

directing council



PAN AMERICAN
HEALTH
ORGANIZATION

XI Meeting

regional committee

WORLD
HEALTH
ORGANIZATION

XI Meeting



Washington, D.C.
September 1959

CDLI/23 (Eng.)
1 September 1959
ORIGINAL: SPANISH

Topic 20: REPORT ON THE STATUS OF MALARIA ERADICATION

IN THE AMERICAS

VII REPORT

TABLE OF CONTENTS

	Page
Introduction	1
I. <u>Status of the Program</u>	1
A. General Picture	1
B. Present Status	4
C. Extent of the Problem	6
D. Field Operations	11
II. The Problem of Anopheline Resistance to Insecticides	41
III. International Cooperation	49

MAP AND TABLES

	Page
Map: Status of the Malaria Eradication Program in the Americas, 31 July 1959	2
Tables:	
I Status of the Malaria Eradication Program in the Americas, 1959	5
II Area and Population of Countries and Other Political Units Where Malaria is not Known to Have Occurred or Has Disappeared Without Eradication Measures.	7
III Area and Population of Countries and Other Political Units Where Malaria Has Been Eradicated as of July 1958.	8
IV Extent of Malarial Problem by Area in the Americas, 1958.	9
V Extent of Malarial Problem by Population in the Americas, 1958	10
VI Status of the Eradication of Malaria by Area and Population in the Americas, December 1958	12
VII Personnel Employed, in Training, and Still Needed in the Americas as of 31 December 1958	13
VIII Professional and Technical Personnel Employed in Malaria Eradication Programs in the Americas as of 31 December 1958	14
IX Field Personnel Employed in Spraying Operations in Malaria Eradication Programs in the Americas, as of 31 December, 1958	15
X Personnel Employed in Evaluation Operations in the Malaria Eradication Programs of the Americas as of 31 December, 1958	16
XI Transportation Systems in Malaria Eradication Programs in the Americas	17
XII Field Operations (spraying and evaluation) by Years of Total Coverage:	
Argentina	18
Bolivia	20
Colombia	21
Costa Rica	22
Dominican Republic	23
Ecuador	24
El Salvador	25
Guatemala	26
Haiti	27
Honduras	28
Mexico	29
Nicaragua	30
Panama	31
Paraguay	32

Tables:

	Page
Peru (Coastal Region)	33
British Honduras	34
Grenada	35
Jamaica	36
St. Lucia	37
Surinam	38
Trinidad	39
XIII Results of Malaria Case Finding by Source of Slides and Reports in the Americas, 1958	40
XIV Origin of Confirmed Cases of Malaria in the Americas, 1958	42
XV Confirmed Cases of Malaria by Stage of Eradication and Type of Infection in the Americas, 1956 - 1958	43
XVI National Budgets for Malaria Eradication in the Americas, 1957-1959	45
XVII Resistance or Susceptibility of Adult Mosquitoes to DDT and Dieldrin, by Country, State, and District in the Americas until July 31, 1959	46
XVIII PASB/WHO Full Time Staff for Malaria Eradication in the Americas in 1957, 1958 and 1959	50
XIX Personnel Trained in Malaria Eradication Techniques at International Centers, 1949-1958 and 1959	52
XX Fellowships for Study Travel in Programs for Malaria Eradication in 1957, 1958 and 1959	53
XXI Drugs Provided to Malaria Eradication Projects, 1958-1959 (in thousands of tablets)	55
XXII Equipment and Supplies, Excluding Drugs, Contributed to Malaria Programs by PAHO, January 1958 to July 1959	56
XXIII International Contributions to Malaria Programs in the Americas, 1957-1959	57

ABBREVIATIONS

ICA	International Cooperation Administration
NMES	National Malaria Eradication Service(s)
NMS	National Malaria Service(s)
NPHS	National Public Health Service(s)
PAHO	Pan American Health Organization
PAHO/SMF	Pan American Health Organization/Special Malaria Fund
PASB	Pan American Sanitary Bureau
UNICEF	United Nations Children's Fund
WHO	World Health Organization
WHO/TA	World Health Organization/Technical Assistance

REPORT ON THE STATUS OF THE MALARIA ERADICATION
IN THE AMERICAS

VII REPORT

Introduction

Since the XIV Pan American Sanitary Conference (Santiago, 1954) and the Eighth World Health Assembly (Mexico City, 1955), the Pan American Sanitary Bureau has been collaborating closely with the Member Governments in the development of their national malaria eradication campaigns, and has worked toward coordinating those activities with the goal of achieving elimination of the disease in the Americas.

Following the custom of previous years, the Bureau has the honor of presenting to the XI Meeting of the Directing Council the VII Report on the status of the program.

