 1500 in each language.

The *Weekly Epidemiological Report*, *Health Statistics*, and the *Monthly Calendar of Selected International Meetings* also continued to be published. The *Weekly Epidemiological Report* provides current data on quarantinable diseases in the Americas as reported by the national health administrations in accordance with the *International Sanitary Regulations*. Other events of epidemiological importance are noted for the benefit of health and quarantine officers. *Health Statistics* is a quarterly publication with summaries of reported cases of notifiable diseases, by month in the Americas. It also reports on events, such as meetings and publications of interest to statisticians. Distribution of the *Calendar* was made to health authorities, international organizations, and other interested institutions. It contains

information on international meetings convened by or held under the sponsorship of PAHO and WHO, and on international or national meetings to which the Organization has been invited.

The bi-monthly bulletin *Erradicación de la Malaria* was prepared in six issues under the technical supervision of the Malaria Eradication office. Distribution of this publication, which highlights technical and administrative developments in the malaria eradication campaign, is directed mainly to the malaria services of the different countries and to Bureau staff engaged in anti-malaria work. The press-run increased from 500 to 550 copies in 1959.

PAHO Official Documents were issued as follows: *Proposed Program and Budget Estimates, 1960-1961*; the *Annual Report of the Director*; and the *Financial Report of the Director and Report of the External Auditor*. The *Proceedings* of the XV Pan American Sanitary Conference (San Juan, Puerto Rico, September 21-October 3, 1958) were also published in English and Spanish.

A complete listing of Scientific and Miscellaneous Publications and the Official Documents issued during the year is given in Table XXXVIII.

Excluding public information materials, copies of publications distributed amounted to 187,016 as compared to 183,518 in 1958.

ORGANIZATIONAL MEETINGS AND TRANSACTIONS

Washington, D. C. was the site of the meetings of the Governing Bodies of the Organization in 1959. The Directing Council held its XI Meeting (September 21-30), while the Executive Committee held its 37th, 38th, and 39th Meetings.

Directing Council

The XI Meeting of the Directing Council, XI Meeting of the Regional Committee of WHO for the Americas, was attended by representatives of Argentina, Brazil, Chile, Colombia, Cuba, the Dominican Republic, Ecuador, El Salvador, France, Guatemala, Haiti, Honduras, Mexico, Kingdom of the Netherlands, Nicaragua, Panama, Peru, United Kingdom, United States of America, Uruguay, and Venezuela. The Government of Canada designated an official observer. The Assistant Director-General, Administration and Finance, of the World Health Organization was also present. Observers from the United Nations, UNICEF, FAO, and the Organization of American States, as well as from 17 non-governmental organizations that maintain official relations with WHO, also attended the meeting. The Council held 15 plenary sessions, seven sessions of the General Committee, and two sessions of the Credentials Committee; one entire day was devoted to the Technical Discussions.

A special session was held in honor of Dr. Fred L. Soper, Director Emeritus of the Pan American Sanitary Bureau, with the attendance of the members of the Council, representatives of the diplomatic corps, specially invited guests, and staff of the Bureau. At this session, the Chairman of the Directing Council presented to Dr. Soper a scroll recording his designation as Director Emeritus, together with a gold medal, the obverse bearing Dr. Soper's likeness and the reverse bearing an inscription reading "Fred L. Soper, Director of the Pan American Sanitary Bureau, 1947-1959," encircled by the words "In recognition of his work in behalf of continental health."

At its plenary sessions, the Council reviewed a series of important technical and administrative problems, and adopted a number of resolutions relating to technical,

organizational, and administrative matters which have already been discussed at length in the relevant technical sections. Decisions on administrative matters are discussed in the section on organizational structure and administrative developments.

The Governments of Colombia and El Salvador were elected to membership on the Executive Committee for a period of three years, joining the continuing members: Brazil; Honduras; Mexico; United States; and Venezuela. The Council expressed its thanks to the retiring Governments of Guatemala and Peru for the services rendered to the Organization by their representatives on the Executive Committee.

As of the end of 1959, the membership of the Executive Committee, with year of expiration of term, is as follows:

<i>Country</i>	<i>Term expires</i>
Brazil	September 1961
Colombia	September 1962
El Salvador	September 1962
Honduras	September 1961
Mexico	September 1960
United States	September 1961
Venezuela	September 1960

The Directing Council studied the proposals made by various countries concerning an International Health and Medical Research Year, as well as the action taken thus far by the World Health Assembly, the WHO Executive Board, and the Director-General. The Council expressed agreement with the idea of setting aside a particular year in which to promote international health and medical research activities, urged Member Governments to submit their comments and specific suggestions to the Director-General of WHO, in accordance with his request; and further urged Member Governments to start preparation of plans so as to assure national and local participation if the proposal is approved by the World Health Assembly.

On the matter of control of advertising of medicinal products, the Council instructed the Director to study the nature of this control, measures of self-regulation within

industry, and practical problems arising from the application of various legislations or activities for the control of advertising. On the other hand, the Council recommended that the governments adopt measures to prohibit false or misleading advertising of medicinal products.

As part of the business of the Council, a special session was held for Technical Discussions on the topic "Technical, Financial, and Administrative Aspects of Water Supply in the Urban Environment in the Americas." The representative of Venezuela was elected Moderator, the representative of El Salvador served as Rapporteur, and the Chief of the Bureau's Environmental Sanitation Branch was the Technical Secretary appointed by the Director of PASB. Papers on the topic were presented by the special consultants designated. In addition, participants from Argentina, Colombia, Cuba, Guatemala, Mexico, Nicaragua and Curaçao submitted reports on experiences with water-supply systems in their respective countries, and the Puerto Rico Aqueduct and Sewer Authority made available various reports and information on its activities. The Moderator presented the report prepared by the Rapporteur, summarizing the opinions put forth in the course of the Technical Discussions, and the Council expressed its satisfaction with the manner in which the discussions were conducted.

The Council selected the topic "Technical, Administrative, Legal, and Financial Aspects of Garbage and Refuse Disposal" for the Technical Discussions to be held at the XII Meeting of this Governing Body.

Having considered the document on the United Nations Special Fund and the Fund's potential support of health projects, the Council invited Member Governments, in reviewing their health programs, to take into account the Special Fund as a potential source of international assistance and to present appropriate projects through the designated channels.

It further requested the Director to cooperate with Member Governments in planning projects appropriate for financing under the United Nations Special Fund, especially surveys necessary for the development of water-supply programs.

The Council received the report of the Executive Committee and the Sub-Committee which it had named to study the basic documents with a view to improving same. The Council also decided to accept the recommendations of the Executive Committee that authentic texts also be prepared in Portuguese and French.

The Council expressed its appreciation to the Government of the Republic of Cuba and accepted its invitation to hold the XII Meeting of the Directing Council, XII Meeting of the Regional Committee of the WHO, and the meetings of its Executive Committee, in the City of Havana.

Executive Committee

The 37th, 38th, and 39th Meetings of the Executive Committee were held in Washington, D. C., on May 4-8, September 23, and 30, respectively, with the participation of all members, except for the absence of Peru at the 38th Meeting.

Under the chairmanship of the representative of Mexico, with the representative of Venezuela serving as Vice-Chairman, the 37th Meeting of the Executive Committee included other members from Brazil, Guatemala, Honduras, Peru, and the United States, with observers from France, the Kingdom of the Netherlands, and the OAS.

At this meeting the Executive Committee decided to eliminate the meetings held immediately prior to the Directing Council; asked the Director to prepare a report on the status of decentralization of activities of the PASB; took note with sincere appreciation and satisfaction of the resolution on measures of economic cooperation for public health projects, adopted by the Special Committee of the OAS at its meeting in Buenos Aires which recognized the importance of public health to economic development, and from which it is expected that great benefits would result for progress in the Americas; requested the Director to consult with the Government of Argentina on the advisability of planning an Inter-American Congress of Public Health before the XVI Pan American Sanitary Conference.

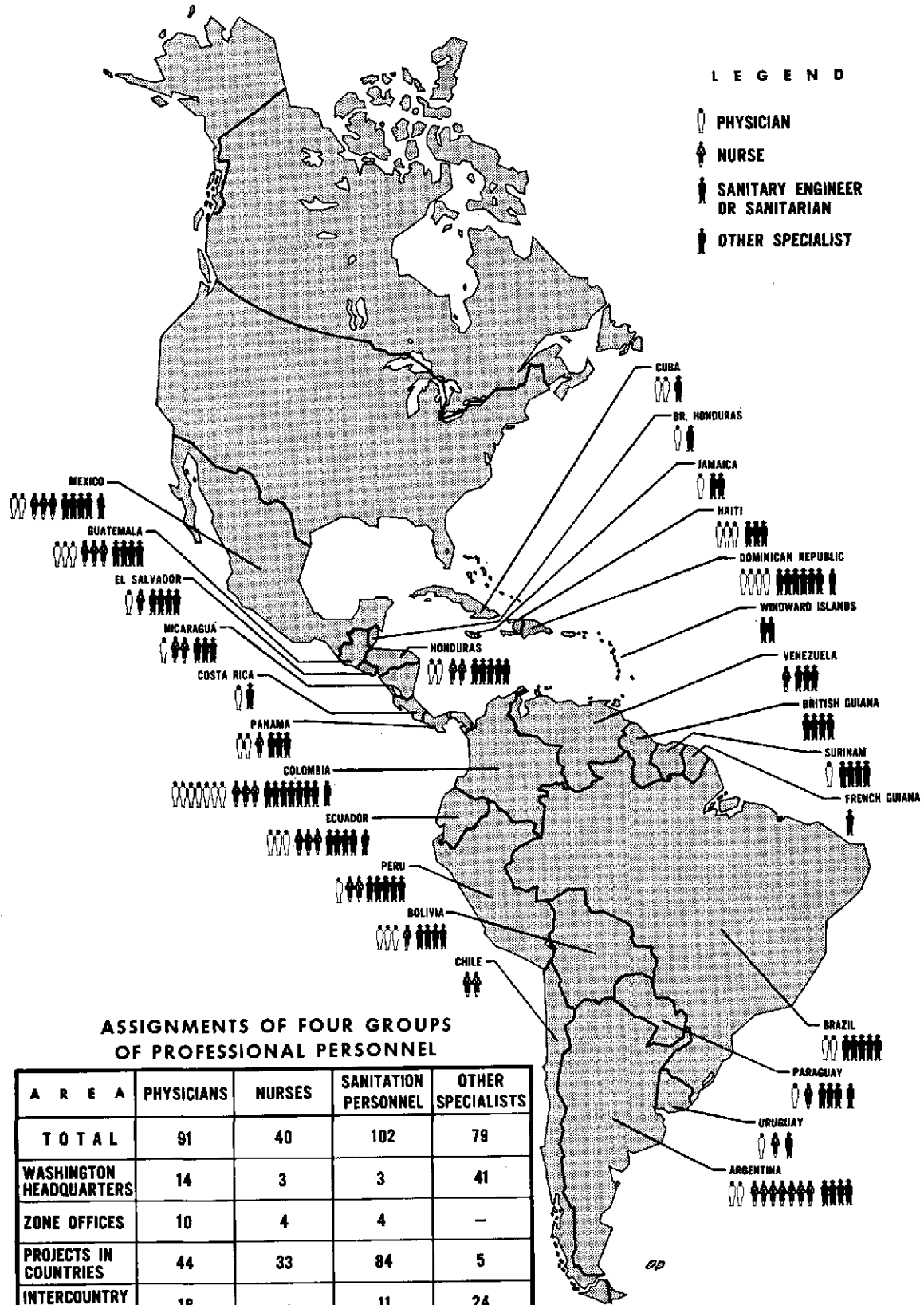
The Committee made a detailed examination of the Budget and resolved to submit to the XI Meeting of the Directing Council the proposed program and budget for PAHO for 1960, recommending that the Council establish the budget level for that year for \$4,100,000.

The 38th Meeting was devoted to the discussion of amendments to Articles 10 and 11 of the Rules of Procedure of the Executive Committee. These amendments increased the time limitation for proposing agenda subjects to 30 days prior to the meeting, and for transmittal of the provisional agenda and all documents to the representatives to 21 days prior to the meeting. The meeting also discussed the study of the Director's report on the decentralization of activities of the Pan American Sanitary Bureau to the Zone Offices, a topic suggested by the Government of Mexico at the previous meeting. In this connection a resolution was adopted requesting the Director to keep the Executive Committee informed of the results of the several studies now in process and offer recommendations on the course of action to be followed with respect to decentralization, in order to achieve the most effective and economical operation for the Pan American Sanitary Bureau. Lastly, the Committee studied and recommended to the Directing Council amendments to Articles 1.1 and 1.2 of the Financial Regulations and other changes in the terminology of the text.

At its 39th Meeting, the Executive Committee welcomed the representatives of Colombia and El Salvador, who were elected by the XI Meeting of the Directing Council to fill the vacancies on the Committee left by the expiration of the terms of office of Guatemala and Peru. The representatives of Brazil and Colombia were, by acclamation,

elected Chairman and Vice-Chairman respectively. The Committee authorized the Director to convoke the XII Meeting of the Directing Council, XII Meeting of the WHO Regional Committee for the Americas, to be held in Havana, Cuba, in 1960, on the dates he will set in agreement with the Government of Cuba.

**INTERNATIONAL PROFESSIONAL PERSONNEL ASSIGNED TO PROJECTS OF THE
PAN AMERICAN SANITARY BUREAU IN COUNTRIES OF THE AMERICAS, OCTOBER 1959**



ORGANIZATIONAL STRUCTURE AND ADMINISTRATIVE DEVELOPMENTS

The programs of the Pan American Sanitary Bureau, Regional Office of the World Health Organization, are carried out through a Headquarters establishment in Washington, D. C., six Zone Offices, and a Field Office. This decentralized organizational structure has facilitated the development of close relationships with the Health Ministries and the authorities of Member Governments

with whom the Organization collaborates in carrying out its objectives. The several Zone Offices are now located in Caracas, Venezuela; Mexico City, Mexico; Guatemala City, Guatemala; Lima, Peru; Rio de Janeiro, Brazil; and Buenos Aires, Argentina; there is a Field Office in El Paso, Texas.

Washington Headquarters

In addition to responsibility for directing all operations, the Washington Office deals with activities in the United States and Canada, and supervises the work of the Field Office in El Paso, Texas. Headquarters is comprised of the Office of the Director and three major divisions—Public Health, Education and Training, and Administration.

Office of the Director

On February 1, 1959, Dr. Abraham Horwitz of Chile assumed the post of Director of the Pan American Sanitary Bureau, succeeding Dr. Fred L. Soper, who retired after 12 years of service as Director. The two principal staff officers, the Assistant Director and the Secretary General, remained in their posts and thus provided a valuable continuity in direction.

During the year certain organizational changes were

made in the Headquarters establishment, and the functions of the Assistant Director and the Secretary General were redefined and clarified. In addition to serving as the Acting Director during the absence of the Director and generally assisting with all aspects of the Director's responsibilities, the Assistant Director directs all field operations of the Bureau (through the six Zone Offices and Field Office, El Paso, and the Institute of Nutrition of Central America and Panama), coordinates the services of the Division of Administration with other divisions and the field, coordinates the documentation submitted to the Governing Bodies and, by delegation, serves as Secretary for such meetings.

The Secretary General serves as the principal assistant to the Director in the development of plans and policies. He supervises the preparation of the program and budget, coordinates the work of the Divisions of Public Health

and Education and Training, directs the evaluation of health needs and resources, and directs the development and operation of the Bureau's program reporting system.

The work of the Headquarters establishment continues to be carried out through the Divisions of Public Health, Education and Training, and Administration. However, conference services and publication activities have been moved from the Office of the Director to the Division of Administration. Also moved from the Office of the Director are the Reports Office, which has been placed under the Secretary General, and the Library, which becomes a part of the Division of Education and Training. The only office now under the immediate supervision of the Director is the Office of Information, to which is attached the Visual Aids unit.

These changes are designed to streamline the Bureau's Headquarters operation, make for more effective coordination of activities, and utilize to the fullest extent the three top officials in planning and carrying out the work.

Divisions of Public Health and of Education and Training

The Division of Public Health is comprised of the Communicable Diseases Branch; the Health Promotion Branch; the Environmental Sanitation Branch; and the Office of Malaria Eradication. The Communicable Diseases Branch includes the Epidemiology and Statistics Section.

The Division of Education and Training is comprised of two Branches, Professional Education and Fellowships. The work of these units, which is connected with direct services to governments as well as advice to Zone Office and field staff on project activities, is fully described in the relevant chapters earlier in this Report.

Division of Administration

The Division of Administration is comprised of the Administrative Management and Personnel Branch, the Budget and Finance Branch, the Conference and Publications Branch, the Office of General Services, and the Supply Office. Transfer of conference, language, and publication activities to this Division has helped to bring together the service functions of the Organization.

Steady expansion in the program of the Organization has directly increased the task of the administrative establishment during the year under review. Particularly important in the administrative work of the year were the efforts toward the development of a program budget as the basis of operations, the obtaining of a site for the Headquarters of the Organization, the assistance in the newly developed water-supply program, continued aid to the malaria eradication program, and an acceleration in the management survey and review activity.

During this year, the Division of Administration took an increasingly active part in program activity. Personnel of the Division were responsible for the survey work and the planning of activities for assistance to public health ministries in improving the management of their services, a program which has been described in more detail in the section on strengthening health services.

As described in previous Reports, the malaria eradication program involves a heavy administrative component as well as necessity for technical personnel to have a deep awareness of the efficient administrative processes needed to keep the supplies moving and the program in continuous operation. Administrative staff personnel have participated actively in training programs and this has been complemented by technical guidance of administrative methods consultants in the malaria field programs.

Still another technical program requiring extensive administrative consultation has been the expanded community water-supply program. Great stress is being laid on the financial and administrative aspects, as well as the purely technical side of this problem.

Administrative Management

With the increase in program has come the necessity for constant reexamination of the various procedures and practices of the Organization. During the year the Supply Office improved its system of freight forwarding, and began a more effective use of vendors in a larger number of countries. Other savings were realized by a greater use of outside commercial sources for travel agency services and printing and reproduction services. Detailed management surveys were undertaken of the Finance Section and of the Fellowships Branch.

Personnel

At the end of 1959 the regular staff of the Organization totalled 777, of whom 412 were international staff members and 365 locally recruited. There were 222 persons at Washington Headquarters and 555 in Zone Offices and field projects. It is to be noted that the budget of the Organization had increased 80 per cent since 1955; the total staff had increased 56 per cent in the same period and the staff at Headquarters had increased only 11 per cent.

Of the total staff at the end of 1959, 610 or 79 per cent were paid with PAHO funds and 167, 21 per cent, with WHO funds, either from the Regular Budget or the Expanded Program of Technical Assistance.

An important change took place in the provision for staff health insurance in 1959. Replacing the previous limited plan, which provided benefits only for the staff member, the new plan includes dependents as well, filling a long expressed need. Contributions are made by both employee and the Organization. Because of the com-

plexities of a staff distributed all over the world and the difficulties of finding a satisfactory commercial underwriter, the Organization is managing the program as an internal operation.

Budget and Finance

The budget of the Pan American Health Organization for 1959 was \$3,600,000. In addition to this, the Bureau is also responsible for expenditures of funds from several other sources as shown in Table XL and the accompanying chart.

Actual expenditures by the Bureau in 1959 were, for a number of reasons, some of which are given below, at a level somewhat lower than that authorized. The volume of activities did, however, rise 9.4 per cent over 1958 measured in terms of funds administered by it, or a total of \$9,030,038 as compared to \$8,252,540 in 1958 (see Table XL). There were increases in all funds except those coming from the Expanded Program of Technical Assistance of the United Nations, which continued the steady decline from the high point reached in 1956.

In recent years it has been necessary to draw upon the Working Capital Fund on occasion to meet deficits between the authorized budget and actual quota collections and other income. These demands, plus a steady rise in the approved budget, had caused the Working Capital Fund, by early 1959, to fall far below its authorized level of 60 per cent of the approved budget. This problem was brought to the attention of the Directing Council which took action to urge more prompt payments of quota assessments and approved the assignment of a portion of the budget for gradually increasing the Fund until the authorized level has been reached. By economizing on operations at all levels, and taking advantage of postponed activities due to changes of government plans, delay in recruitment, and other such factors, it was possible to increase the

TABLE XXXIX. BUDGET OF THE PAN AMERICAN HEALTH ORGANIZATION, 1959

TOTAL	\$ 10,187,387
PAN AMERICAN HEALTH ORGANIZATION	7,429,490
Regular Budget	3,600,000
Other Funds for Specific Purposes	3,829,490
a) Special Malaria Fund	(2,814,070)
b) Institute of Nutrition of Central America and Panama (INCAP)	(355,000)
c) Program of Technical Cooperation of the Organization of American States (OAS-TA)	(462,554)
d) Other funds	(197,866)
WORLD HEALTH ORGANIZATION	2,757,897
Regular Budget for Region of the Americas	1,613,817
Technical Assistance Funds of the United Nations, administered by WHO	1,144,080

TABLE XL. PAHO AND WHO EXPENDITURES IN 1959, BY SOURCE OF FUNDS

PAHO	
PAHO—Regular Budget	\$3,334,010
PAHO—Special Malaria Fund	1,978,905
PAHO—Special Appropriations	7,171
PAHO—Fire Settlement Fund	1,229
Grants and other Contributions to PAHO	241,060
Organization of American States—	
Technical Cooperation	368,563
INCAP—Regular Budget	104,679
INCAP—Special Appropriation	5,000
Grants and other Contributions to INCAP	246,680
PAHO Subtotal	\$6,287,297
WHO	
WHO—Regular Budget	\$1,622,516
WHO—Malaria Eradication Special Account	10,986
WHO—Technical Assistance	1,120,225
WHO Subtotal	\$2,753,727
PAHO/WHO Subtotal	\$9,041,024
Procurement Services in the Americas For Government Administrations, Public Institutions, etc.	880,471
GRAND TOTAL	\$9,921,495

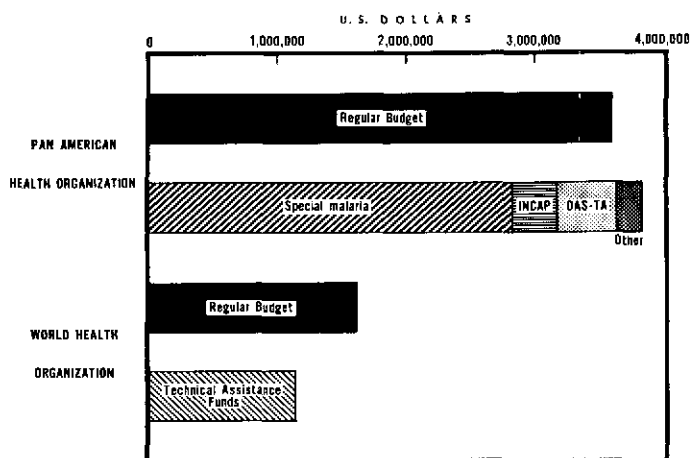
Working Capital Fund from \$974,162 in January 1959 to \$1,181,335 in January 1960.

Payment of current and prior year quota assessments amounted to \$3,420,196, or 78 per cent of the total due, as compared with a collection rate of 74 per cent in 1958.

Through judicious use of periodic review of planned activities and a system for anticipating budgetary saving accruing from various delays and postponements, it has been possible to obtain maximum advanced planning and to make as full use as feasible of available resources.

During the year a study and evaluation of the budget system employed by the Bureau was inaugurated. It was believed that a more rational presentation of the Bureau's program and financial plans could be developed and that some simplification in the budgeting and accounting structure would lead to improved management of the Bureau's operations. In June the Director asked an Advisory Committee of budget experts to advise him on the feasibility of a program budgeting and accounting system for the Organization. After a meeting at Headquarters, the Committee endorsed such a system and work has been

SOURCE OF FUNDS FOR PROGRAM OF THE PAN AMERICAN HEALTH ORGANIZATION, 1959



started by an internal committee on the steps necessary to implement such a budgetary system.

The XI Meeting of the Directing Council approved the Executive Committee recommendation regarding the proposed program and budget of PAHO for 1960 in the amount of \$4,100,000, to be used in programs relative to four major objectives: a) eliminating pestilential diseases; b) integration of health functions; c) training of personnel; and d) stimulation of research.

Conference and Language Services

In addition to the regular organizational meetings, secretarial services were furnished to the XVII Annual Meeting of the U.S.-Mexico Border Public Health Association (Brownsville, Texas—Matamoros, Tamaulipas, March 30–April 3); the VII Meeting of Directors of Malaria Eradication Services of Central America, Mexico, and Panama (Panama City, Panama, April 13–17); the first International Conference on Live Poliovirus Vaccines (Washington, D.C., June 22–26); the Seminar on Teaching Public Health in Schools of Veterinary Medicine (Kansas City, Missouri, August 17–22); and the X Meeting of the Council of INCAP (Guatemala City, Guatemala, September 17–19).

Supply

Procurement services were carried out on behalf of PAHO Member Governments and WHO Headquarters in Geneva, as well as for the regular operating needs of the Bureau. The volume of this service can be indicated as follows:

1,794 orders; 7,720 items purchased; \$2,372,108 value.

Purchases for Member Governments reflected a significant increase over the corresponding figures for 1958. The increase was from 853 line items, costing \$404,659 in 1958 to 1,372 line items, costing \$995,777 in 1959.

Legal Matters

The XV Pan American Sanitary Conference, meeting in San Juan, Puerto Rico, in 1958, authorized the appointment of a subcommittee to review the texts of the Constitution and other basic documents of the Pan American Health Organization. This study is designed primarily to improve the clarity and equivalence of meaning between the English and Spanish texts of the basic documents. A Subcommittee on Basic Documents, composed of representatives of Brazil, Mexico and the United States, was appointed and began its study of these matters with assistance by the staff of the Bureau and with legal advice from the Department of Legal Affairs of the Pan American Union. A progress report covering work to date was submitted to the XI Meeting of the Directing Council.

The Directing Council authorized amendments to the Financial Regulations which clarified the authority of the Director to receive and administer the funds and other assets of the Organization, and extended the period in which funds obligated for fellowship awards would remain available for expenditure.

Headquarters Accommodation

To implement its offer of a site for the construction of a Headquarters building for the Pan American Health Organization, the U. S. Government began the necessary legislative steps in 1959. A Bill to authorize the acquisition of a suitable plot of land was introduced into both Houses of the U. S. Congress, and passed by the Senate on August 20.

The increasing shortage of office space in the existing Headquarters buildings became so acute that it was necessary to lease additional office space at a separate location. Headquarters offices are thus divided among four different buildings with consequent problems of communication and coordination.

In October a fire occurred on the second floor of the main Headquarters building and seriously damaged the office space occupied by the Malaria Eradication office. Since the loss was completely covered by insurance, the Bureau suffered no financial loss. It was necessary, however, to do a considerable amount of office rearrangement and crowding in order to continue operations without interruption pending the repair of the damaged offices.

Zone and Field Offices

Field Office, El Paso

The Field Office, El Paso (FEP) helps to coordinate public health efforts along the U.S.-Mexico border. Its personnel in 1959 consisted of a medical officer, an administrative officer, and two stenographers. A post for veterinary medical officer has been added for 1960. The Chief of FEP is the Permanent Secretary of the U.S.-Mexico Border Public Health Association, which meets annually to discuss health problems along the frontier common to both countries. The XVII Annual Meeting of the Association convened both in Brownsville, Texas and Matamoros, Mexico, March 30-April 3.

This year's sessions, besides dealing with matters on major communicable diseases such as rabies, tuberculosis, and venereal disease, also took steps to lay the foundation for a joint meeting of the Association with the western branch of the American Public Health Association (APHA) scheduled for June 19, 1961 in San Diego, California. The next meeting of the U.S.-Mexico Border Public Health Association will be held in Hermosillo, Sonora in April 1960.

In 1959 the Field Office, El Paso collaborated with national and state health authorities in various communicable disease activities (rabies, tuberculosis, venereal disease, typhoid fever, poliomyelitis, leprosy, encephalitis, diphtheria, smallpox, and diarrheal disease), in addition to problems in vector control and air pollution, and to matters of education and training. Nine fellows received training under arrangements of FEP. The Field Office likewise participated in meetings of several other organizations: a) personnel from Region VII, USPHS; b) the Cameron County Tuberculosis Association; c) the District Health Officers, New Mexico; d) the Texas Graduate Nurses Association; e) the Los Angeles City Board of Health; and f) the Orange County (California) Health Department.

Zone I

The Zone I Office, with headquarters in Caracas, Venezuela serves more than 20 widely scattered health departments, including Venezuela and the Caribbean area.

Activities during the year were concentrated in the field of malaria eradication, for which there were eight active programs in operation, and eradication of *A. aegypti*, yaws, and smallpox. Other specific diseases receiving special attention included tuberculosis, leprosy, rabies, venereal disease, filariasis, onchocerciasis, plague, and foot-and-mouth disease.

With the arrival of the zone and AMRO-95 engineers in May, Zone I is now better equipped to intensify work in the field of environmental sanitation. Numerous surveys on water-supply and waste-disposal problems were conducted.

Other services were provided to the health departments in such fields as maternal and child health, public health nursing, health education, public health laboratory, dental health, and mental health.

Education and training efforts were directed toward: 1) the Malaria Eradication Training Center in Jamaica, which gave four courses in 1959 for 65 trainees (physicians, engineers, entomologists, and sanitarians); 2) providing assistance to medical schools in the Zone; and 3) provision of fellowships, of which there were 50* awarded during the year.

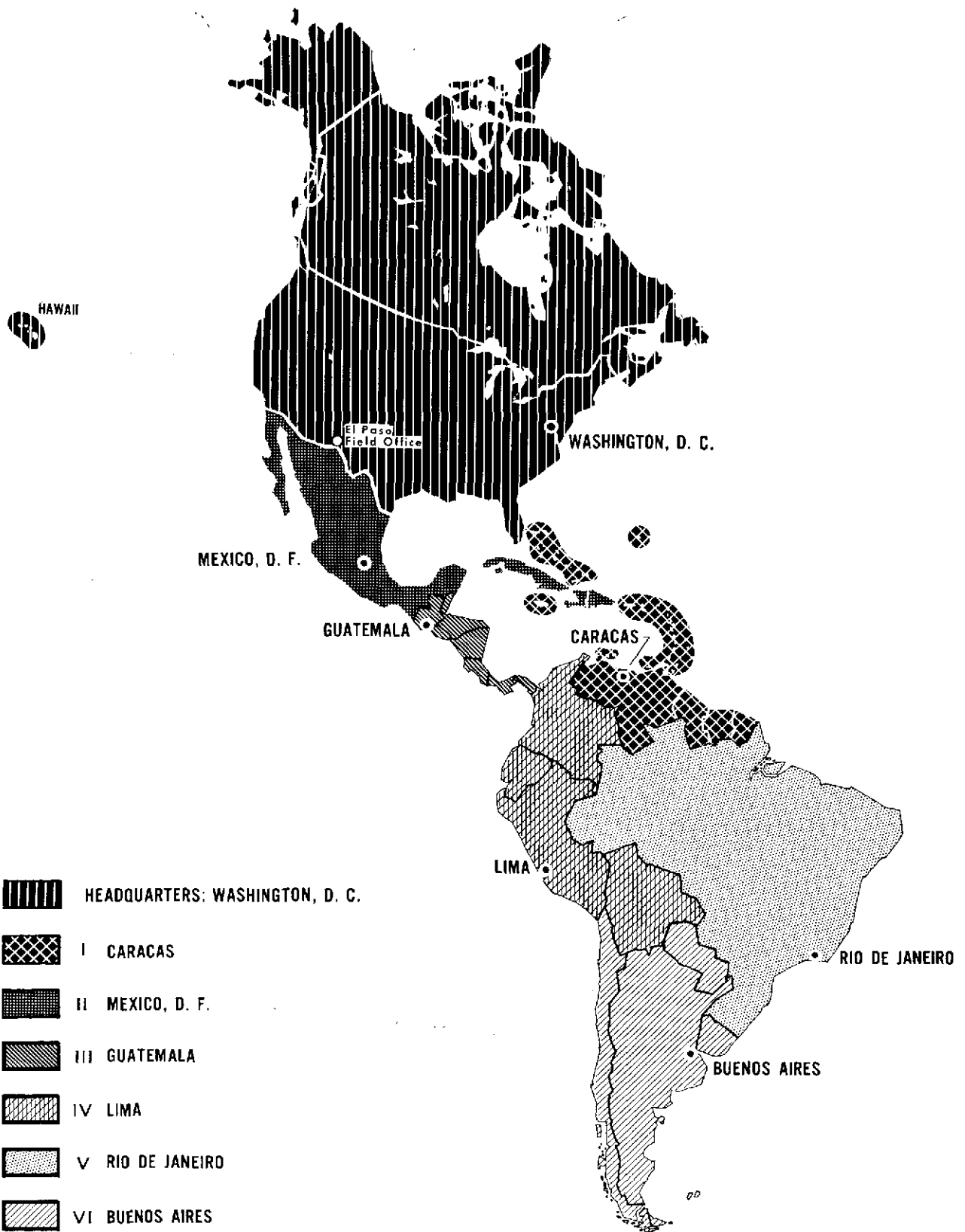
As of December 31, there were 39 international and 16 local staff members on duty in the Zone.

Zone II

The Zone II Office is located in Mexico City, and covers operations in Cuba, the Dominican Republic, Haiti, and Mexico.

*From December 1, 1958 to November 30, 1959.

ZONES AND ZONE OFFICES OF THE PAN AMERICAN SANITARY BUREAU



Eradication activities during the year were focused on malaria and yaws. Disease control efforts were directed mainly against tuberculosis, poliomyelitis, and leprosy, and smallpox vaccine production.

Consultant services on public health administration were provided to most of the countries of the Zone.

Education and training activities included collaboration with several schools of medicine, nursing, sanitary engineering, and veterinary medicine. Forty-three fellowships were awarded in 1959 and 22 additional awards were being processed as the year ended. A number of courses, round tables, and seminars were also held, details of which are spelled-out in other sections of this Report.

Close relations were maintained with the UN Office of Public Information in Mexico in publicizing PAHO/WHO activities.

The Zone II Office moved to its new headquarters building on March 30.

At the end of the year there were 42 international and 15 local staff members on duty in the Zone.

Zone III

The Zone III Office, with headquarters in Guatemala City, is responsible for program development in Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, and British Honduras.