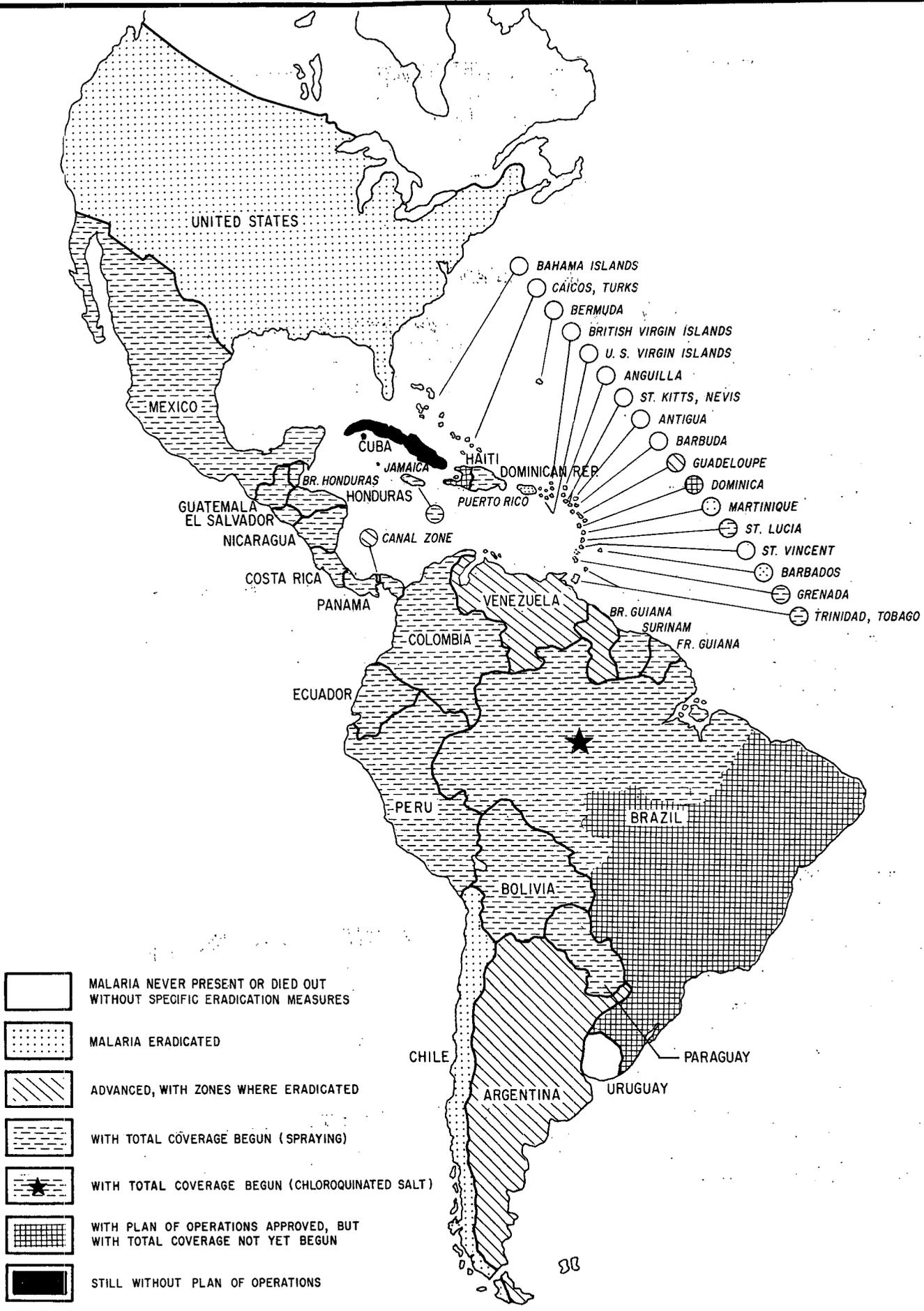
The document consists of three parts: the first is a general report on the status of the program, based on the latest available data; the second refers to the problem of anopheline resistance to chlorinated insecticides in the Americas; and the third describes the activities of international cooperation, particularly those of PASB/WHO and their contribution to the program.

I. STATUS OF THE PROGRAM

A. General Picture

During the second half of 1958 and the first half of 1959, the major developments in the malaria eradication program have included, in general terms, a degree of standardization in the details of work techniques and the planning and initiation of field studies in an effort to solve specific problems, the most important and acute of which is that of resistance to chlorinated insecticides, detected initially in certain areas that were in an advanced stage of total coverage.

Also, special efforts were made to have the interested governments provide greater administrative facilities to permit more rapid action, as is needed in services of this kind and as has been recommended repeatedly



STATUS OF THE MALARIA ERADICATION PROGRAM IN THE AMERICAS

- 31 JULY 1959 -

by the WHO Expert Committee on Malaria. With few exceptions, in fact, the administrative machinery of the programs is not sufficiently organized and is not equipped with all the facilities normally required for field operations.

The Organization has continued to fulfill one of its main functions in providing basic training for the national personnel responsible, at different levels, for the direction and proper execution of the established plans of operations. Generally, such personnel have returned from their training well prepared to carry out their mission, but frequently they have met with administrative obstacles that seriously hamper the implementation of the planned program.

There are ample grounds for insisting that the persons charged with directing eradication programs merit, on the part of governments, the same technical and administrative confidence as that normally accorded to those responsible for solving problems of national emergency or public calamity.