Through 15 separate projects in the countries and through related inter-country projects, technical advice was provided in such fields as: a) organization and development of public health services (El Salvador, Guatemala, Honduras, and Panama); b) nursing education and training of nursing auxiliaries (Guatemala and Nicaragua); c) malaria eradication (all countries); d) tuberculosis control (Guatemala); and e) oral vaccination against poliomyelitis (Costa Rica).

In addition to continuous consultant services provided to the governments by the zone medical officer, engineers, and nursing advisers, the Office was likewise responsible, through nine inter-country projects, for collaboration with countries in initiating, developing, consolidating, or completing programs in eradication of *A. aegypti*; in vital and health statistics; and in veterinary public health. It aided governments in other disease control work in such fields as smallpox, leprosy, and several zoonoses, including rabies, brucellosis, and animal tuberculosis.

The Institute of Nutrition of Central America and Panama (INCAP) is located in Guatemala City. In 1959 INCAP completed its 10th year of activities in nutrition assistance to member countries.

Relative to education and training, the Zone Office gave assistance to several schools of medicine and nursing in the Zone and to the School of Veterinary Medicine in Guatemala. Fellowships awarded in all fields numbered 91 by November 30.

As of December 31, there were 62 international and 17 local staff members on duty in the Zone. These figures do not include INCAP personnel.

Zone IV

The Zone IV Office, which serves Bolivia, Colombia, Ecuador, and Peru is located in Lima.

Major activities during 1959 centered on: a) organization and integration of health services; b) eradication of malaria (in the four countries of the Zone) and smallpox (in Colombia and Ecuador); c) training of professional and auxiliary personnel in local courses and through fellowships abroad; and d) nursing education.

The *Aedes aegypti* eradication program in Colombia was in its last stage and close to its ultimate goal as the year ended. As in the past, the health aspects of the Andean Indian Program were cared for by a special consultant. Other fields of activities included water-supply and waste disposal facilities, nutrition, and veterinary public health.

In education and training, the Zone Office collaborated with the School of Public Health in Colombia and with the Nursing Schools of La Paz, Bolivia and Guayaquil, Ecuador. A post-graduate course for nurses was also assisted in Peru. One-hundred-and-fifteen fellowships were awarded in the Zone during the year to enable national health personnel of the four countries to take up advanced studies.

As of December 31, there were 56 international and 13 local staff members on duty in the Zone.

Zone V

The Zone V Office serves Brazil and has headquarters in Rio de Janeiro.

Eighteen projects were active in 1959, an increase of six over the year before and 10 over 1957. In addition to its normal operations, the Office was administratively responsible for project AMRO-77, which is under the technical supervision of Washington Headquarters.

Major activities were directed toward two integrated health projects in Brazil, a survey of health statistics, and problems related to public health nursing in the country. In the field of communicable diseases, work went forward against yellow fever, plague, smallpox, malaria, schistosomiasis, chagas disease, poliomyelitis, brucellosis, and rabies.

The Pan American Foot-and-Mouth Disease Center in Rio de Janeiro continued to maintain close liaison with ministries of agriculture in developing long-range plans for the eventual eradication of aftosa.

Collaboration was also extended to several of the training programs in the country, including those in the School of Hygiene and Public Health in São Paulo, the new School of Public Health in Rio de Janeiro which was inaugurated in November, the National Leprosy Service, the Oswaldo

Cruz Institute, the Butantan Institute, and other health organizations. The dental public health course in São Paulo began its second year of operation in February and is described in more detail in the section on public health administration. Other training included the Seminar on Malaria Eradication Evaluation Techniques (AMRO-125), held in Petropolis, State of Rio de Janeiro, November 29--December 7; the II, III, and IV Courses at the Training Center for Malaria Eradication (AMRO-137), held at the Faculty of Hygiene in São Paulo; and the special entomology course conducted between September 1 and December 20.

The number of trainees who came from other areas to receive instruction in the Zone during the year amounted to 58. Forty-four fellowship awards were made in the Zone for study elsewhere.

As of December 31, there were 13 international and seven local staff members on duty in the Zone, not including the personnel of the Pan American Foot-and-Mouth Disease Center, which had nine international and 82 local staff members.

Zone VI

The Zone VI Office is located in Buenos Aires, and covers the four southernmost countries of South America--Argentina, Chile, Paraguay, and Uruguay.

Work in 1959 was carried out primarily through public health projects in all countries, while plans were made for

development of potable water supply in urban areas. In Argentina activities were concentrated chiefly in seven provinces (Buenos Aires, Mendoza, Salta, San Juan, Santa Fé, Rio Negro, and Tucumán), with assistance being given in hospital organization, maternal and child health, decentralization of health administration and health legislation.

Also, there was consolidation of communicable disease programs relative to eradication of malaria, *Aedes aegypti*, and smallpox, and campaigns were initiated for tuberculosis and leprosy control.

Efforts continued in relation to nursing education through development of schools of nursing and in programs for preparation of auxiliary personnel. Activities in this field culminated in the V Regional Nursing Congress (Buenos Aires, October 25-31), in which nearly 500 delegates from the continent participated. During the year the number of fellowships awarded in the Zone increased to 155, as compared to 130 in 1958 and to an average of 80 in earlier years.

The Pan American Zoonoses Center which is located in Azul, Argentina, continued to implement its programs of education, service, and research. Details of the Center's operation in 1959 will be found in another chapter of this Report.

At the end of the year, there were 34 international and 11 local staff members on duty in the Zone, not including personnel of the Pan American Zoonoses Center, at Azul, which had four international and 25 local staff members.

APPENDIX

Project List

The Project List presents alphabetically a brief summary of work done during the year in each country, and descriptions of work carried out under the intercountry and interzone projects.

At the end of each summary, the reader will find the

source of funds on the left, and the cooperating agency, if any, on the right.

In addition to the projects listed, the Organization also provided advice of its staff to several projects. These operated without PAHO/WHO funds.

Abbreviations used in the Appendix are:

FAO	Food and Agriculture Organization	UN	United Nations
ICA	International Cooperation Administration	UNESCO	United Nations Educational, Scientific, and Cultural Organization
ILO	International Labor Organization	UNICEF	United Nations Children's Fund
INCAP	Institute of Nutrition of Central America and Panama	UN/TA	United Nations-Technical Assistance
NIH	National Institutes of Health	USPHS	U. S. Public Health Service
OAS/TA	Organization of American States-Technical Assistance	WHO	World Health Organization
PAHO	Pan American Health Organization	WHO/TA	World Health Organization-Technical Assistance
PAHO/SMF	Special Malaria Fund of PAHO		

ARGENTINA-3—Nursing Education (Córdoba, El Chaco)

Consultation services were given to two schools, one in Córdoba and the other in Chaco. In reorganizing the school in Córdoba the following important steps were taken: a) a budget for the school was obtained; b) full-time positions for the nurse-director and several instructors were set up; and c) a building on the campus of the University City was given to the school, which provides for classrooms, laboratory, library, offices, and residence for 40 students.

The School of Nursing in Resistencia (Chaco) was created by the provincial government with the help of the Organization in 1958 with a total enrollment of 15, of whom only two remain at the school at present.

(WHO/TA)

ARGENTINA-4—National Institute of Microbiology

Two awards have been made this year:

A 12-month award in the field of virology for study in the U. S. A.; and

A 12-month award in the field of microbiology for study in the U. S. A.

(WHO)

ARGENTINA-6—Public Health Administration—Fellowships

Health Education. A 12-month award for study in Puerto Rico.

Public Health Administration. Two 10-month awards for study in Chile.

Health Education. A 12-month award for study in Chile.

Public Health Administration. An 11-month award for study in Brazil.

Hospital Administration. A 15-month grant for study in Brazil.

Maternal and Child Health. Two awards of 10-months duration each for study in Chile.

Hospital Administration. A 10-month award for study in Chile.

Hospital Administration. A 15-month award for study in Brazil.

Vital Statistics. Two grants of five months duration for study in Chile.

Epidemiology. One award of 11-months duration for study in Brazil.

(WHO)

ARGENTINA-7—Public Health Services

Reorganization of the provincial health services started and all medical care services were decentralized from the national to the provincial level.

A sanitary code was drafted and presented to the local Congress.

Courses were held in environmental sanitation, statistics, and nutrition.

(WHO/TA)

(UNICEF)

ARGENTINA-8—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF)

ARGENTINA-13—Public Health Administration—Fellowships

One award of 10 months duration in the field of public health administration for study in Chile.

One award of 10 months duration in the field of maternal and child health for study in Chile.

One award of one month duration in the field of health statistics for study in Chile.

One award of 15 months duration in the field of hospital administration for study in Brazil.

One award of four months duration in the field of medical records librarianship for study in Chile.

One award of four months duration in the field of microbiology for study in the U. S. A.

One award of 12 months duration in the field of public health nursing for study in Puerto Rico, followed by a short field program in Costa Rica.

One award of four months duration in the field of radioisotopes for study in Puerto Rico.

One award of 12 months duration in the field of medical technology for study in Puerto Rico.

One award of 12 months duration in the field of nursing education for study in Costa Rica.

Six awards of five months duration in the field of vital statistics for study in Chile.

One award of 10 months duration in the field of public health administration, with emphasis on health education, for study in Chile.

One award of 12 months duration in the field of nursing education, with emphasis on obstetrics, for study in Colombia, followed by a field program in Brazil.

One award of 11 weeks duration in the field of public health dentistry for study in Brazil.

One award of 10 months duration in the field of vital statistics for study in Chile.

(PAHO)

ARGENTINA-18—Medical Education

Six fellowships were awarded under this project for study in organization of medical education in other countries.

Four awards of two months duration each were made in the field of medical education for study in the U. S. A.
(WHO)

ARGENTINA-20—Tuberculosis Control

During the year plans were laid for a survey, which will start in 1960, to determine the prevalence of tuberculosis in Argentina, as a preliminary step in organizing and developing at a later date a program for the control of this disease.

(WHO)

(UNICEF)

ARGENTINA-23—Nursing Education (Rosario)

A national nurse was appointed director of the school; four nurse-instructors and the rest of the faculty were appointed. Classes began in May with 30 students who fulfilled all university entrance requirements, 22 of whom remained at the end of the year.

(PAHO)

ARGENTINA-24—Planning and Organization of Hospital Services

Assistance was given to the National Ministry of Health, especially to the "Subsecretaría" to the "Dirección de Organización de Servicios Médicos Sanitarios" and "Dirección de Estadística y Economía Sanitaria". Technical assistance was also given to the Ministries of Health of the Provinces of El Chaco, Córdoba, Buenos Aires, Salta, and Tucumán. Assistance was furnished to the medical schools of the Universities of Buenos Aires, La Plata, and Córdoba. Demonstration areas have been established in several of the hospitals and a national hospital census has been started. Assistance was given to several courses held for service and teaching purposes.

(PAHO)

ARGENTINA-26—National Institute of Rehabilitation

In 1959 two consultants completed their assignment at the Institute. They collaborated in the technical and administrative reorganization of the Department of Occupational Therapy and Physical Therapy of the National Institute of Rehabilitation in Buenos Aires and in the training of professional and technical personnel specialized in rehabilitation. They also helped in the technical organization of a treatment unit at the Institute Marcelo J. Fitte, and assisted in the development of a plan for the organization of the School of Occupational Therapy in Buenos Aires. In addition, they surveyed 16 rehabilitation units in the Provinces of Córdoba, Santiago del Estero, Tucumán, Salta, Mendoza, San Juan, Santa Fe, Chaco and Misiones, with the objective of evaluating the existing rehabilitation facilities of the interior of the country and establishing

the needs for a long-range, comprehensive program in rehabilitation.

(WHO)

(Sister Elizabeth Kenny Foundation)

ARGENTINA-51—A. aegypti Eradication

Owing to the economic situation, the advances made were smaller than those obtained in previous years. Surveys were made in 272 localities, and verifications were carried out in 56 of them, 43 of which were free of the vector. This figure raises to 110 the number of localities free of *A. aegypti* of the 149 initially positive localities. The principal ports and airports of international traffic were maintained free of *A. aegypti*.

(PAHO)

BOLIVIA-4—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(WHO/TA, PAHO/SMF)

(UNICEF, ICA)

BOLIVIA-5—Nursing Education

Efforts of all national agencies that require nurses were coordinated for the purpose of developing the National School of Nursing. A governing board, composed of representatives of five national agencies was created, and physical facilities for the clinical experiences of student nurses were improved.

The student body totalled 62, with 28 students in the first year.

(WHO)

BOLIVIA-10—Public Health Services

A Sanitary Code was introduced. Steps have been taken to include gradually in the nation's budget the funds necessary for a new structure of the Ministry of Health. A National Health Council was organized and studies to set up a career service system for technical personnel were begun.

(PAHO)

(UNICEF)

BOLIVIA-11—Joint Field Mission on Indigenous Populations

Medical advisory services were given to the four centers in Bolivia, namely Cotoca, Otava, Pillapi, and Playa Verde, to promote and better the health of the population as part of the economic and social development of the Bolivian highlands.

(WHO/TA)

(ILO, UNESCO, FAO, UN)

BRAZIL-8—National Virus Laboratory Services

The Oswaldo Cruz Institute expanded and improved its virus laboratory activities during the year.

A two-month, three-week award was given to study laboratory services in Colombia, the U. S. A., Canada, England, Denmark, Argentina, and Uruguay.
(WHO/TA)

BRAZIL-16—Public Health Administration— Fellowships

Tuberculosis. One award of three months in this field for study in Canada, Japan, Mexico, and the U.S.A.

Tuberculosis. One two-month, one-week award for study in Canada, Japan, and the U.S.A.
(WHO/TA)

BRAZIL-18—National Food and Drug Service

Work on re-writing of legislation and development of drug and biologics control laboratories continued.

A Federal Food and Drug Control Service for the entire country was developed.
(WHO)

BRAZIL-19—School of Public Health (Rio de Janeiro)

The visiting professor, who has been advising on organization of the School, finished his two-year assignment during 1959. A decree establishing the basis for the School has been issued.

(WHO)

BRAZIL-24—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF) (ICA)

BRAZIL-28—Public Health Administration— Fellowships

One award of 12 months duration in the field of nursing education for study in the U.S.A.

One award of two months duration in the field of public health administration, with emphasis on rural health services, for study in the U.S.A., Puerto Rico, Mexico, Guatemala, Panama, and Peru.

Two awards of four months duration in the field of control of pharmaceutical preparation for study in the U.S.A. and Canada.

(PAHO)

BRAZIL-31—Rehabilitation Training Center

Assistance was given in the course for physical therapists and for occupational therapists, as well as to other special courses held during the year.

(WHO/TA) (ILO, UN/TA)

BRAZIL-34—Seminar on Diarrheal Diseases

The seminar was held between November 16 and 21 in Recife, Brazil, with the attendance of 59 participants. The problem of diarrheal diseases was discussed and recommendations for its control were presented.

(PAHO)

BRAZIL-35—School of Public Health (São Paulo)

Fellowships were awarded to faculty members to study the organization of public health in countries of Latin America and Europe, respectively. The first award of three months duration was in the field of organization of public health teaching for study in Chile, Colombia, Guatemala, Mexico, Panama, Paraguay, Peru, and Puerto Rico. The second award of four months duration was for study of the organization of public health teaching, with emphasis on tuberculosis, in Canada, Czechoslovakia, Denmark, France, Italy, Norway, U.K., and the U.S.A.

(WHO)

BRAZIL-38—Smallpox Eradication

During 1958-59 the necessary materials were provided to equip three laboratories for the production of lyophilized smallpox vaccine (Rio de Janeiro, Recife, and Porto Alegre), and a fellowship was awarded to a Brazilian physician to visit large centers of vaccine production in South America, the U.S.A., and Europe, to learn the practices in use.

(PAHO)

BRAZIL-41—Malaria Eradication (São Paulo)

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

BRAZIL-42—Rabies Control

With technical consultation provided by the Zone and Washington Offices, a Bi-Ministerial Coordinating Committee for a national rabies control program was established.

Educational materials were developed, rabies control campaigns were begun in some areas, and vaccine production commenced.

(WHO)

BRAZIL-51—Yellow Fever Laboratory

There were 3,901,800 doses of vaccine distributed by the Oswaldo Cruz Institute in 1959. Of these, 100,000 were sent to Portugal, and 400,000 were distributed to three American countries through PAHO.

(PAHO)

BRITISH GUIANA-5—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF)

BRITISH GUIANA-7—Filariasis

A short-term consultant visited British Guiana to appraise present filariasis control programs and assist with planning improvements and needed research work.

(PAHO)

BRITISH GUIANA and WEST INDIES-1—

A. aegypti Eradication

Eradication has been achieved in British Guiana and Bermuda. The following islands are showing negative results and soon can be declared free from *A. aegypti*: Bermuda, Antigua and Barbuda, Grenada, Montserrat, St. Vincent, St. Kitts, St. Lucia, Nevis, Trinidad and Tobago. Eradication work is under way in Anguilla, Barbados, Grenadines, Jamaica, Carriacou and British Virgin Islands. Little activity was carried out in Dominica.

(WHO/TA, PAHO)

BRITISH GUIANA and WEST INDIES-3—Public Health Nursing

The consultant reported for duty in the last quarter of the year and made a brief orientation visit to Barbados, Trinidad, and British Guiana.

(WHO/TA)

BRITISH GUIANA and WEST INDIES-4— PAHO Public Health Administration— Fellowships

Environmental Sanitation. Two three-week awards for study in Puerto Rico.

Environmental Sanitation. Two three-month awards for study in Puerto Rico.

Environmental Sanitation. One eight-week award for study in Puerto Rico.

Health Education. One 12-month award for study in the U.S.A.

Public Health Nursing. One 12-month award for study in the U.S.A.

Environmental Sanitation. Two eight-month awards for study in the U.S.A.

(PAHO)

BRITISH GUIANA and WEST INDIES-5—Public Health Administration—Fellowships

Public Health Administration, with emphasis on Mental Health. A 12-month award given to Barbados for study in the U.S.A.

Leprosy. A nine-week award given to British Guiana for study in Venezuela, Brazil, and Surinam.

Aedes-aegypti. A 26-day award given to Barbados for study in St. Kitts, Anguilla, and Barbados.

Environmental Sanitation. A seven-month award given to Barbados for study in this field in the U.S.A.

Cancerology, with emphasis on Cytology. A six-month award given to Trinidad for study in the U.S.A.

Tuberculosis. A eight-week award given to Jamaica for study in England.

Nutrition. One four-month award given to Jamaica for study in Guatemala.

Environmental Sanitation. A one-month award given to Trinidad for study in Puerto Rico.

Rehabilitation, with emphasis on Poliomyelitis. An 11-month award given to Jamaica for study in the U.S.A.

(WHO)

BRITISH HONDURAS-1—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF)

BRITISH HONDURAS-5—Public Health Services

A 12-month fellowship was awarded to a sanitary engineer in order to prepare him to take over the environmental sanitation activities.

(WHO)

(UNICEF)

BRITISH HONDURAS-6—Public Health Administration—Fellowships

Environmental Sanitation, with emphasis on Sanitary Engineering. One 12-month award for study in the U.S.A.

(PAHO)

CANADA-2—Consultants in Specialized Fields of Public Health

Consultation was provided on the program for mentally deficient children and on public health nursing programs, with special reference to home care.

(WHO)

CHILE-18—Public Health Administration—Fellowships

Nursing Education. A 12-month award for study in the U.S.A., followed by a short field program in Costa Rica and Peru.

Virology. A four-month award in the field for study in Brazil, Mexico, and the U.S.A.

Geriatrics. A six-month award for study in the U.S.A. and Europe.

(WHO/TA)

CHILE-19—Food and Drug Control

Based on a recommendation made by a consultant which the Organization provided in 1958, a limited amount of supplies and equipment was delivered to the National Health Services of Chile to assist in their program of food and drug control.

(WHO/TA)

CHILE-20—Midwifery Education

Data have been gathered from various maternal and child health services in rural and urban sections of the country with regard to the present functions of the midwives. An analysis of these data is almost completed. In the School of Midwifery in Santiago, assistance has been given in the improvement of physical facilities where practical work is carried on, and the curriculum has been strengthened with the inclusion of more nursing.

(WHO)

CHILE-25—Public Health Administration— Fellowships

Occupational Health. A 12-month grant for study in the U.S.A.

(WHO)

CHILE-27—Public Health Services (Ovalle-Copiapo)

Some funds of this project were utilized to enable a consultant in pneumoconiosis who was on duty in Colombia to visit the Institute of Occupational Health in Santiago for consultation.

(PAHO)

(UNICEF)

CHILE-29—Advanced Nursing Education

Seventeen nurses were enrolled in the course, of whom seven were from countries other than Chile. An evaluation of this program suggested need for certain curriculum changes; for establishment of closer relationships between the school of public health, the schools of nursing, and the organization of registered nurses; for better continuity of education from basic to post-basic courses; and for better relationships with the national health services for improved field experiences. It was also ascertained that international advisory services were no longer required.

(WHO)

CHILE-31—School of Public Health

A fellowship was awarded for a faculty member to study (in the United States and Colombia) the organization of public health teaching, with emphasis on health statistics.

(WHO)

CHILE-33—Environmental Sanitation Training

A consultant reviewed the training program, advised on needed changes, and made recommendations on ways to assist the school further.

(WHO)

CHILE-36—A. aegypti Eradication

The agreement was signed, personnel were designated, and the vehicles and equipment were provided to start the program early in 1960.

(PAHO)

COLOMBIA-4—Public Health Services

A new structure for the Ministry of Health has been prepared by a National Planning Committee. Eleven new centers began operating, bringing the total to 20. Negotiations have begun to extend the project with the aim of organizing one pilot center in each department of the country. Courses were held for physicians, public health nurses, sanitary inspectors, and auxiliary nurses.

(WHO/TA)

(UNICEF)

COLOMBIA-5—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF, ICA)

COLOMBIA-17—Smallpox Eradication

It is proposed to vaccinate 80 per cent of the country's population against smallpox, in a house-to-house program, within a period of five years. The program was started in 1955. During 1959, 2,185,053 persons were vaccinated against smallpox which, together with the vaccinations applied in previous years, makes a total of 7,207,511 persons immunized in four consecutive years of work. The Samper Martinez Institute in 1959 produced 3,976,000 doses of lyophilized smallpox vaccine.

(PAHO,WHO/TA)

(UNICEF)

COLOMBIA-18—Public Health Administration— Fellowships

Leprosy. A two-month award for study in Brazil. Public Health Administration. An 11-month award for study in Brazil.

Public Health Administration. Two 10-month awards for study in Chile.

Veterinary Public Health. An 11-month award for study in Brazil.

(WHO)

COLOMBIA-19—Leprosy Control

In 1959 a study was completed of the status of leprosy

in Colombia and of the services for its control. The consultant entrusted with the study drew up the pertinent recommendations. A permanent consultant was assigned to the project in 1959.

(WHO/TA)

COLOMBIA-21—Public Health Administration—Fellowships

One award of 12 months duration in the field of public health administration for study in Puerto Rico.

One award of six months duration in the field of environmental sanitation, with emphasis on sanitary inspection, for study in Chile.

(PAHO)

COLOMBIA-22—A. aegypti Eradication

Recent verifications confirm the eradication of *A. aegypti* in the country, with the exception of Cucuta, which is situated near the border with Venezuela.

The final verifications to establish eradication officially throughout the country should be completed during the early months of 1960.

(WHO/TA)

COLOMBIA-24—School of Public Health

A visiting professor of microbiology helped reorganize the teaching program in this field, and participated in education of medical students in microbiology.

(WHO)

COLOMBIA-52—Yellow Fever, Carlos Finlay Institute

In addition to its long-term program of manufacturing 17D yellow fever vaccine and making epidemiological studies of yellow fever and other arbovirus infections, the Carlos Finlay Institute is assessing the feasibility of applying 17D vaccine by cutaneous scarification. It has been found in experimental trials that, with proper technique, a success rate of 98 per cent can be attained.

During 1959, 30,000 mosquitoes were captured and tested for virus. Twelve strains of arbovirus were isolated, none of them yellow fever.

During the year the Institute prepared 1,192,820 doses of yellow fever vaccine, and a total of 453,545 doses were shipped to other countries in the Hemisphere.

(PAHO)

COSTA RICA-2—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF)

COSTA RICA-14—Expansion of Local Public Health Services

One 12-month award to study public health administration, with emphasis on nutrition, in the U.S.A.

(PAHO)

COSTA RICA-18—Advanced Nursing Education

Two 12-month awards to study nursing education in the U.S.A.

(PAHO)

CUBA-1—A. aegypti Eradication

The new government is giving full support to the campaign which now has available the necessary material resources. Of the 84 localities inspected since the start of the campaign, 69 were infested. Post-treatment verifications were made in 18 of the latter and 14 were found to be still positive.

(PAHO)

CUBA-3—Public Health Services

A special consultant worked with the nationals during six months and a comprehensive plan for the reorganization of the Ministry of Health and the provincial and local health services, with a demonstration area in one of them, was developed. This plan will be implemented beginning in 1960.

(PAHO)

CUBA-5—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

CUBA-9—Waterworks Training Course

This was the initial course in a program to be continued in future years by the national government. Experience gained through this course will permit continuation without further help from PAHO.

(WHO)

DOMINICAN REPUBLIC-2—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF)

DOMINICAN REPUBLIC-3—Nursing Education

The first class of 15 students admitted in October 1958 has followed the program set up tentatively for a three-year basic course in nursing. Need for improvement in administration of the school and in preparation of the faculty for their teaching function is being approached through fellowships and in-service education.

The school year in the Dominican Republic begins in August but no new class was admitted to the school in 1959.
(WHO)

DOMINICAN REPUBLIC-4—Public Health Services

A National Committee to study the reorganization and expansion of health services was appointed. The health centers in San Cristobal and Ciudad Trujillo have continued both activities, services and training.
(PAHO) (UNICEF)

DOMINICAN REPUBLIC-8—A. *aegypti* Eradication

Because of shortage of personnel, activities were limited to certain towns in the interior. Spraying with dieldrin against malaria has covered all the rural areas, and it is hoped that *A. aegypti* has been eliminated as a result. The work in the capital has been suspended since the existence of DDT resistance has been determined. The campaign will be intensified in 1960.
(WHO/TA)

DOMINICAN REPUBLIC-10—BCG Vaccination

The mass BCG vaccination campaign, started in the latter part of 1958, continued during 1959, and is scheduled to be completed by the end of 1960.
Following the BCG campaign, a nation-wide tuberculosis control program will later be developed in stages.
(PAHO) (UNICEF)

DOMINICAN REPUBLIC-11—Public Health Administration—Fellowships

Environmental Sanitation. One 12-month award for study in the U.S.A.
(PAHO)

DOMINICAN REPUBLIC-52—Venereal Disease Control

This project includes venereal disease control, yaws eradication, and the strengthening of the public health laboratory, particularly the serology section.
Important advances in these three fields were made in 1959. Training of personnel was carried out at different levels, giving uniformity to the techniques and procedures, and coordinating the control aspect of venereal diseases. In eradicating yaws, almost the entire country was covered in the first stage of detecting and treating cases and contacts. In 1959 the number of persons examined and treated reached 818,412, and the number of infectious forms detected was 181. Supervision of the work was completed in 16 provinces of the country.
(PAHO)

ECUADOR-4—Public Health Services

A department of epidemiology was created within the health department and four new health centers were inaugurated.
(WHO) (UNICEF)

ECUADOR-14—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.
(WHO/TA, PAHO/SMF) (UNICEF, ICA)

ECUADOR-16—Nursing Education

For the first time a third-year class, following the revised curriculum, was given theoretical and practical preparation in administration and teaching. A period for advanced practical experience in the area of each student's choice was planned. A nurse-educator was appointed and a short-course in teaching was given during vacation time to the group of instructors who have not had special preparation for their positions. Entrance requirements were raised to completion of secondary school education. Provision was made for a residence for 12 students who come from outside the city.

The student body consisted of:
1st year—15 students
2nd year—6 students
3rd year—10 students
(WHO)

ECUADOR-19—Public Health Administration—Fellowships

One award of 11 months duration in the field of epidemiology for study in Brazil.
(PAHO)

ECUADOR-20—Smallpox Eradication

It is proposed to immunize 80 per cent of the country's population against smallpox within a period of five years. During 1959, 428,365 vaccinations were applied. The accumulated total of immunizations carried out under the program amounted to 729,477 vaccinations in 1959. In the same year the National Institute of Hygiene produced 540,000 doses of lyophilized smallpox vaccine.
(PAHO)

ECUADOR-53—National Institute of Nutrition

The Institute has increasingly turned its attention to public health programs of nutrition, particularly nutrition education. Studies on clinical nutrition, especially on endemic goiter, have continued, as well as dietary surveys.
(WHO/TA)

EL SALVADOR-2—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.
(WHO/TA, PAHO/SMF) (UNICEF)

EL SALVADOR-5—Health Demonstration Area

During the year the area functioned as a training center for all types of health personnel.
(WHO/TA) (ILO, FAO, UNESCO)

EL SALVADOR-9—Public Health Administration—Fellowships

Public Health Administration. One 10-month award for study in Chile.
(PAHO)

FRENCH ANTILLES and GUIANA-1—Public Health Administration—Fellowships

Rehabilitation. A two-month award for study in the U.S.A.

Maternal and Child Health. A three month award for study in Canada.
(WHO/TA)

FRENCH ANTILLES and GUIANA-2—A. aegypti Eradication

The reinfestation of two localities of French Guiana, probably from Surinam, is being eliminated. The work is very slow in Guadeloupe and Martinique. Negativity has been obtained in St. Martin.
(WHO/TA)

GUATEMALA-1—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.
(WHO/TA, PAHO/SMF) (UNICEF, ICA)

GUATEMALA-6—Training of Nursing Auxiliaries

Twelve nurse-instructors, of whom seven were from countries other than Guatemala, were prepared, as were 87 nursing auxiliaries.

This program was broadened during the year to include consultation services to the national school of nursing, and one of the nurse-educators spent full time in that program beginning June 1. The other continues consultation to the project for training of auxiliaries and has given special emphasis to the improvement of field practice areas through an in-service program for head nurses in the general hospital, and to consultation on extension courses in the provinces.
(WHO)

GUATEMALA-8—Public Health Services

A plan for the reorganization of the health services has been worked out and the decentralization process has continued with the development of a system of health regions. Courses were held for physicians, nurses, sanitary inspectors, auxiliary nurses, and laboratory auxiliaries.
(WHO) (UNICEF)

GUATEMALA-11—Tuberculosis Control

This project is an experimental program designed to establish methods and procedures for locating tuberculosis cases, and home and out-patient treatment of patients and chemoprophylaxis of contacts. The program was started in September 1958, and as of September 1959, 80,252 photofluorographs had been made, 2,422 tuberculosis cases detected, and 2,553 persons treated on the basis of isoniazid.
(WHO/TA) (UNICEF)

GUATEMALA-12—Public Health Administration—Fellowships

Public Health Administration. One 11-month award for study in Brazil.

Public Health Nursing. One 12-month award for study in Chile.
(PAHO)

HAITI-1—Yaws Eradication

At the end of 1959, the number of infectious forms of yaws was reduced to zero in four of the five departments of Haiti, and intensive work was carried out in the fifth department to clear up the last cases estimated at some 300. Epidemiological surveillance and case reporting services were established and both are operating under highly satisfactory conditions.
(WHO, PAHO) (UNICEF)

HAITI-4—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.
(PAHO/SMF) (UNICEF, ICA)

HAITI-9—Public Health Laboratory

Laboratory aids and technical consultation were provided by PAHO. A fellowship was provided for a staff member of the laboratory.
(PAHO)

HAITI-12—Public Health Administration—Fellowships

Public Health Nursing. One 12-month award for study in Canada.

Laboratory Services, with emphasis on Mycology. One six-month award for study in Canada.

Public Health Dentistry. One 11-month award for study in Brazil.

(PAHO)

HAITI-14—*Aedes aegypti* Eradication

The campaign was temporarily suspended because of lack of funds.

(WHO/TA)

HAITI-15—Public Health Administration— Fellowships

A 19-month award was granted to a fellow from Haiti to study Hospital Administration in the United States and Puerto Rico.

(WHO)

HAITI-16—Public Health Services

Technical assistance was given to the Government of Haiti in the expansion of national, provincial, and local health services through a medical officer. Some fellowships were awarded for advanced training in public health of national health workers.

(WHO/TA)

HAITI-19—Medical Education

One full-time professor of physiology was appointed to assist in the organization of the Department of Physiology and to give advice on the general reorganization of the Medical School in Haiti.

(PAHO)

(ICA)

HONDURAS-1—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(WHO/TA, PAHO/SMF)

(UNICEF, ICA)

HONDURAS-4—Public Health Services

The five-year plan for reorganization of health services began its operation. The demonstration area was expanded to five additional municipalities, and a new health post was inaugurated. Courses were held for auxiliary nurses and sanitary inspectors.

(WHO/TA, PAHO)

(UNICEF)

HONDURAS-6—Public Health Administration— Fellowships

Tuberculosis. One two-week award for study in Guatemala.

Sanitary Engineering. A one-month award for study in Guatemala and Costa Rica.

Medical Education, with emphasis on Teaching of Preventive Medicine. One two-month award for study in El Salvador, Puerto Rico, and Colombia.

Public Health Administration. One 10 1/2-month award for study in Mexico.

(PAHO)

JAMAICA-2—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF, ICA)

MEXICO-14—Nursing Education

A seminar was held for a small group of instructors who later taught graduate nurses coming from the provinces. This course, from February 2 to July 28, prepared 29 instructors for schools of nursing outside Mexico City.

A consultant and her counterparts also gave advisory services to 10 schools of nursing in the provinces and made a study of 15 other schools to determine their needs.

(PAHO)

MEXICO-22—Public Health Services (Guanajuato)

Substantial progress in coordination of health activities has been achieved. A course for sanitary inspectors was held.

(WHO)

(UNICEF)

MEXICO-25—Public Health Administration— Fellowships

Hospital Administration. One 21-month award for study in the U.S.A.

Epidemiology, with emphasis on onchocerciasis. One three-month award for study in Switzerland, Belgian Congo, Uganda, Tchad, Nigeria, and French Sudan.

Laboratory Services, with emphasis on Brucellosis. One three-month award for study in the U.S.A.