Another problem that has been given special attention is that relating to the cycles in which the insecticides should be applied. The Organization has recommended, in accordance with established standards, the application of dieldrin in 12-month cycles and of DDT in 6-month cycles. Although the efficacy of the insecticides applied in these cycles has been demonstrated in some areas, their application in others has brought to light another new factor, whose existence was first suspected when it was noted that transmission persisted even though there were no flaws in the spraying techniques and the vectors showed no resistance to the insecticides used. This factor is the alteration of surfaces sprayed that occurs in the intervals between cycles, owing to interference by householders.

The following can be mentioned as an example. During an inspection trip the officers of the campaign in a South American country stopped overnight in a town in the interior that had been sprayed approximately one month previously. During a courtesy visit to the mayor the latter informed them that, in order to commemorate World Health Day, he had decided that all the dwellers would paint the inside walls of their houses! As a consequence the NMES Director of that country had to send a number of squads back to repair the damage done for the sake of good health practice.

In some countries it has been observed that, through social or religious custom, inhabitants wash the inside walls of their houses as many as three times a year.

In areas where total spraying coverage is under way, householders are often observed trying to clean windows, pictures and other ornaments once the squad moves on to the neighboring house.

There is, of course, no intention of inducing the people to neglect any good practice of hygiene, such as cleaning inside the houses, but it is necessary to establish a workable arrangement whereby such practice will interfere with measures taken to protect the inhabitants against malaria.

How much does the percentage of wall surface not covered by insecticide increase in a locality during the intervals between sprayings? In an attempt to answer this question the Organization has prepared and distributed a questionnaire, and requested the collaboration of a number of countries. Unfortunately, sufficient information to permit a definite conclusion has not as yet been received.

The foregoing considerations indicate the need for strengthening activities for health education of the public, which should be carried out, first and foremost, by all personnel of the program, in their daily contact with the population.

Of no less importance is the need for intensifying the evaluation operations, which generally speaking have not received the same attention as the spraying operations. In many areas of countries where total coverage is well advanced an appreciable reduction can be seen in the prevalence of malaria, but unfortunately the blood specimens from febrile patients examined are insufficient and are not geographically distributed in such a way as to permit a conclusion regarding the true situation.

This deficiency derives, not from lack of interest on the part of epidemiologists or campaign directors, but mainly, from the shortage of funds. Frequently, the population growth in areas undergoing total coverage has been greater than was initially estimated, a fact that has resulted in an appreciable increase in the number of houses and in the spraying operation costs; and since it has not been easy to obtain a prompt increase in funds, the only solution has been to sacrifice the evaluation service in order to assign personnel to strengthen the required spraying operations.

B. Present Status

Table I shows the status of the campaign in the various countries and other political units as of 31 July 1959.

In September 1949 a campaign was started in Argentina with the aim of covering the entire malarious area of the country. As a result of this work, 26,200 square kilometers of the national territory were freed from the disease. Unfortunately, the lack of additional funds to maintain the increasing scope of the service forced a curtailment of the work. The problem was not solved, officially, until 24 April 1959, when an agreement was signed between the Government, PASB/WHO, and UNICEF. The plan provides for resumption of the eradication activities during the month of August 1959.

In Brazil last-minute difficulties prevented the start of the spraying campaign, in the State of São Paulo as well as in the rest of the country, within the target date set. It is important to note that on 12 June the eradication plan was put into operation in the Amazon basin, using the Pinotti method of solely administering chloroquinated salt to the entire population of the area.

Table I

Status of the Malaria Eradication Program in the Americas, 1959

Country or other political unit	Total coverage of malarious area	Date program started	Country or other political unit	Total coverage of malarious area	Date program started
Argentina (a)	No	Sept. 1949	Paraguay	Yes	Oct. 1957
Bolivia	Yes	Sept. 1958	Peru (d)	No	Nov. 1957
Brazil (b)	No		Venezuela	Yes	1950
São Paulo	No				
Colombia	Yes	Sept. 1958	British Guiana (e)	No	1947
Costa Rica	Yes	July 1957	British Honduras	Yes	Feb. 1957
Cuba *	No	*	Dominica	Yes	June 1959
Dominican Republic	Yes	June 1958	French Guiana	Yes	May 1948
Ecuador	Yes	March 1957	Grenada	Yes	Feb. 1957
El Salvador	Yes	July 1956	Guadeloupe	Yes	Nov. 1955
Guatemala	Yes	Aug. 1956	Jamaica	Yes	Jan. 1958
Haiti (c)	No		Panama Canal Zone	Yes	1956
Honduras	Yes	Jan. 1958	St. Lucia	Yes	July 1956
Mexico	Yes	Jan. 1957	Surinam	Yes	May 1958
Nicaragua	Yes	Nov. 1958	Trinidad and Tobago	Yes	Jan. 1958
Panama	Yes	Aug. 1957			

- (a) Northern area planned to start total coverage 1 August, 1959.
- (b) Excluding State of São Paulo. In June, 1959 total coverage by use of medicated salt has begun in the Amazon Valley as planned.
- (c) Total coverage began in September and was suspended in December 1958 due to economical problems.
- (d) Total coverage applies only to occidental region.
- (e) Total coverage applies only to coastal region. Plans are being made to use medicated salt within the near future in the rest of the country.
- * An agreement was signed in February 1959 in order to make a country-wide survey and prepare a plan for the eradication of malaria.