(PAHO)

MEXICO-26—*A. aegypti* Eradication

The regional adviser on *A. aegypti* and a sanitary inspector cooperated with the Government of Mexico in a preliminary evaluation which covered 34 localities situated in areas (previously more heavily infested) in the States of Yucatán, Campeche, Tabasco, Veracruz, Oaxaca, and Chiapas. Only one locality in the State of Yucatán was found infested.

(PAHO)

MEXICO-28—Public Health Laboratory

A short-term consultant was provided to assist with the planning of an adequate and reliable animal colony.

Laboratory aids were supplied, nationally produced biologics were submitted for reference testing, and technical advice was provided by the Zone technical staff.

(PAHO)

MEXICO-30—School of Public Health

The nurse-educator worked with regular faculty members to improve teaching content and methods for other health workers, as well as for public health nurses.

(WHO)

MEXICO-32—Medical Education

A short-term consultant and assistance in organization and planning were provided under this project for a national seminar, held in Veracruz, Mexico, on teaching of environmental sanitation in schools of medicine.

(WHO)

MEXICO-33—Dieldrin Toxicity Studies

In collaboration with the Ministry of Public Health and Welfare of Mexico, the toxicological aspects of dieldrin in malaria eradication programs are being studied. Under this project, a physical examination will be given at regular intervals to a selected group of persons handling dieldrin, and a careful study and analysis will be made of results.

(PAHO/SMF)

MEXICO-34—Teaching of Public Health in Schools of Veterinary Medicine

Arrangements were made for three professors, who were traveling through Mexico, to give lectures at the National School of Veterinary Medicine and to discuss curriculum content with faculty members.

(WHO)

MEXICO-35—Environmental Sanitation Training

The consultant, as a result of his visit to Mexico, advised the Organization on his findings from a survey on the status of training in the schools of public health and sanitary engineering in connection with possible future assistance to the schools and in connection with guidance for the placement of fellows.

(WHO)

MEXICO-40—Mental Health

Assistance was given to the Government of Mexico in the restructuration and administration of mental health services, with particular emphasis on prevention, treatment, and rehabilitation, by means of a short-term consultant who studied the mental health situation in the country and prepared a report with specific recommendations.

(PAHO)

MEXICO-53—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(WHO/TA, PAHO/SMF)

(UNICEF)

NICARAGUA-1—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF, ICA)

NICARAGUA-5—Nursing Education

The school progressed steadily under national direction. Principal achievements include: setting up of a new practice area for public health nursing; continued in-service education of the faculty; and an experiment in international collaboration for the provision of psychiatric nursing, theory, and clinical experience. Affiliation for this was sought in Costa Rica where a nine-week course was provided to 15 third-year students from Nicaragua. Until psychiatric nursing can be developed in Nicaragua, it is expected to continue this affiliation in Costa Rica.

The student body consisted of:

1st year—20 students

2nd year—9 students

3rd year—15 students

(WHO)

NICARAGUA-7—Public Health Administration—Fellowships

Nursing Education. Two 6-1/2 month awards for study in Mexico.

Biostatistics. One 12-month award for study in the U.S.A.

Nutrition. One 12-month award for study in Guatemala.

Vital Statistics. One five-month award for study in Chile.

(PAHO)

PANAMA-1—Public Health Services

The decentralization plan has been strengthened and a long-range program for the health regions prepared. Studies for the reorganization of the urban health departments of Panama City and Colon were initiated. A course for auxiliary nurses was completed.

(WHO/TA)

(UNICEF)

PANAMA-2—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(WHO/TA, PAHO/SMF)

(UNICEF)

**PANAMA-8—Public Health Administration—
Fellowships**

Public Health Administration. One 10-month award for study in Chile.

(PAHO)

PARAGUAY-1—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(WHO/TA, PAHO/SMF) (UNICEF)

PARAGUAY-9—Leprosy Control

To detect and treat the leprosy cases in the country and to proceed toward eliminating the foci, all coercive measures for isolating patients have been suppressed and treatment is given essentially in the home. In 1959, of the total of 3,174 cases detected and accumulated throughout the program, 2,235 were under regular treatment and epidemiological control. During 1959, mass examination of the population in the search for cases was discontinued, and the incorporation of the leprosy control activities within the regular public health services was started.

(WHO)

PARAGUAY-10—Public Health Services

The gradual reorganization of the Ministry of Health continued with the setting up of the Departments of Mental Health, Scientific Research, and Medical Care. A Sanitary Code has been prepared and will be sent to Congress. Two new health centers were built and four others were expanded. Courses were held for auxiliary nurses, obstetricians, laboratory technicians, and sanitary inspectors.

(WHO/TA) (UNICEF)

**PARAGUAY-12—Public Health Administration—
Fellowships**

One award of 11 months duration in the field of public health administration for study in Brazil.

One award of five months duration in the field of vital statistics for study in Chile.

(WHO)

**PARAGUAY-13—Public Health Administration—
Fellowships**

One award of eight weeks in the field of communicable diseases, with emphasis on smallpox, for study in Chile, Peru, and Colombia.

One award of four months duration in the field of bacteriology for study in Uruguay.

One award of 12 months in the field of public health nursing for study in Peru.

One award of six months duration in the field of food control for study in Venezuela.

One 12-month award in the field of medical technology for study in Puerto Rico.

(PAHO)

**PARAGUAY-16—Administrative Methods and
Practices in Public Health**

A study on the prevailing administrative methods and practices was done and steps have been taken to improve them.

(PAHO)

PERU-5—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(WHO/TA, PAHO/SMF) (UNICEF)

PERU-15—Advanced Nursing Education

A suitable building was rented to serve as headquarters for the Institute of Post-Graduate Studies in Nursing which is directed by a national nurse with two nursing instructors full-time and other faculty members part-time.

A 12-month course for nurse-instructors and supervisors was begun on June 22 with a student body of 36 graduate nurses. Since the nurses cannot afford to leave their positions, the course, which was originally planned for six months, has been extended to allow the students to devote half a day to it and continue working.

(WHO)

**PERU-21—Public Health Administration—
Fellowships**

Sanitary Engineering. One 12-month award for study in U.S.A.

Public Health Administration. One 10-1/2-month award for study in Mexico.

Public Health Administration. Two 10-month awards for study in Chile.

Veterinary Public Health. One 11-month award for study in Brazil.

Public Health Administration. Four 11-month awards for study in Brazil.

Maternal and Child Health. Two 10-1/2-month awards for study in Mexico. Also, one award of 10-months duration for study in Chile.

Vital Statistics. One award of five-months duration for study in Chile.

(WHO)

PERU-22—Public Health Services

The decentralization process continued with the organization of new health areas with full-time personnel.

Special attention has been given to the development of a program for water supplies in urban areas. A short-term consultant was hired to study the situation and possibilities of obtaining a bank loan for Areqüpa.

(WHO/TA)

(UNICEF)

PERU-23—Joint Field Mission on Indigenous Populations

The health services in the area have been slowly extended, and medical advisory services were rendered to the health centers in the area by the medical officer assigned to Bolivia-11.

(WHO/TA)

(UN, ILO, FAO)

PERU-25—Public Health Administration—Fellowships

One award of 12 months duration in the field of public health nursing for study in Puerto Rico.

One award of 10 months duration in the field of public health administration for study in Chile.

One award of 12 months duration in the field of public health administration for study in Puerto Rico.

One award of three months duration in the field of public health administration, with emphasis on preventive medicine, for study in England, France, Scotland, Sweden, U. S. A., and Yugoslavia.

One award of nine months duration in the field of medical entomology for study in Brazil.

One award of 12 months duration in the field of biostatistics for study in the U. S. A.

One award of 12 months duration in the field of public health nursing for study in Chile.

One award of 3-1/2 months duration in the field of public health administration for study in Panama, Guatemala, Mexico, U. S. A., Puerto Rico, and Brazil.

One award of 11 months duration in the field of environmental sanitation, with emphasis on sanitary engineering, for study in Brazil.

(PAHO)

SURINAM-1—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF)

SURINAM and NETHERLANDS ANTILLES-1— A. *aegypti* Eradication

Negativity has been achieved in Aruba, Bonaire, Saba, St. Eustatius, St. Martin. The residual positivity in Curaçao still persists, which will require the assignment of a sanitarian permanently to this island. Surinam is still infested and the information available indicates resistance of *A. aegypti* to DDT.

(WHO/TA)

SURINAM and NETHERLANDS ANTILLES-4— Public Health Administration—Fellowships

Laboratory Services, with emphasis on bacteriology. A three-month award for study in the U. S. A.

Epidemiology and Quarantine, with emphasis in Leprosy Control. A 10-week award for study in Venezuela and the U. S. A.

(WHO)

TRINIDAD-3—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF)

TRINIDAD-6—Public Health Legislation

The consultant made a second visit, studied the implementation of his recommendations on occasion of his first visit, and suggested recommendations for improvement of the legislation.

(WHO)

UNITED STATES-7—Public Health Administration—Fellowships

One 9-1/2-week award in the field of organization of public health teaching, with emphasis on sanitary engineering, for study in Turkey, Israel, Ethiopia, and Liberia.

A nine-week award in the field of the organization of public health teaching, with emphasis of occupational health, for study in Brazil, Chile, Colombia, and Peru.

(WHO)

UNITED STATES-10—Consultants in Specialized Fields of Public Health

A public health nurse-consultant visited the United States and discussed health nursing programs with appropriate officials in the field of home care.

(WHO)

UNITED STATES-11—Public Health Administration—Fellowships

Organization of Public Health Teaching, with emphasis on Public Health Nursing. One nine-week award for study in Brazil, Chile, Peru, and Colombia.

Organization of Public Health Teaching, with emphasis on Maternal and Child Health. One nine-week award for study in Brazil, Chile, Peru, and Colombia.

Rehabilitation, with emphasis on Speech and Hearing. One two-month award for study in the United Kingdom, Holland, Germany, Denmark, and Sweden.

Organization of Public Health Teaching, with emphasis on Nutrition. One three-month award for study in Switzer-

land, Italy, Egypt, Lebanon, Jordan, India, Indonesia, the Philippine Islands, and Japan.

(PAHO)

URUGUAY-5—Public Health Services

Four new health units began operations with adequately trained personnel, thus completing the coverage of health services of the country. Courses for sanitary inspectors and nursing auxiliaries were held.

(WHO/TA)

(UNICEF)

URUGUAY-10—Public Health Administration—Fellowships

Environmental Sanitation. One two-month award for study in the U. S. A.

Public Health Dentistry. One 11-week award for study in Brazil.

(PAHO)

VENEZUELA-1—Local Health Services

The sanitary engineer continued to assist the sanitation phase of the project and completed his assignment in February 1959.

(WHO/TA)

(UNICEF)

VENEZUELA-2—Mental Health

The consultant made a survey of the existing conditions and prepared a plan for expansion of the present program.

(WHO)

VENEZUELA-5—Onchocerciasis Investigation

Assistance was given in developing survey plans to define the extent of onchocerciasis in Venezuela.

The consultant completed his work and submitted a report toward the end of the year.

(WHO)

VENEZUELA-7—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

VENEZUELA-9—Public Health Administration—Fellowships

Public Health Administration. One 11-month award for study in Brazil.

Yaws Eradication. A one-month award for study in Haiti and Trinidad.

(PAHO)

VENEZUELA-10—Public Health Administration—Fellowships

Virology. A six-month award for study in Trinidad and the U. S. A.

Nursing Education. A 12-month award for study in the U. S. A.

(WHO)

VENEZUELA-11—Plague Investigation

The consultant commenced activities on September 19. Assistance was given to the national health officials for a survey of sylvatic plague areas in the country.

(PAHO)

VENEZUELA-14—Nursing Education

A study was made of the present curriculum and of the general education system of the country with a view to incorporating into the nursing curriculum as much as of the subject matter of general education as possible in order to provide the graduate nurse with a broader background in the humanities and social sciences.

Requirements for entrance into the National School of Nursing were raised from six to nine years of general schooling.

(WHO/TA)

VENEZUELA-16—Aedes aegypti Eradication

The year 1959 can be considered as the first year of operation of this program, and progress has been satisfactory. The survey of the metropolitan area of Caracas has been completed, followed by treatment of a few positive foci. The campaign is proceeding with the reconnaissance of the surrounding areas, including the rural districts of the periphery of Caracas and the State of Miranda.

(PAHO)

VENEZUELA-18—National Institute of Hygiene

A virologist and a laboratory animal care specialist visited Venezuela. The virologist has completed his investigations and submitted a report to the Organization. The laboratory specialist completed his work toward the end of the year.

(WHO/TA)

VENEZUELA-19—School of Public Health

A consultant spent 10 days in Caracas reviewing and discussing plans for the School of Public Health in the Universidad Central de Venezuela. The consultant's report covered a review of the background of the University and some aspects of medical education, together with his recommendations for the strengthening of the School of Public Health.

(WHO)

VENEZUELA-20—Public Health Aspects of Accident Prevention

The consultant visited Caracas for a two-week period and made recommendations for establishment of a Department of Prevention of Accidents in the Ministry of Health and discussed its functions and organization. The recommendations were submitted in a report to the government.

(PAHO)

WEST INDIES FEDERATION-11 (Jamaica)—Public Health Training Station

A review of the curriculum for training of sanitary inspectors was completed by the consultant and recommendations were offered for consideration in the future development of this activity.

(WHO)

WINDWARD ISLANDS-2—Malaria Eradication

For a description of work done under this project in 1959, please refer to the chapter on malaria eradication.

(PAHO/SMF)

(UNICEF)

AMRO-1—Environmental Sanitation Training

A sanitary engineer assisted with the practical training program of the School of Public Health of São Paulo, Brazil. Twenty-two fellowships were awarded for study as follows: 10 awards of 11-month's duration in the field of sanitary inspection for study in Brazil. The countries represented are: a) Argentina, 1; Brazil, 1; Colombia, 2; Dominican Republic, 1; El Salvador, 2; Honduras, 1; Peru, 1; Venezuela, 1; b) 12 awards of 11 month's duration in the field of sanitary engineering. The countries represented are: Argentina, 1; Colombia, 2; Dominican Republic, 2; El Salvador, 2; Honduras, 1; Peru, 2; Paraguay, 1; and Venezuela, 1.

Thirteen fellows from Argentina 1), Bolivia 1), Chile 1), Colombia 2), Ecuador 1), Paraguay 2), Peru 1), Trinidad 1), Uruguay 1) and Venezuela 2) received awards for participation in the Workshop on Programs for Training Sanitary Inspectors (Costa Rica).

Six fellowships were given for the Ground Water Development Course, USA, as follows: Brazil, 1; Honduras, 1; Peru, 1; Uruguay, 1; Venezuela, 2.

Two fellowships were awarded for study in a course in the U.S.A. on Waste Disposal, as follows: Panama, 1; Peru, 1.

In summary, fellowships were provided to the following courses and workshops:

<i>Courses and Workshops</i>	<i>No. of Fellowships</i>
Ground Water Development Course (Minnesota, U.S.A.)	6
Costa Rica Workshop for Training of Auxiliary Personnel in Sanitation	13

Disposal of Waste in the Marine Environment (Conference and Observation Tours)	2
Sanitarian training and engineering training at various institutions (WHO)	22

AMRO-7—A. aegypti Eradication (Central America and Panama)

Eradication has been completed in Panama, Nicaragua, Honduras, Guatemala, El Salvador, the Canal Zone, and British Honduras. Final confirmation of eradication is under way in Costa Rica.

(WHO/TA)

AMRO-8—A. aegypti Eradication (Caribbean)

Advisory and supervisory activities were carried out for the British, Dutch, and French areas, and to the Venezuela-16 project.

The following areas are free of *A. aegypti*: Aruba, Bermudas, Bonaire, Antigua, Barbuda, Grenada, Montserrat, St. Vincent, St. Lucia, St. Kitts, Nevis, and Trinidad. Programs are operating in Anguilla, Bahamas, Barbados, Curaçao, Grenadines, Jamaica, St. Martin, Saba, Tobago, St. Eustatius, and Trinidad. There is need for more intensive work in Dominica, Guadeloupe, Martinica, Puerto Rico, and the Virgin Islands (U.S.A.)

(WHO/TA)

AMRO-10—Inter-American Program for Education in Biostatistics

The School of Public Health of the University of Chile gave the seventh course on vital and health statistics for statisticians from eight countries. Fellowships for this course were awarded by the Organization for 13 students from the following countries: Argentina, 6; Colombia, 1; Honduras, 1; Peru, 3; and Uruguay, 2. Two-hundred-and-fifty-five statisticians from 20 countries have received training at this Center, of whom 128 were from Chile and 127 from other countries.

(WHO/TA)

AMRO-16—Assistance to Schools of Public Health

A professor of statistics visited schools of public health in São Paulo, Brazil, and Santiago, Chile to give lectures and consult on teaching programs. He also visited medical schools and public health training programs in Argentina.

A professor of public health administration visited schools of public health in Rio de Janeiro, Belo Horizonte, São Paulo, Buenos Aires, Santiago, and Mexico to analyze teaching programs, advise on necessary modifications, make recommendations on help by the Organization, and prepare the schools for participation in the Conference on Schools of Public Health (AMRO-152).

A fellowship was awarded to the Director of the School of Public Health in Buenos Aires to observe the program at the schools of public health in Puerto Rico and Brazil.