In September 1958 Haiti started total coverage, but for financial reasons activities had to be suspended temporarily on 31 December of that year. The Government is endeavoring to overcome the difficulties and now has under study a financing plan which it will propose to the international organizations and to ICA for the resumption of activities, probably in October.

In Peru the spraying operations have not been extended to the eastern region during the second year of total coverage, as had been planned. This is due to the fact that the funds envisaged in the tri-partite plan of operations concluded on 13 August 1957 have not been forthcoming.

Also, serious financial difficulties, fortunately, now overcome, were encountered in the programs of countries affected by the problem of vector resistance to the insecticides being used. This has occurred in Mexico, Guatemala, Honduras, Nicaragua, El Salvador, Jamaica, Belice and Trinidad. In the majority of cases the area was being sprayed with dieldrin in annual cycles and it was necessary to make a readjustment to apply DDT in six-month cycles; as a consequence, the need arose to increase personnel, transport vehicles, equipment, etc.

Finally, in British Guiana the Government is making arrangements with the PASB/WHO and UNICEF for extension of the eradication activities to the remainder of the country, taking into account the extraordinary success of the work done along the coastal region. Because of the difficulties inherent to the region, principal among them the sparse settlement of population in areas with scant means of communication, plans are being made to treat the entire population with medicated salt.

Table II shows the area and population for countries and other political units where malaria is not known to have occurred or has disappeared without the need for eradication measures. The areas are, of course, the same as those appearing in prior reports, but the population figures have been adjusted to the 1 July 1958 estimates.

Table III shows the areas where malaria has been eradicated, which are the same as those appearing in the previous report. Only the population figures have been adjusted to reflect the 1 July 1958 estimates.

C. Extent of the Problem

Tables IV and V show the extent of the malaria problem, by area and by population, in the Americas in 1958, according to the reports received from governments. It can be seen that, in comparison with the previous year, the area of eradication increased in Venezuela; that the areas in Brazil and British Guiana have been readjusted; and that, for the first time, an area of eradication -- on the Island of Tobago -- appears in Trinidad.

British Honduras

Table II

Area and Population of Countries and Other Political Units
Where Malaria is not Known to Have Occurred or
Has Disappeared Without Eradication Measures

Country or other political unit	Area (Km ²)	Estimated population as of 1 July 1958 (in thousands)
Total	10,187,740	20,381
Canada	9,974,375	17,048
Uruguay	186,926	2,710
Antigua	442	56
Bahamas	11,396	138
Bermuda	53	43
Falkland Islands	11,961	2
Montserrat	83	14
Netherland Antilles	961	193
St. Kitts-Nevis-Anguilla	396	58
St. Pierre and Miquelon	240	5
St. Vincent	389	82
Virgin Islands	174	8
Virgin Islands (U.S.A.)	344	24

Table III

Area and Population of Countries and Other Political Units
where Malaria has been Eradicated as of July 1958

Country or other political unit	Area (Km ²)	Estimated Population July 1958 (in thousands)	Original Malarious Areas	
			Area (Km ²)	Population (in thousands)
Total	10,098,948	184,323	2,322,691	45,645
Chile	741,767	7,314	55,287	117
United States of America	9,346,751	174,231	2,257,809	42,861
Barbados	431	234	430	232
Martinique	1,102	262	300	170
Puerto Rico	8,897	2,282	8,865	2,265

Table IV

Extent of Malarial Problem by Area in the Americas, 1958*

Country or other political unit	Area in Km ²					
	Total	Original malarious area	Area with malaria eradicated (3 or more years without indigenous cases)	Area under surveillance (Less than 3 years without indigenous cases)	Area with malaria not yet eradicated	
					Regularly sprayed	Not regularly sprayed (a)
Total	19,537,849	13,270,131	551,106	110,030	4,215,748	8,393,247
Argentina	2,778,412	270,000	26,200	23,000	70,800	150,000
Bolivia	1,098,581	842,018	-	-	842,018	-
Brazil (b)	8,266,622	7,338,679	115,887	-	-	7,222,792
São Paulo	247,222	110,318	-	-	-	110,318
Colombia	1,138,355	1,026,433	-	-	1,026,433	-
Costa Rica	50,900	31,526	-	-	31,526	-
Cuba	114,524	...	...	...	...	...
Dominican Republic	48,734	41,010	-	-	41,010	-
Ecuador	270,670	153,766	-	-	153,766	-
El Salvador	20,000	19,310	-	-	19,310	-
Guatemala	108,889	80,380	-	-	80,380	-
Haiti	27,750	19,098	-	-	-	19,098
Honduras	112,088	87,383	-	-	87,383	-
Mexico	1,969,269	978,185	-	36,790	941,395	-
Nicaragua	148,000	127,199	-	-	127,199	-
Panama	74,470	68,497	-	-	68,497	-
Paraguay	406,752	42,286	-	-	42,286	-
Peru	1,249,049	943,228	-	5,110	237,478	700,640
Venezuela	912,050	600,000	400,414	43,712	155,874	-
British Guiana	215,800	214,970	4,921	-	19,684	190,365
British Honduras	22,965	22,965	-	-	22,965	-
Dominica	789	640	-	640	-	-
French Guiana	91,000	90,000	-	-	90,000	-
Grenada	344	185	-	-	151	34
Guadeloupe	1,780	1,136	69	752	315	-
Jamaica	12,188	10,319	-	-	10,319	-
Panama Canal Zone	1,432	1,432	-	-	1,432	-
St. Lucia	616	580	-	-	580	-
Surinam	143,470	143,470	3,320	-	140,150	-
Trinidad and Tobago	5,128	5,118	295	26	4,797	-

(a) Includes areas under a plan of total coverage but not sprayed.

(b) Data obtained from "Plan for Malaria Eradication of Brazil", 1958, excluding State of São Paulo.

... Data not available.

- None.

* As reported to the Organization by Member Governments at the end of 1958.

Table V

Extent of Malarial Problem by Population in the Americas, 1958*

Country or other political unit	Population (in thousands)					
	Total estimated 1958**	In original malarious areas	In areas with malaria eradicated	In areas under surveillance	In areas with malaria not yet eradicated	
					Regularly sprayed	Not regularly sprayed (a)
Total	182,572	89,764	7,357	1,860	46,196	34,351
Argentina	20,256	2,289	256	743	537	753
Bolivia	3,305	1,116	-	-	1,116	-
Brazil (b)	51,987	30,357	3,171	-	-	27,186
São Paulo	11,115	2,678	-	-	-	2,678
Colombia	13,522	9,787	-	-	9,787	-
Costa Rica	1,072	345	-	-	345	-
Cuba	6,466	...	...	...	...	...
Dominican Republic	2,791	2,418	-	-	2,418	-
Ecuador	4,007	1,993	-	-	1,993	-
El Salvador	2,434	1,440	-	-	1,440	-
Guatemala	3,549	1,478	-	-	1,478	-
Haiti	3,426	2,455	-	-	-	2,455
Honduras	1,822	1,311	-	-	1,311	-
Mexico	32,348	16,620	-	59	16,561	-
Nicaragua	1,376	1,220	-	-	1,220	-
Panama	995	970	-	-	970	-
Paraguay	1,672	759	-	-	759	-
Peru	10,213	4,604	-	14	3,320	1,270
Venezuela	6,320	4,517	3,294	703	520	-
British Guiana	533	500	430	-	67	3
British Honduras	86	86	-	-	86	-
Dominica	64	52	-	52	-	-
French Guiana	30	29	-	-	29	-
Grenada	92	34	-	-	28	6
Guadeloupe	257	214	35	129	50	-
Jamaica	1,627	1,303	-	-	1,303	-
Panama Canal Zone	55	55	-	-	55	-
St. Lucia	92	74	-	-	74	-
Surinam	275	275	136	-	139	-
Trinidad and Tobago	785	785	35	160	590	-

(a) Includes areas under a plan of coverage but not sprayed.

(b) Data obtained from "Plan for Malaria Eradication of Brazil, 1958", excluding State of São Paulo.

... Data not available.

- None.

* As reported to the Organization by Member Governments at the end of 1958.

** Population estimated as of 1 July 1958.

For the first time, Mexico, Peru, and Dominica report areas under surveillance that cover 36,790 km², 5,110 km², and 640 km², respectively. The area under surveillance in Venezuela has increased from 36,464 km² to 43,712.

In summary, according to the information furnished by the countries, by the end of 1958 the area where malaria has been eradicated reached a total of 551,106 km², with a population of 7,357,000, as compared to the figures of 407,744 km² and 4,531,000 inhabitants for the end of 1957. On the other hand, the areas under surveillance dropped from 140,242 km² in 1957 to 110,030 km² in 1958. It should be pointed out, however, that for 1957 French Guiana reported having 80,000 km² of its territory under surveillance, but no information has been received concerning the figure for 1958.

Table VI presents a summary of the status of the malaria eradication program in the Americas by area and population, as of December 1958.

Tables VII, VIII, IX, and X give information on the national personnel employed in eradication programs in the Americas, according to information available as of 31 December 1958. Generally speaking, a substantial increase has been recorded in the number of personnel to strengthen all the field operations.

Table XI shows the transport facilities in the programs as of December 1958, which have increased by more than 600 units since December 1957.

D. Field Operations

Table XII sets forth a series of statistical data on the malaria programs of the Continent that receive international collaboration and that transmit monthly reports to the Organization. It is not possible to give a detailed analysis of all the material contained in this table, but some comments of a general nature should be made.