(WHO)

AMRO-17.5—Waterworks Training Course

This course was held in Montevideo, Uruguay, October 16-November 21, and was attended by 19 fellows from Argentina, Chile, Paraguay, and Uruguay.

(WHO)

AMRO-18—Medical Education

A short-term consultant reviewed teaching programs and gave lectures on medical statistics in schools of medicine in Costa Rica, El Salvador, Guatemala, Mexico, Peru, and Venezuela.

A consultant advised the Medical School of Honduras on the reorganization of the Department of Physiology.

A consultant advised on reorganization of the library of the Medical School in Panama.

A fellowship was awarded to a faculty member at the University College of the West Indies in Jamaica to study methods of teaching comprehensive medical care.

(WHO)

AMRO-23.5—V Regional Congress on Nursing

The V Regional Congress on Nursing was held in Buenos Aires from October 23 to 31. Six-hundred-and-seventy nurses were registered by the second day, 344 of whom were from countries other than Argentina. Twenty-one countries, including Trinidad and Puerto Rico, were represented by 56 official delegates. The general theme for discussion was "Legislation for Improved Nursing Services."

Eighteen groups of 15-20 persons each were formed, and met twice daily after the first day for discussion of various phases of the central topic. Recommendations were made, which, if carried out, would greatly improve nursing education and practice in the Latin American countries.

(WHO)

AMRO-28—Advanced Nursing Education

Nine fellowship awards were made in 1959. All nine awards were for 12 months study in Chile.

Field	Countries represented and	
	No. of awards	
Public Health Nursing	Peru,	2
	Colombia,	1
	Ecuador,	1
	Uruguay,	1
Nursing Education	Colombia,	2
	Ecuador,	1
	Costa Rica,	1

(WHO)

AMRO-35—Fellowships (Unspecified)

Pediatric Survey. One five-month award granted to a fellow from Mexico for study in the U.S.A.

Public Health Administration. One eight-week award granted to a fellow from Venezuela for study in Guatemala, Mexico, Panama, and Puerto Rico.

Environmental Sanitation, with emphasis on Sanitary Engineering. One 12-month award granted to a fellow from St. Kitts for study in the U.S.A.

Nursing Education. Two 12-month awards granted to fellows from Argentina for study in Costa Rica.

Public Health Administration, with emphasis on School Health. One 12-month award granted to a fellow from the Bahamas for study in the U.S.A.

Laboratory Services, with emphasis on Chagas Disease. One three-month award granted to a fellow from Venezuela for study in Brazil.

Laboratory Services, with emphasis on Zoonosis. One nine-month award granted to a fellow from Ecuador for study in Argentina and Chile.

Tuberculosis with emphasis on Thoracic Surgery. One 12-month award granted to a fellow from Chile for study in England.

Environmental Sanitation, with emphasis on Sanitary Engineering. One three-month award granted to a fellow from Peru for study in the U.S.A.

Medical Supplies Administration. One two-month award granted to a fellow from Jamaica for study in the U.S.A. and Puerto Rico.

Aedes Aegypti Eradication. Two five-week awards granted to fellows from Honduras for study in Cuba.

Onchocerciasis. One three-month award granted to a fellow from Venezuela for study in Africa.

Laboratory Services. One six-month award granted to a fellow from British Guiana for study in the U.S.A.

Cancerology. One 12-month award for study in the U.S.A., granted by NIH to a Jamaican.

(PAHO, NIH)

AMRO-39—Environmental Sanitation

(Advisory Committee and Consultants)

This Committee met for three days in September to advise on the best methods for helping the Member Countries in development of their water-supply programs.

(PAHO)

AMRO-45—Laboratory Services

Cultures, strains, and standards were supplied to many laboratories.

Consultant services were provided with emphasis on improving the departments responsible for virology, laboratory animal colonies, and testing of biologicals.

The consultant developed an outline and manual for a technicians' training course.

(WHO)

AMRO-47—Yaws Eradication and Public Health Laboratory Services (Caribbean)

It is proposed to collaborate in studying the extent of the yaws problem and in conducting eradication programs in the countries and territories of the Caribbean area.

A medical consultant was assigned to the project in 1959. Surveillance activities were continued in eight islands where the yaws eradication campaign was considered terminated. In Trinidad coverage of the endemic area was completed and 49 infectious foci of the disease were detected.

(WHO/TA, PAHO)

(UNICEF)

AMRO-48—Seminar on Teaching of Public Health in Schools of Veterinary Medicine (Aug. 16-22, 1959)

A one-week seminar was held, Aug. 16-22 in Kansas City, Missouri, USA, attended by deans and professors from all veterinary medical schools in the Americas (Canadian and U.S. participants were paid for from other sources.) The report, prepared in English and Spanish, dealt with basic principles of veterinary education considered under:

a) Teaching Objectives; b) Curriculum; c) Teaching Staff and Facilities; d) Teaching Methods and Aids; and e) Research and Community.

The report laid great emphasis on the veterinarian's role in relation to the public health program of his country and community.

(WHO)

AMRO-54^a —Collaboration with INCAP

INCAP has continued programs of investigations, both at the laboratory and field study levels. An outstanding event was the development of INCAPARINA (INCAP Vegetable Mixture 9). Research has continued on the problems of protein malnutrition, supplementation of cereal proteins, and studies on avitaminosis A and atherosclerosis. INCAP has increased its advisory services to the member countries, both through training of local personnel in nutrition and through assistance to national nutrition sections in the development of programs.

(PAHO)

^aGrants received in 1959 from:

E. I. Dupont de Nemours and Co.

W. K. Kellogg Foundation

Lake States Yeast and Chemical

Division of St. Regis Paper Co.

Miller's National Federation

National Live Stock and Meat Board

National Academy of Sciences

National Research Council

Nutrition Foundation, Inc.

SCIDA—Servicio Cooperativo Interamericano de Agricultura

U. S. Public Health Service

National Institutes of Health

AMRO-57—Yellow Fever Studies

For details of the work done under this project in 1959, please refer to Colombia-52.

(PAHO)

(Gorgas Memorial Laboratory, The Rockefeller Foundation)

AMRO-60—Smallpox Eradication (Interzone)

The services of an internationally recognized laboratory were provided to make tests for ascertaining the purity and activity of the smallpox vaccine produced in the national laboratories of the countries in the Region. Also, laboratory equipment was furnished to the Oswaldo Cruz Institute of Brazil and to Argentina for the production of lyophilized smallpox vaccine.

A consultant collaborated with Mexican technicians in the wide-scale production of lyophilized smallpox vaccine.

(PAHO)

AMRO-61^b —Rabies Control

An adviser worked along the 2000-mile Mexico-USA border area to improve and coordinate local programs. Short-term consultant services were provided to Brazil, Argentina, Chile, Peru, and Panama.

(WHO)

AMRO-63—Assistance to Schools of Nursing

Copies of an important basic science text, in Spanish translation, were distributed to approximately 20 schools of nursing in 18 countries.

(WHO)

AMRO-67—Teaching of Public Health in Schools of Veterinary Medicine

A consultant visited schools in Argentina, Chile, Mexico, and Peru to review curriculum and advise on needed changes.

A second consultant visited schools in Brazil for the same purpose.

(WHO)

AMRO-72—Dental Health

The regional adviser in dental health has continued to assist the training program in dental public health at the School of Public Health in São Paulo, Brazil.

He has provided advice to the Governments of Argentina, Jamaica, Paraguay, and Venezuela in the development of their dental health programs.

(PAHO)

^bGrant received in 1959 from:

Unión Ganadera Regional de Chihuahua.

AMRO-76—Vaccine Testing

Help was given to laboratories engaged in the production of vaccines in the Americas to maintain high standards of potency and safety, by providing a reference testing service.

A grant was made to a reference laboratory toward costs of confirmatory testing of vaccines, antigens, and antisera for the national ministries of health.

(WHO)

(Michigan Department of Health)

AMRO-77—Pan American Foot-and-Mouth Disease Center

The Center conducted a training seminar in Argentina which was attended by 50 persons from five countries. Three long-term fellows studied at the Center. Approximately 550 field samples were received from 11 countries for laboratory examination and 3,365 serum samples were studied. At least one visit was made by Center staff members to each of the five countries, and another of the periodic studies of the status of vesicular diseases in the Americas was conducted. An international technical conference was held in Bogota, Colombia, attended by anti-aftosa service personnel from Colombia, Ecuador, Panama, and Venezuela, where plans were made for the necessary collaboration to attain a single aftosa program for the area. The research program included studies on the nature of aftosa virus, on the adaptation of the virus to laboratory animals, on the preparation of a live-virus vaccine, on improvements in the production of killed-virus vaccines, and on the development of a potency test for vaccines. During the year eight technical papers, prepared by Center staff members, were presented or published in various journals.

Special meetings of the Organization of American States made plans for financial support for the expanded program of the Pan American Foot-and-Mouth Disease Center.

(OAS/TA)

AMRO-81c —Pan American Zoonoses Center (Argentina)

Further development of education, service, and research activities was carried out. A general course on zoonoses control for post-graduate students was held from June 22 to July 10. A third one-year post-graduate fellow began his program at the Center on July 1, and a fourth on October 1.

Library and information services were extended during the year in which work was finished in cataloging and dividing reprints into author groups. The library now has a collection of 338 different journals, and 531 books.

^eGrants received in 1959 from:
American Cyanamid Co.;
E. R. Squibb and Sons; and the
Rockefeller Foundation

Production of *Brucellosis abortus* ring test antigen was started on a scale sufficient to provide for distribution to the different American countries. A study on brucellosis legislation in the American countries was initiated.

In order to gather more knowledge on the problem of animals and human anthrax in the Americas, a special bibliography study was initiated.

Work on field evaluation of "Bacterium" for leptospiroses control was continued, as well as study on leptospiroses in wildlife.

The study on the possibility of passive immunity in vampire bats through feeding on immune cattle was near completion.

Final preparations have been made for a field evaluation of a vaccine against hydatidoses in sheep.

Planning was initiated for a seminar early in 1960 on animal tuberculosis and its human health aspects.

(WHO/TA, PAHO, OAS/TA)

(FAO)

AMRO-85—Latin American Center for Classification of Diseases

In 1959 five courses were given by the Latin American Center with one in Caracas and the others in Argentina, Panama, Paraguay, and Peru. In all, 126 students received instruction in the classification of diseases. The influence of this Center, which is established in the Ministry of Health of Venezuela, is being extended widely in the Americas and has increased interest in medical certification and the use and correct interpretation of the International Classification of Diseases.

(WHO)

AMRO-86 Health Statistics (Zone III)

In Zone III the statistical consultant rendered service in Costa Rica for the development of a coordinated plan for producing useful statistics of better quality and promptness at all levels. In Guatemala, Honduras, and Nicaragua he rendered assistance in regard to the organization of the offices of biostatistics. In Honduras and Nicaragua the importance of projects for introduction of the death certificates was emphasized. The services of the consultant in Panama were related to the organization of the section of statistics, of basic data in health centers, of hospital statistics, and to training of personnel in statistics.

(WHO)

AMRO-88—Aedes Aegypti Eradication

The regional adviser continued to give technical advice to governments and to a number of eradication projects. He assisted the Government of Mexico in the preliminary evaluation of its *A. aegypti* eradication program.

(PAHO)

**AMRO-90—Malaria Technical Advisory Services
(Regional)**

Provision of technical advisory services was rendered by an entomologist, a medical parasitologist, and an adviser on motor vehicle management and maintenance to individual country programs throughout the Hemisphere.
(PAHO, PAHO/SMF)

AMRO-92—Poliomyelitis

The medical officer coordinated the activities of PAHO in the field of poliomyelitis, particularly with reference to live virus vaccine programs.

With the assistance of the Elizabeth Kenny Foundation the services of a rehabilitation expert and two physical therapy consultants were made available to the Dominican Republic to cooperate in evaluating the extent of the poliomyelitis outbreak which occurred in the country early in the year and in the organization of a unit for the care of acute cases and their post-acute physical rehabilitation.

A four-week international course on cell and tissue culture techniques, as applied to virology, was given at the Tissue Culture Laboratory in Cali, Colombia to 10 students from eight countries (Argentina, Brazil, Chile, Colombia, Ecuador, Peru, Uruguay, and Venezuela).
(PAHO) (Sister Elizabeth Kenny Foundation)

AMRO-93—Health Education (Zone II)

The consultant has given advisory services to the four countries of the zone on a routine basis and has also assisted the School of Public Health of Mexico, as well as the health education aspects of the malaria eradication program.
(WHO)

AMRO-94—Diarrheal Diseases in Childhood

A bacteriologist and a statistician were provided to the studies on the interrelationship of diarrheal disease and nutrition which are being carried out at INCAP.
(PAHO)

AMRO-95—Environmental Sanitation

The engineer for this project was assigned to British Guiana and initiated certain preliminary work on water and rural sanitation. He began a review of the work going on in the islands served by the project.
(WHO/TA) (UNICEF)

AMRO-98—Working Group on Medical Certification

The Working Group on Education and Training on Medical Certification met at the Latin American Center for Classification of Diseases in Caracas, Venezuela from May 26-30, 1959. The objectives of the meeting were to make a complete review of the status of education and

training of medical students on medical certification, to exchange views on the various educational and promotional techniques, and to prepare recommendations on the teaching of this subject in medical schools. Twelve faculty members and statisticians participated in this Working Group from the following countries: Argentina, 1; Brazil, 3; Chile, 1; Colombia, 2; Mexico, 1; Panama, 1; United States, 1; Uruguay, 1; and Venezuela, 1. The report of the Working Group, and the Spanish translation of the report entitled "Instruction in Medical Certification of Causes of Death," will be published in the *Boletín* of the Pan American Sanitary Bureau. These reports will be distributed to medical schools and should be useful to professors in developing instruction on medical certification.

(PAHO)

AMRO-100—Courses on Nursing Supervision and Administration

A consultant was selected and fellowships have been awarded for a course to start early in 1960.
(WHO)

AMRO-114—Training Center for Malaria Eradication (Mexico)

The Organization collaborated with the Department of Training of the National Commission for the Eradication of Malaria through four courses offered in 1959. In two courses for senior officials, 55 participants from 10 countries received training, while in two courses for sanitary inspectors, 57 participants from 10 countries attended. In addition, the Department of Training arranged for field observation by participants in courses offered elsewhere.
(PAHO/SMF)

AMRO-117—Malaria Technical Advisory Services (Zone I)

Technical advice was provided through the Zone Office to the countries and other areas in Zone I.
(PAHO/SMF)

AMRO-118—Malaria Technical Advisory Services (Zone III)

Technical advisory services were provided through the Zone Office to Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama, and British Honduras.
(PAHO/SMF)

AMRO-119—Malaria Technical Advisory Services (Zone IV)

Technical advice was provided through the Zone Office to Bolivia, Colombia, Ecuador, and Peru.
(PAHO/SMF)

AMRO-121—Malaria Eradication Evaluation Teams

Appraisal of the evaluation systems employed in country programs and analysis of data on disappearing malaria were carried out. Methods were studied for the registry of areas from which malaria has been eradicated. The team, whose headquarters was transferred from Panama City to Guatemala City, consists of an epidemiologist, a medical parasitologist, and a sanitarian.

(PAHO/SMF)

AMRO-125—Seminar on Malaria Eradication Evaluation Techniques

This Seminar, which was held at Petropolis, Brazil from November 29-December 7, included as participants the directors and chiefs of epidemiology of the national programs, as well as PAHO/WHO technical personnel. The Seminar re-emphasized the need for early and orderly development of evaluation activities, defined important differences in techniques and developments at various stages of the campaigns, and reaffirmed the principle of effective volunteer notification as a prime element in the evaluation and surveillance effort. Results of the Seminar have been distributed among the participants, and publication of the final report is planned for early 1960.

(PAHO/SMF)

AMRO-134—Training Center for Malaria Eradication (Kingston, Jamaica)

During the year three courses for senior officials were offered, with participation by 67 persons from 13 countries, and one course for sanitarians, with participation by 15 persons from six countries.

(PAHO/SMF)

(ICA)

AMRO-135—Malaria Eradication Trainees

Owing to the shortage of experienced workers in malaria eradication in the Americas, the Organization commenced training 21 public health professionals in malaria eradication techniques in order to carry out its functions of providing technical advisory services in this field.

(PAHO/SMF)

AMRO-137—Training Center for Malaria Eradication (São Paulo, Brazil)

Thirty-two participants from 11 countries received training in malaria eradication techniques and entomology at the Faculty of Hygiene of the University of São Paulo.

(PAHO/SMF)

AMRO-139—Malaria Technical Advisory Services (Zone V)

Technical advisory services were provided through the Zone Office to Brazil.

(PAHO/SMF)

AMRO-142—Health Aspects of Nuclear Energy

One three-month award given to a Peruvian to study radiology in Puerto Rico.

One three-month award given to a Colombian to study radiology in Puerto Rico.

(PAHO)

AMRO-144—Health Statistics (Zone II)

The consultant in Zone II was active in rendering advisory services in all four countries of the Zone, namely Mexico, Cuba, Haiti, and the Dominican Republic. Assistance was rendered on the teaching program of the School of Public Health in Mexico. This consultant participated in the Working Group on Education and Training on Medical Certification, held in Venezuela, and for this studied the instruction in this field in all medical schools in Mexico.