With respect to spraying, a wide variation can be noted in work output. Whereas in one country a sprayman treats an average of 12.3 houses per day, in another he sprays only 6.3 houses. This fact is of very great importance economically and is without justification even when the differences in average surfaces of houses to be sprayed are taken into account. It is probable that, through a detailed study, the costs of spraying operations can be reduced and others of no less importance can be increased in the programs.

In the Americas it is generally agreed that evaluation operations can be carried out economically only by making able use of a network of voluntary collaborators. Though this network is still insufficient, there is no doubt that it represents a valuable contribution to evaluation operations, as can be seen in Table XIII. Whereas active surveillance, that is, the taking of blood samples directly by the campaign personnel, produced 1.4 per cent

Table VI

Status of the Eradication of Malaria by Area and Population in the Americas, December 1958

Status	Area (Km ²)	Per cent	Population (a) (in thousands)	Per cent
Total	39,824,537	100	387,276	100
Malaria never indigenous or has disappeared without specific eradication measures (b)	24,117,191	60.5	245,401	63.3
Malaria eradicated	2,873,797	7.2	53,002	13.7
Under surveillance	110,030	0.3	1,860	0.5
Malaria still present but organized program of total coverage under way	4,215,748	10.6	46,196	11.9
Malaria still present but eradication program in the preparatory phase	8,202,882	20.6	34,348	8.9
Transmission known to occur but no organized program of total coverage under way (c)	304,889	0.8	6,469	1.7

(a) Estimated as of July 1, 1958.

(b) Including such areas in countries where malaria has been eradicated or is still present; excluding Cuba, where no information is available.

(c) Cuba and interior of British Guiana.

Table VII

Personnel Employed, In Training, and Still Needed
in the Americas as of 31 December
1958

T i t l e	Employed	In Training	Vacancies
Total	14,773	1,047	1,383
Physicians	270	19	17
Engineers	96	4	11
Entomologists	38	-	-
Entomological assistants	83	-	2
Microscopists	312	1	44
Accountants	6	-	-
Administrators	63	-	12
Administrative assistants	341	-	24
Statistical assistants	41	-	2
Disbursing officers	42	-	1
Storekeepers	75	-	3
Assistant storekeepers	48	-	7
Draftsmen	70	-	1
Secretaries	426	-	24
Sector chiefs	392	2	22
Squad chiefs	1,356	151	135
Spraymen	6,846	653	611
Evaluation inspectors	135	-	42
Evaluators	1,142	190	26
Mechanics and assistant mechanics	265	-	10
Drivers	841	-	101
Motorboat-men	115	-	6
Boatmen	82	-	6
Watchmen	50	1	-
Laborers	566	-	2
Others	1,072	26	274

Table VIII

Professional and Technical Personnel Employed in Malaria Eradication
Programs in the Americas as of 31 December
1958

Country or other political unit	Total personnel	Physicians	Engineers	Entomologists	Entomology Aides
Total	487	270	96	38	83
Argentina	11	9	1	-	1
Bolivia	21	12	3	1	5
Brazil (a)	...	...	...	...	...
São Paulo	29	17	2	10	-
Colombia	56	29	23	-	4
Costa Rica	5	1	2	-	2
Cuba	...	...	...	...	...
Dominican Republic	7	2	2	1	2
Ecuador	17	10	2	-	5
El Salvador	8	2	1	1	4
Guatemala	8	3	2	1	2
Haiti	16	5	7	1	3
Honduras	3	2	-	1	-
Mexico	181	112	36	4	29
Nicaragua	10	4	-	1	5
Panama	7	1	1	1	4
Paraguay	6	4	1	1	-
Peru	29	14	7	8	-
Venezuela	31	25	4	2	-
British Guiana	2	1	-	1	-
British Honduras	1	1	-	-	-
Dominica	7	6	1	-	-
French Guiana	2	1	-	1	-
Grenada	1	1	-	-	-
Guadeloupe	2	1	-	1	-
Jamaica	3	3	-	-	-
Panama Canal Zone	3	1	1	1	-
St. Lucia	1	1	-	-	-
Surinam	2	1	-	-	1
Trinidad and Tobago	18	1	-	1	16

(a) Excluding the State of São Paulo.

- None.

... No information.

Table IX

Field Personnel Employed in Spraying Operations in Malaria Eradication Programs in the Americas, as of 31 December, 1958