(WHO)

AMRO-148—Laboratory for Production of Biologicals (Zone III)

Plans were made for the conduct of a survey to gain necessary information for planning the second stage of the project—the location and establishment of a laboratory for the production of biologics to satisfy the needs of the disease control and prevention programs of the countries of Central America and Panama. Recruitment was completed for a suitably experienced consultant to carry out the initial survey scheduled to commence early in 1960.

(PAHO)

AMRO-149—Leprosy Control

Surveys were completed in Costa Rica, Ecuador, El Salvador, Honduras, Mexico, Nicaragua, and Panama. The consultant also assisted the Government of Mexico in the preparation of a nation-wide program for control of leprosy.

(WHO)

AMRO-150—Food and Drug Services

Detailed plans, guides, and forms were prepared for the survey of food, drug, and biologics control services and problems in the countries of the Americas. Recruitment for the two-member survey team proceeded throughout the year.

(PAHO)

AMRO-152—Conference of Directors of Schools of Public Health

A six-day seminar, at San Miguel Regla, Hidalgo, Mexico, analyzed objectives of schools of public health; scope, content and methods of teaching; administration

standards; and community service. The report was accepted as a guide for continued improvement of the participating seven schools. It was recommended that regular meetings of the group be held at approximately two-year intervals.

(WHO)

AMRO-157—Health Statistics (Zone I)

The consultant for Zone I was appointed, effective November 9, 1959. He visited the Washington Office and the Zone Office in Caracas for orientation and planning for programs. This was followed by visits to Trinidad, Curaçao, and Jamaica. Statistical programs in this area are in various stages of development, and thus the consultant would render assistance in various ways. Fine opportunities will be offered for the discussion of statistical problems at the second meeting of the chief medical officers in Jamaica early in 1960. Plans are under way for a course on classification of diseases, to be held for the English-speaking territories in 1960.

(PAHO)

AMRO-159—Health Statistics (Zone VI)

The statistical consultant for Zone VI was appointed effective October 13, 1959. Following a period of orientation at Washington Headquarters he proceeded to his headquarters in Buenos Aires and made initial visits to health services in both Argentina and Chile. He participated as a representative of PAHO/WHO in the UN Seminar on the Evaluation and Utilization of Census Data for Latin America, which was held in Chile from November 30 to December 18, 1959. The consultant is rendering assistance in the establishment of a training center for hospital records and statistics personnel in one of the countries of the Zone (AMRO-156).

(PAHO)

AMRO-163—Epidemiology (Zone VI)

The functions of the consultant in epidemiology during 1959 were to: 1) promote the development of eradication and control programs against communicable diseases; 2) advise on new methods and techniques of control; 3) coordinate the programs of eradication and control of quarantinable diseases in the countries of the Zone; 4) promote better reporting of communicable diseases; and 5) advise on all problems related to the application of the *International Sanitary Regulations*.

(PAHO)

AMRO-165—Nutrition Advisory Service (Interzone)

The nutrition advisers were assigned to INCAP to assist in the phases of INCAP's program dealing with the de-

velopment of country advisory services. One consultant remained for the period February-September. The second consultant was assigned from the middle of September through December, and is continuing in 1960. A short-term consultant also visited INCAP under this program for a period of 14 days to discuss with the Director the development of a program of training in nutrition.

(PAHO)

AMRO-178—Veterinary Public Health (Zone II)

During the year the veterinary public health adviser provided consultation and technical assistance to the health services in the zone, primarily in the fields of control of the zoonoses and food hygiene. Consultation was provided also in laboratory services, public health administration, and comparative medicine. While the work was conducted in the main with public health services, assistance, when appropriate, was provided to ministry of agriculture services and to educational institutions.

(PAHO)

AMRO-179—Veterinary Public Health (Zone IV)

During the year the veterinary public health adviser provided consultation and technical assistance to the health services in the zone, primarily in the fields of control of the zoonoses and food hygiene. Consultation was provided also in laboratory services, public health administration, and comparative medicine. While the work was conducted in the main with public health services, assistance, when appropriate, was provided to ministry of agriculture services and to educational institutions.

(PAHO)

AMRO-181—Live Poliovirus Vaccine Studies

Mass vaccination programs in Colombia and Nicaragua were completed during the year and a nation-wide vaccination campaign was initiated in Costa Rica aiming at administering the oral vaccine to the population under 10 years of age. At the year's end, 120,327 children had received the three types of virus in the monovalent vaccine program, and 89,138 had been vaccinated with the trivalent vaccine. No incident implicating the safety of the strains has been encountered.

(PAHO) (*American Cyanamid Company*^d, USPHS)

AMRO-182—Training Course in Nutrition and Dietary Surveys

The course discussed the aims of dietary surveys and methods for application of their findings.

(OAS/TA)

^dSpecial grant in 1959

AMRO-187—Promotion of Urban Water Supplies

Consultant services to Peru and Venezuela were arranged for initial activities on water problems in those countries. Water-supply efforts were initiated in the last few months of the year after endorsement of this program by the PAHO Directing Council.

(PAHO)

AMRO-188—Veterinary Public Health (Zone III)

During the year the veterinary public health adviser provided consultation and technical assistance to the health services in the zone, primarily in the fields of control of the zoonoses and food hygiene. Consultation was provided also in laboratory services, public health administration, and comparative medicine. While the work was conducted in the main with public health services, assistance, when appropriate, was provided to ministry of agriculture services and to educational institutions.

(WHO)

AMRO-189—Veterinary Public Health (Zone V)

During the year the veterinary public health adviser provided consultation and technical assistance to the health services in the zone, primarily in the fields of control of the zoonoses and food hygiene. Consultation was provided also in laboratory services, public health administration, and comparative medicine. While the work was conducted in the main with public health services, assistance, when appropriate, was provided to ministry of agriculture services and to educational institutions.

(WHO)

AMRO-196—Insecticide Testing Team

This project was established through the cooperative efforts of the Governments of El Salvador and the United States, and the Organization. Newer insecticides showing promise for residual application in malaria eradication programs are applied at varying dosages in several experimental areas, and the killing effect observed at stated time intervals. A laboratory colony of *A. albimanus* is maintained for checking purposes. Information regarding anopheline densities and habits is routinely collected.

(PAHO/SMF)

AMRO-197—Research on the Resistance of Anophelines to Insecticides

In accordance with the recommendations of an advisory group on this specialized subject, in which the resistance situation in the Americas was studied, a grant was made to

the Laboratory of Medical Entomology of the Johns Hopkins School of Hygiene and Public Health for the establishment and maintenance of colonies of susceptible and resistant anophelines. These strains are made available to other institutions for study purposes.

(PAHO/SMF)

(Johns Hopkins University)

AMRO-198—Administrative Methods and Practices in Public Health

During the latter part of the year, preliminary planning and survey work toward a program of assistance to public health ministries in improving their management of health services was undertaken. Visits were made to several ministries in Central America and southern South America to investigate needs, available resources, and to decide jointly on a course of action.

(PAHO)

AMRO-199—Anopheline Susceptibility Testing

As a routine measure, this project was established in order to provide material for carrying out tests of susceptibility and/or resistance.

(PAHO/SMF)

AMRO-200—First International Conference on Live Poliovirus Vaccines

Under the sponsorship of PAHO/WHO, and with financial assistance of the Sister Elizabeth Kenny Foundation, the First International Conference in Live Poliovirus Vaccines was held in Washington, June 22-26, for the purpose of enabling active workers in this field to pool their experiences and to provide means for dissemination of the information gathered. The Conference was attended by 61 scientists from 17 countries. Its proceedings were published (PASB Scientific Publications No. 44).

(PAHO)

(Sister Elizabeth Kenny Foundation)

AMRO-201—Health Statistics (Zone V)

Services were rendered by a short-term consultant for a six-week period in Zone V with special attention to the teaching of medical statistics in medical schools and in the development of vital statistics. Visits were made to seven medical schools and two schools of public health. The needs for developing instruction and interest in medical statistics were evident. However, there is a lack of trained personnel for teaching statistics. Improvement of vital statistics registration, especially in rural areas, is of primary importance. The Federal Health Department in Brazil is planning to establish a Registration Area in the three southern States of Parana, Santa Catarina, and Rio Grande do Sul.

(PAHO)

Index

	Page		Page
Administration, Division of	98-100		
administrative management	98		
budget and finance	99		
conference and language services	100		
headquarters accommodation	100		
legal matters	100		
personnel	98-99		
supply	100		
Administrative Methods and Procedures in Public Health	28		
advanced school of public administration in Central America	29		
seminar on	29		
survey on	28-29		
<i>Aedes aegypti</i>			
<i>See</i> <i>Aedes aegypti</i> eradication and Yellow Fever			
<i>Aedes aegypti</i> eradication and Yellow Fever	xii, 58		
<i>See also</i> Project summaries; names and countries			
countries and territories declared free from	85		
XI Meeting of the Directing Council	58		
status of the campaign, 1959	59		
summary of the campaign	58-62		
Aftosa			
<i>See</i> Pan American Foot-and-Mouth Disease Center			
<i>Alouatta sp.</i>			
<i>See</i> Yellow Fever			
American Academy of Pediatrics	33		
American Public Health Association	82, 101		
American Veterinary Medical Association	37		
AMRO Projects			
<i>See</i> Project summaries			
Appendix	105		
Basic Documents	94, 100		
Bats			
<i>See</i> Rabies			
BCG vaccination	76		
Budget and Program			
<i>See</i> Program and Budget			
Carlos Finlay Institute, Bogotá, Colombia			
<i>See</i> Yellow Fever			
Causes of death, medical certification of	11		
Classification of Diseases			
<i>See</i> Latin American Center for Classification of Diseases			
Communicable Diseases Branch	98		
Communicable Disease Center of the USPHS	61		
Conference and Language Services	100		
Congress, V Regional on Nursing	40		
Constitution, PAHO	100		
amendments	100		
Control of foods, drugs, and biologics			
<i>See</i> Food, Drug and Biologics Control			
Decentralization	94, 97		
DDT	x, 51, 57		
Dental Health	27, 37		
advisory services	27		
Brazilian Dental Education Association	27		
course in dental public health, São Paulo, Brazil	37		
dental public health	27-28		
education and training	27		
regional center for dental public health training	27		
School of Hygiene and Public Health, University of São Paulo, Brazil	27		
training program	27		
water fluoridation	27-28		
Diarrheal disease	20		
seminar on	20-21		
studies carried out at INCAP	21		
Dieldrin	x, 51-57		
Directing Council, XI Meeting of; XI Meeting of the Regional Committee of WHO for the Americas	93		
Director, PASB	97		
Annual Report of the	92		
emeritus	93		
office of the	97		
Director's Introduction	ix		
Disease Control and Eradication	51		
Division of Administration			
<i>See</i> Administration, Division of			
Division of Education and Training			
<i>See</i> Education and Training, Division of			
Division of Public Health			
<i>See</i> Public Health, Division of			
Education and Training	xiii, 31		
<i>See also</i> medical education, education in public health, nursing education, and fellowships			
Advisory Committee on Education	31		
American Academy of Pediatrics, Committee on Medical Education	33		
clinical use of radioisotopes, training program on	33		
Colombian Association of Medical Schools	32		
Headquarters library	34		
IX International Congress of Pediatrics	33		
XXI International Congress of Physiological Sciences	33		
International Epidemiological Association	33		
Kellogg Foundation, W.K.	33		
Latin American Association of Physiological Sciences	33		
medical education	32		
Medical Education Information Center	34		
Second World Conference on Medical Education	32		
American Veterinary Medical Association	37		
Association of Deans of American Colleges of Veterinary Medicine	37		
Conference on Schools of Public Health in Latin America, San Miguel Regla, Mexico	35		
dental health	37		
environmental sanitation	36		
fellowships	35, 36		
National School of Public Health, Argentina	36		
National School of Public Health, Brazil	35		
National School of Public Health, Colombia	35-36		
National School of Public Health, Venezuela	36		
Pan American Congress on Veterinary Medicine	37		
Secretariat of the Pan American Congress on Veterinary Medicine	37		
seminar on teaching public health in schools of veterinary medicine, U.S.A.	37		
school of sanitary engineering, University of Mexico	35		
special training center, Jamaica	36		
seminar on teaching of environmental sanitation to students of medicine	33		
seminar on teaching of internal medicine in medical schools	32		
survey on teaching of basic sciences	33		

	Page		Page
teaching of statistics in the medical curriculum	34	Food, Drug, and Biologics Control	81
veterinary medical education	37	advice to schools of public health and schools of veterinary medicine	81
Education and Training, Division of	98	fellowships	82
Professional Education Branch	98	reference testing	81
Fellowships Branch	98	survey of control services	81
Education in Nursing		training	81-82
See Nursing Education		training centers	82
Education in Public Health	35	Foot-and-Mouth Disease	
Election of the Executive Committee	93	See Pan American Foot-and-Mouth Disease Center	
Elizabeth Kenny Foundation	71, 73	Funds	99-100
El Paso, Field Office	101	See also ICA; UNICEF; WHO Technical Assistance Fund	
Environmental Sanitation	13, 36	expenditure, totals	99
Advisory Committee on water supply	14, 19	expenditures by source of funds, 1959	99
community supply program	13	Headquarters Divisions	98-100
contribution of U.S. to world water program	14	Headquarters Library	34
Directing Council Resolution on Water	14	Health Education	28
fellowships	18	joint efforts with UNESCO	28
field programs	16	training	28
meetings	19	Twelfth World Health Assembly Technical Discussions on Health Education	28
PAHO Directing Council, XI Meeting	13-14	Health Statistics	8
round table on teaching environmental sanitation in schools of medicine	18	activities in the countries	11
seminar in Colombia	19	collection, analysis, and distribution of statistical information	8
Special Water Fund	13-14	course in vital and health statistics, AMRO-10	10
Technical Discussions	16	education and training program	10
training	18	<i>Epidemiological and Vital Statistics, 1958.</i> , annual publication	12
water program	xi, 14-16	fellowships	42
water supply	xi, 13	<i>Health in the Americas and the Pan American Health Organization</i> , report	8
World Health Assembly	13	<i>Health Statistics</i> , Quarterly publication	10
Epidemiology and Statistics Section	8	<i>Instruction in Medical Certification of Causes of Death</i> , report	11
Eradication		<i>International Sanitary Regulations</i>	12
See <i>A. aegypti</i> eradication; malaria eradication programs		Latin American Center for Classification of Diseases, AMRO-85	11
See disease control and eradication		Malaria Eradication Training Center, Jamaica	11
Eradication Program		national censuses	12
See disease control and eradication		population growth	9
Executive Committee, PAHO	94-95	quarantinable diseases, reported cases in the Americas, 1959	9-10
Exhibits	91	Seminar—United Nations Seminar on Evaluation and Utilization of Population Census Data in Latin America	12
Expenditures and sources of funds	99	teaching of medical statistics	11
FAO		<i>Ten-year Report on Notifiable Diseases, 1948-58</i>	10
See United Nations Food and Agriculture Organization		<i>Weekly Epidemiological Report</i>	9-10
Fellowships	ix, 41	Working Group on Education and Training on Medical Certification, AMRO-98	10-11
discussions, XV PASC	44	Horwitz, Dr. Abraham	97
environmental sanitation	18, 42	Hospital Planning and Organization	29
foods, drugs, and biologics	82	advisory services	29
health statistics	42	demonstration centers	30
malaria	41	training courses	29-30
nutrition	25	ICA	
nursing education	38	See United States International Cooperation Administration	
public health administration	42	INCAP	
public health services	23	See Institute of Nutrition of Central America and Panama	
rabies	69	Index	127
tables on	41-49	<i>Informaciones de la OSP</i>	91
tuberculosis	76	Information and Publications	90
WHO Study Group on	44	Annual Report of the Director and the Financial Report of the Director and Report of the External Auditor	92
Zoonoses	82-83	<i>Erradicación de la Malaria</i>	92
Fellowships Branch	42, 98	exhibits	91
Field Offices		<i>Health Statistics</i> , Quarterly	92
See Zone and Field Offices		<i>Monthly Calendar of Selected International Meetings</i>	92
Filarial Diseases	78	PAHO Quarterly	91
filariasis	78		
onchocerciasis	78-79		
Financial Matters	99-100		
Financial Report of the Director and Report of the External Auditor, 1959	92		