Country or other political unit	Total			Sector Chiefs			Squad Chiefs			Spraymen			Drivers			Motorboatmen		
	At present	No. of vacancies	In training	At present	No. of vacancies	In training	At present	No. of vacancies	In training	At present	No. of vacancies	In training	At present	No. of vacancies	In training	At present	No. of vacancies	In training
Total	9,550	875	806	392	22	2	1,356	135	151	6,846	611	653	841	101	-	115	6	-
Argentina	167	11	-	9	-	-	28	2	-	93	-	-	37	9	-	-	-	-
Bolivia	282	11	-	32	-	-	47	-	-	158	11	-	38	-	-	7	-	-
Brazil (a)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
São Paulo	223	522	-	12	-	-	55	66	-	122	378	-	34	78	-	-	-	-
Colombia	1,923	15	-	43	15	-	151	-	-	1,418	-	-	239	-	-	72	-	-
Costa Rica	111	5	-	3	-	-	15	1	-	78	2	-	15	2	-	-	-	-
Cuba	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dominican Republic	208	-	-	6	-	-	28	-	-	146	-	-	28	-	-	-	-	-
Ecuador	318	-	-	15	-	-	50	-	-	232	-	-	19	-	-	2	-	-
El Salvador	311	-	-	12	-	-	49	-	-	204	-	-	46	-	-	-	-	-
Guatemala	324	31	2	6	2	2	21	29	-	261	-	-	36	-	-	-	-	-
Haiti	330	5	-	13	-	-	63	-	-	247	5	-	7	-	-	-	-	-
Honduras	218	155	-	10	-	-	29	5	-	145	141	-	32	8	-	2	1	-
Mexico	2,592	112	734	101	4	-	457	32	151	1,997	70	583	33	1	-	4	5	-
Nicaragua	181	2	70	6	-	-	22	-	-	125	-	70	24	2	-	4	-	-
Panama	175	-	-	7	-	-	27	-	-	136	-	-	5	-	-	-	-	-
Paraguay	129	-	-	4	-	-	16	-	-	83	-	-	24	-	-	2	-	-
Peru	492	-	-	22	-	-	65	-	-	324	-	-	81	-	-	-	-	-
Venezuela	754	-	-	48	-	-	122	-	-	520	-	-	53	-	-	11	-	-
British Guiana	66	-	-	1	-	-	9	-	-	53	-	-	3	-	-	-	-	-
British Honduras	48	-	-	8	-	-	10	-	-	30	-	-	-	-	-	-	-	-
Dominica	-	6	-	-	1	-	-	-	-	-	4	-	-	1	-	-	-	-
French Guiana	30	-	-	-	-	-	9	-	-	20	-	-	1	-	-	-	-	-
Grenada	16	-	-	1	-	-	2	-	-	10	-	-	3	-	-	-	-	-
Guadeloupe	40	-	-	1	-	-	6	-	-	30	-	-	3	-	-	-	-	-
Jamaica	243	-	-	19	-	-	33	-	-	149	-	-	42	-	-	-	-	-
Panama Canal Zone	26	-	-	2	-	-	4	-	-	16	-	-	2	-	-	2	-	-
St. Lucia	26	-	-	2	-	-	4	-	-	20	-	-	-	-	-	-	-	-
Surinam	87	-	-	4	-	-	13	-	-	56	-	-	5	-	-	9	-	-
Trinidad and Tobago	230	-	-	5	-	-	21	-	-	173	-	-	31	-	-	-	-	-

(a) Excluding the State of São Paulo.
 - None.
 ... No information.

Table X

Personnel Employed in Evaluation Operations in the Malaria Eradication Programs
of the Americas as of 31 December, 1958

	Total			Evaluation inspectors			Evaluators			Microscopists		
	At present	No. of vacancies	In training	At present	No. of vacancies	In training	At present	No. of vacancies	In training	At present	No. of vacancies	In training
Total	1,589	112	191	135	42	-	1,142	26	190	312	44	1
Argentina	108	9	-	15	3	-	77	3	-	16	3	-
Bolivia	35	-	-	-	-	-	22	-	-	13	-	-
Brazil (a)	...	...	...	...	...	...	...	...	...	...	...	...
São Paulo	18	-	-	-	-	-	-	-	-	18	-	-
Colombia	214	66	-	6	37	-	183	-	-	25	29	-
Costa Rica	25	1	-	1	-	-	18	1	-	6	-	-
Cuba	...	...	...	...	...	...	...	...	...	...	...	...
Dominican Republic	18	-	-	-	-	-	14	-	-	4	-	-
Ecuador	44	-	-	-	-	-	30	-	-	14	-	-
El Salvador	28	-	-	4	-	-	20	-	-	4	-	-
Guatemala	23	4	9	1	1	-	11	-	9	11	3	-
Haiti	46	-	-	6	-	-	25	-	-	15	-	-
Honduras	37	-	-	-	-	-	18	-	-	19	-	-
Mexico	257	22	181	(b)35	-	-	182	18	181	40	4	-
Nicaragua	21	-	-	-	-	-	15	-	-	6	-	-
Panama	39	2	-	2	-	-	25	2	-	12	-	-
Paraguay	15	-	-	6	-	-	-	-	-	9	-	-
Peru	96	-	-	-	-	-	70	-	-	26	-	-
Venezuela	436	-	-	40	-	-	353	-	-	43	-	-
British Guiana	1	-	-	-	-	-	-	-	-	1	-	-
British Honduras	9	-	-	1	-	-	8	-	-	-	-	-
Dominica	15	2	1	13	-	-	2	2	-	-	-	1
French Guiana	-	-	-	-	-	-	-	-	-	-	-	-
Grenada	4	-	-	-	-	-	3	-	-	1	-	-
Guadeloupe	12	-	-	1	-	-	9	-	-	2	-	-
Jamaica	31	-	-	1	-	-	16	-	-	14	-	-
Panama Canal Zone	4	-	-	2	-	-	-	-	-	2	-	-
St. Lucia	4	-	-	-	-	-	3	-	-	1	-	-
Surinam	10	1	-	-	1	-	7	-	-	3	-	-
Trinidad and Tobago	39	5	-	1	-	-	31	-	-	7	5	-

(a) Excluding the State of São Paulo.