	Page		Page
<i>PASB Boletín</i>	91	<i>See also</i> anopheles; DDT; dieldrin; ICA; insecticides; Special Malaria Fund; UNICEF	
<i>Proceedings of the XV PASC</i>	92	<i>A. albimanus</i>	x, 51
<i>Proposed Program and Budget Estimates, 1960-61</i>	92	<i>A. albitarsis</i>	x, 51
public information	90	<i>A. aquasalis</i>	x, 51
publications	91-92	<i>A. pseudopunctipennis</i>	x, 51
publications issued in 1959	91	<i>A. quadrimaculatus</i>	x, 51
visual aids	91	<i>A. triannulatus</i>	51
<i>Weekly Epidemiological Report</i>	92	area, total malarious	54
<i>World Health</i>	90	Baltimore City Health Department	54
Insect Control		CNEP	54
<i>See</i> malaria eradication and eradication of <i>Aedes Aegypti</i>		Communicable Disease Center, USPHS	53
Insecticides		Cooperation with other agencies	53-54
<i>See</i> <i>A. aegypti</i> eradication; malaria eradication		DDT	x, 51-57
Institute of Nutrition of Central America and Panama (INCAP)		developments by country or area	54-57
<i>See</i> Nutrition		Dieldrin	x, 51-57
Institute, Butantan	104	entomological activities	53
Institute, Carlos Finlay	62, 63	epidemiology team	54
Institute, Oswaldo Cruz	63, 103-104	ICA	53
Integrated Health Projects	1, 3	Insecticide testing team	54
Integrated Health Services	xii, 1, 3	Johns Hopkins School of Hygiene and Public Health	54
decentralization	3	Lister Institute, London, England	53
demonstration areas	2, 3	VII Meeting of Directors of Malaria Eradication Services, Central America, Panama, and Mexico	54, 100
fellowships	6	National Commission for the Eradication of Malaria in Mexico	54
full-time career services	3-4	networks of lay collaborators	54
health legislation	2	professional meetings	54
initiation or consolidation of services	2	resistance problem	51
local level	1, 3	resistance vector species	51-52
national level	1, 3	Rockefeller Foundation	xiv, 54
pilot areas	1, 4	seminar on malaria eradication evaluation techniques	104
planning committees or councils	1	status of, 1959	50
progress in projects	3-4	studies on behavioristic changes	51
provincial level	1	<i>Supplementary Instructions for the Use of the WHO Test Kit for Adult Mosquitoes, manual</i>	51
restructuring	1	Training Center, Jamaica	54
seminars	7	Training Center, São Paulo	104
training of personnel	2, 4-7	UNICEF	53, 54-57
International Classification of Diseases	11	USPHS	54
<i>International Sanitary Regulations</i>	9, 10, 12-13	Management Studies	98
Inter-regional projects		Maternal and Child Health	19
<i>See</i> project summaries		development of MCH services	19-20
Isoniazid	76	health center services	20
Kellogg Foundation, W. K.	xiv, 32, 37	seminar on diarrheal disease in childhood	20
Laboratories, Public Health	80	seminars on MCH in Argentina	19
Adolfo Lutz Institute, São Paulo, Brazil	81	studies at INCAP related to diarrheal disease	21
animals	80-81	Medical Education	32
biological reagents	80	American Academy of Pediatrics	33
ICA	80	Central American and Pan American Pediatric Congresses	33
National Institute of Hygiene, Caracas, Venezuela	80	Council for International Organizations of Medical Sciences	32
National Public Health Laboratory of Mexico	80-81	International Association of Universities	32
projects	80	IX International Congress of Pediatrics, Montreal	33
Rockefeller Foundation	80	XXI International Congress of Physiological Sciences, Buenos Aires	33
Tissue Culture Laboratory, Universidad del Valle, Cali, Colombia	81	International Epidemiological Association, Meeting of	33
Latin American Center for Classification of Diseases	11	International Pediatric Association	33
Leprosy	xiii, 73	ionizing radiation	33
control programs	73-75	Kellogg Foundation, W. K.	32, 33
distribution of cases	74	Latin American Association of Physiological Sciences	33
epidemiological survey	73	library	34
prevalence of	73-74	programs	32-34
UNICEF	75	radioisotopes in clinical medicine	33
Library	34	Second World Conference on Medical Education	32, 33
<i>See</i> Headquarters Library		seminar on medical education, Venezuela	33-34
Malaria	x, 51		
<i>See</i> malaria eradication			
Malaria Eradication	51		

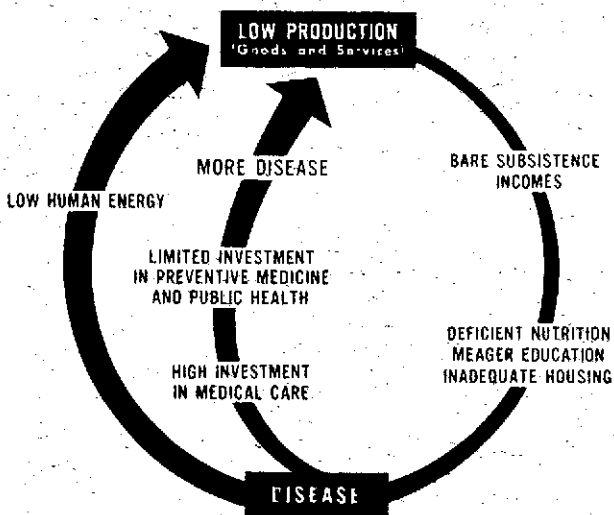
	Page		Page
seminar on teaching of environmental sanitation to students of medicine in Mexico	33	Technical Discussions	94
seminar on teaching of internal medicine in medical schools	32	UN Special Fund	94
survey of pediatric education in the U. S. A., 1946-47	33	UNICEF	93
survey of teaching of basic sciences	33	WHO Executive Board	93
teaching of statistics	34	World Health Assembly	93
Medical Education Information Center (MEIC)	34	OAS	
Medicinal products, advertising of	93-94	<i>See</i> Organization of American States	
Meetings and Transactions		Onchocerciasis	
<i>See</i> Organizational Meetings and Transactions		<i>See</i> filarial diseases	
Mental Health	29	Organization of American States (OAS)	x, 7, 89, 90
Monthly Calendar of Selected International Meetings	92	Organizational Meetings and Transactions	93
Mosquitoes		<i>See also</i> Directing Council; Executive Committee	93
<i>See A. aegypti</i> ; anopheles; yellow fever; malaria		Amendments to articles 1.1 and 1.2 of the financial regulations	94
Mycoses	89	Amendments to articles X and XI of the rules of procedure, Executive Committee	94
XI Meeting of the Directing Council	89	Executive Committee, 37th, 38th, and 39th meeting	94-95
National Commission for the Eradication of Malaria, Mexico (CNEP)	54	FAO	93
National Health Planning	1-2	International Health and Medical Research Year	93
National health services, strengthening of	1-2	XI Meeting of the Directing Council	100
National Institute of Nutrition, Ecuador	23, 26	XII Meeting of the Directing Council	94-95
National Institutes of Health of the United States	25	XI Meeting of the Regional Committee of WHO for the Americas	93
Nursing Education	38	OAS	93
advanced nursing education	39	Proposed program and budget of PAHO for 1960	94
basic nursing education	38-39	Soper, Fred L., Dr.	93
fellowships	38	Organizational Structure and Administrative Developments	97
Inter-American Congress of Midwifery	40	administrative management	98
midwifery education	39-40	Assistant Director	97
V Regional Congress on Nursing	40, 104	budget and finance	99-100
schools of nursing	38-39	conference and language services	100
training of auxiliary nursing personnel	39	headquarters accommodation	100
Nursing Services	21	headquarters divisions	98-100
activities at national level	22	Horwitz, Abraham, Dr.	97
activities at local level	22-23	legal matters	100
fellowships	23	management studies	98
nursing units within national health services	21-22	XI Meeting of the Directing Council	100
seminars and congresses in Argentina, Colombia, and Paraguay	22	office of the Director	97-98
training activities	23	XV PASC	100
trends	23	Pan American Union	100
Nutrition	xii, 23, 103	personnel	98
country programs	23-24	Secretary General	97-98
dietary surveys	24	Subcommittee on basic documents	94-100
education and training	25-26	supply	100
endemic goiter	26	U. S. Congress	100
examination of aortas	25	U. S.-Mexico Border Public Health Association, XVII Annual Meeting	100
FAO	23, 24, 26	Washington headquarters	97-100
fellowships	25	Pan American Foot-and-Mouth Disease Center	87, 103, 104
Fourth Joint FAO/WHO Conference on Nutritional Problems of Latin America	24	FAO	87
height and weight curves	26	facilities	87
INCAP activities	xii, 24-25	faculty of veterinary medicine, University of Buenos Aires	87
INCAPARINA	xii, 24-25	field consultation	87-88
INNE activities	23-26	financing	89
X Meeting of the Council of INCAP	100	Inter-American Economic and Social Council	89
pilot program in nutrition education	26	International Anti-Aftosa Conference	87
program of investigations	24-25	OAS	89
regional seminars	23-24	Office International des Epizooties	87
seminar in Argentina	23	Organismo Internacional Regional de Sanidad Agropecuaria	87
service to member countries	25-26	reference diagnostic services	87
studies of supplementation of cereal proteins	24-25	research program	88
symposia	24	scientific publications	89
training activities	25	technical cooperation program of OAS	89
UNICEF	23, 26	training program	87
Subcommittee on basic documents	94, 100		

	Page
Pan American Health Organization (PAHO).....	ix, 93-95
<i>See also</i> Directing Council, PAHO; Executive Committee, PAHO; Pan American Sanitary Conference	
budget regular.....	99
constitution, amendments.....	100
Field Office, El Paso.....	101
Pan American Sanitary Bureau (PASB), Regional Office of WHO.....	ix, x, 97
Assistant Director.....	97
Director.....	97
Director Emeritus.....	93
Secretary General.....	97-98
XV Pan American Sanitary Conference.....	100
XVI Pan American Sanitary Conference.....	94
Pan American Zoonoses Center.....	82
education.....	82-83
fellowships.....	82-83
ICA.....	82
personnel and physical facilities.....	86-87
research.....	83-86
samples received at laboratories.....	86
service.....	83
training courses.....	82-83
Personnel	
<i>See</i> Administration, Division of; Staff PASB/WHO	
Plague.....	79
reported cases of, 1955-59.....	79
sylvatic.....	79
Poliomyelitis.....	xiii, 70
Department of Preventive Medicine, Universidad del Valle, Cali, Colombia.....	73
First International Conference on Live Poliovirus vaccine.....	xiii, 71, 100
international course on cell and tissue culture techniques.....	73
live poliovirus vaccine.....	71
Middle America Research Unit, USPHS.....	73
poliovirus vaccine trials.....	70-71
rehabilitation.....	73
reported cases of.....	72
Sister Elizabeth Kenny Foundation.....	71, 73
tissue culture laboratory.....	73
vaccination.....	70-71
Yale Poliomyelitis Study Unit.....	71
Professional Education.....	31
<i>See also</i> medical education, education in public health, nursing education and fellowships	
Professional Education Branch.....	98
Professional Education in Public Health.....	35
<i>See also</i> Public Health, Professional Education	
Program and Budget.....	99-100
Projects	
<i>See</i> project summaries (Appendix)	
Project Summaries.....	105-126
<i>See</i> Appendix	
Proposed Program and Budget of PAHO for 1960.....	100
Public Health Administration.....	1
planning committees or councils.....	1
restructuration of ministries and health departments.....	1
round tables—on poliomyelitis; onchocerciasis; on use of health personnel and resources.....	7-8
seminars.....	2
symposium on nutrition of mother, child, and family.....	8
Public Health, Division of.....	98

	Page
Public Health, Education in.....	35
<i>See</i> Education in Public Health	
Public Health Laboratories	
<i>See</i> Laboratories, Public Health	
Public Health, Professional Education.....	35
dental health.....	37
environmental sanitation.....	36
veterinary medical education.....	37
Public Information.....	90
Publications.....	91-92
<i>Quarterly</i> , PAHO.....	91
Rabies	
bats.....	68
<i>canine</i>	68
fellowships.....	69
Field Office, El Paso.....	69
Flury-type vaccine.....	70
Fourth Meeting of the Expert Committee on Rabies.....	68
human.....	68
Pasteur treatment.....	68
rabies in animal, 1958.....	69
rabies in man, 1958 and 1959.....	68
reported cases of.....	68-69
Simple type vaccine.....	70
technical assistance.....	69-70
U. S. Fish and Wildlife Service.....	69
U. S.-Mexico Border Area.....	69
vaccine production.....	70
vaccine testing.....	70
wild life.....	68-69
V Regional Congress on Nursing.....	40, 104
Rehabilitation.....	29
Rehabilitation Training Center, São Paulo, Brazil.....	29
seminar on.....	29
Rockefeller Foundation.....	xiv, 54, 80
Secretariat Services.....	100
Sister Elizabeth Kenny Foundation.....	71, 73
<i>See also</i> Poliomyelitis	
Seminars	
First National Seminar in Public Health in Honduras.....	7
for MCH personnel of Argentina.....	2
for sanitary inspectors in Guatemala.....	2
malaria eradication evaluation techniques.....	104
management and organization of public health establishments on diarrheal disease in childhood.....	29
on environmental sanitation in Colombia.....	7, 19
on epidemiological evaluation techniques.....	xi, 54
on food surveys in Argentina.....	7
on MCH in Argentina.....	19
on medical education in Venezuela.....	33-34
on nursing services.....	22
on nutrition in Argentina.....	23
on social welfare in the Dominican Republic.....	7
on teaching of environmental sanitation to students of medi- cine in Mexico.....	33
on teaching of internal medicine in medical schools.....	32
on teaching public health in schools of veterinary medicine, U. S. A.....	37, 100
regional seminars on nutrition.....	23-24
rehabilitation.....	29
United Nations Seminar on Evaluation and Utilization of Population Census Data in Latin America.....	12
Smallpox	
<i>See</i> Smallpox Eradication	

	Page		Page
Smallpox Eradication	xiii, 64	<i>See also</i> project summaries (Appendix)	
distribution of cases, 1959	64	diarrheal disease	20
geographic distribution	64	environmental sanitation	18
ICA	65	malaria	53-57
<i>Institut de Vaccins de Paris</i>	65	medical education	34
XI Meeting of the Directing Council	67-68	Pan American Zoonoses Center	82
XV PASC	64	Public health laboratories	80
progress by country	65-67	smallpox vaccination	65
reported cases of, 1950-59	64-65	United States—Mexico Border Public Health Association	101
UNICEF	66	United States Public Health Service (USPHS)	54, 73, 101
vaccinations	64, 66	Vaccination	
vaccine, production of	64, 67	<i>See</i> Poliomyelitis; Rabies; Smallpox	
vaccine supply	65-67	Vaccine	
Soper, Dr. Fred L.	93, 97	<i>See</i> Poliomyelitis; Rabies; Smallpox	
Special Malaria Fund (SMF)	99	Venereal Diseases	
<i>See also</i> Malaria Eradication		<i>See</i> Treponematoses	
Staff, PASB/WHO	96, 98, 99	Veterinary Medicine	
strength	98	<i>See</i> Education and Training	
Statistics		Veterinary Public Health Services	
<i>See</i> Health Statistics		<i>See</i> Pan American Zoonoses Center; Pan American Foot-and-	
medical statistics, teaching of	11	Mouth Disease Center	
Technical Discussions	16, 94	Visual Aids	91
Training		Voice of America	90
<i>See</i> Education and Training		Waterworks Operators Courses	18
Training Center for Malaria Eradication, São Paulo	104	Water program, PAHO/WHO	xi, 13-16
Treponematoses	xiii, 76	Water, Technical Discussions on	16, 94
control program for venereal diseases	77-78	Water Supply	xi, 13-16
yaws eradication	77	<i>Weekly Epidemiological Report</i>	9, 10, 92
Tuberculosis	75	<i>World Health</i>	90
control program	75-76	World Health Assembly	xi, 13, 93
isoniazid	76	World Health Day	90
fellowships	76	World Health Organization (WHO)	ix, 93
mass BCG vaccination campaigns	76	Director-General	13, 93
simple chest X-ray method	75	Executive Board	93
prevalence survey	75-76	Regional Committee of WHO for the Americas	93
UNICEF	76	Regional Program and Budget, 1960	100
UNESCO		Regular Budget, 1960	99-100
<i>See</i> United Nations Educational, Scientific and Cultural		World Health Organization Technical Assistance Fund	
Organization	28	<i>See</i> project summaries (Appendix)	
UNICEF		Yaws	
<i>See</i> United Nation Children's Fund		<i>See</i> Treponematoses	
United Nations	29, 93	Yellow Fever	xii, 62
United Nations Children's Fund (UNICEF)		<i>See also</i> A. aegypti eradication	
xi, xiii, 17, 18, 23, 26, 27, 53-57, 66, 75, 76, 93		<i>Alouatta sp.</i>	62
<i>See also</i> project summaries (Appendix)		Carlos Finlay Institute	62
BCG Vaccinations	76	scarification cutaneous	62-63
dental health	27	identification of arboviruses	62-63
environmental sanitation	16-18	jungle	62-63
malaria eradication	53-57	Oswaldo Cruz Institute	63, 103-104
XI Meeting of the Directing Council	93	reported cases of, 1950-59	62
nutrition	23, 26	vaccination	62-63
poliomyelitis	75	vaccine	62-63
smallpox eradication	76	17D yellow fever vaccine	62-63
United Nations Educational, Scientific and Cultural Organization	28	Zone and Field Offices	101
United Nations Expanded Program of Technical Assistance	99	Field Office, El Paso	101
United Nations Food and Agriculture Organization (FAO)		Zone I	101
xiv, 7, 23, 24, 26, 87, 93		Zone II	101-103
United Nations Office of Public Information	103	Zone III	103
United Nations Radio	90	Zone IV	103
United Nations Technical Assistance Fund		Zone V	103-104
<i>See</i> project summaries, Appendix		Zone VI	104
United States Fish and Wildlife Service	69	Zoonoses	
United States International Cooperation Administration (ICA)		<i>See</i> Pan American Zoonoses Center	
xi, xiv, 18, 20			

THE ECONOMIC CYCLE OF DISEASE



Economic Cycle of Disease—The relation between health and production is well recognized. Low production of goods and services means inadequate wages, and these in turn result in deficient diets, meager education, and inadequate housing. These factors help to breed disease and result in lower human energy which continues the cycle of low production.