- None.

(b) Assistant medical malariologists.

... No information.

Table XI

Transportation Systems in Malaria Eradication Programs in the Americas

Country or other political unit	Vehicles in service or which will be in service								Beasts of burden
	Total	Station wagons and automobiles	Jeeps	Pick-ups	Trucks	Motor-boats	Out-board motors	Other	
Total	2,485	116	636	1,188	100	73	218	157	2,501
Argentina	100	4	23	29	17	-	-	(a)27	-
Bolivia	72	3	25	38	2	4	-	-	176
Brazil (b)	...	...	...	...	...	...	...	...	...
São Paulo	33	8	4	14	4	3	-	-	-
Colombia	377	29	69	215	3	3	57	(c) 1	670
Costa Rica	26	1	7	11	1	6	-	-	-
Cuba	...	...	...	...	...	...	...	...	...
Dominican Republic	63	3	23	36	1	-	-	-	-
Ecuador	105	3	29	31	7	18	17	-	60
El Salvador	52	5	15	31	1	-	-	-	-
Guatemala	44	6	7	27	1	3	-	-	(d)30
Haiti	39	2	19	15	2	-	-	(c)1	-
Honduras	44	4	8	29	2	1	-	-	20
México	652	1	201	415	16	3	5	(e)11	1,051
Nicaragua	32	2	12	11	2	4	-	(f) 1	-
Panamá	58	8	15	27	2	6	-	-	(d)
Paraguay	30	1	8	17	1	1	2	-	-
Peru	356	9	56	119	7	-	110	(g)55	-
Venezuela	233	17	79	81	8	6	-	(c)42	494
British Guiana	7	3	-	1	-	1	-	(h) 2	-
British Honduras	4	1	3	-	-	-	-	(i) 2	(d)
Dominica	-	-	-	-	-	-	-	-	-
French Guiana	18	2	1	4	1	1	8	(j) 1	-
Grenada	5	-	1	2	-	-	-	(f) 3	-
Guadeloupe	7	1	2	3	1	-	-	-	-
Jamaica	43	3	15	15	10	-	-	-	-
Panama Canal Zone	4	-	-	2	-	-	2	-	-
St. Lucia	7	-	2	3	-	-	-	(f) 2	-
Surinam	43	-	2	3	2	12	17	(k) 7	-
Trinidad and Tobago	31	-	10	9	9	1	-	(l) 2	-

- (a) Five tank trucks, two motorcycles and twenty bicycles.
- (b) Excluding the State of São Paulo.
- (c) Bicycles.
- (d) Rented as necessary.
- (e) Buses, "Guayin".
- (f) Motorcycles.
- (g) Small out-board motor boats.
- (h) One carrier-cycle and one tender.

- (i) Motorcycles on loan to the Service.
- (j) Trailers.
- (k) Three motorcycles and four bicycles.
- (l) Tractors.

- Nil.
 ... Data not available.

TABLE XII

Date total coverage began : <u>September 1949</u>		COUNTRY: <u>ARGENTINA</u>		SPRAYING OPERATIONS					Sheet Nº 1	
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED				INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	No. Squads	
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.				DIELDRIN Tech.
1st. YEAR OF TOTAL COVERAGE : 1949/1950										
DATA NOT AVAILABLE										
2nd. YEAR OF TOTAL COVERAGE : 1950/51										
DATA NOT AVAILABLE										
3rd. YEAR OF TOTAL COVERAGE : 1951/52										
DATA NOT AVAILABLE										
4th. YEAR OF TOTAL COVERAGE : 1952/53										
DATA NOT AVAILABLE										
5th. YEAR OF TOTAL COVERAGE : 1953/54										
DATA NOT AVAILABLE										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : 1949										
-	61,603	1,275	1,199	44	32	0	-	-	-	4,304
2nd. YEAR OF TOTAL COVERAGE : 1950										
-	85,880	1,961	1,882	71	8	0	-	-	-	1,954
3rd. YEAR OF TOTAL COVERAGE : 1951										
-	80,310	1,333	1,301	28	4	0	-	-	-	1,836
4th. YEAR OF TOTAL COVERAGE : 1952										
-	81,085	696	657	31	6	2	-	-	-	1,058
5th. YEAR OF TOTAL COVERAGE : 1953										
-	70,353	499	491	5	3	0	-	-	-	648

(-) Information not available.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>September 1949</u> COUNTRY: <u>ARGENTINA</u>										
SPRAYING OPERATIONS										
										Sheet Nº 2
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	Nº. Squads
	CYCLE	D. D. T. once	CYCLE	DDT once Twice	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
6th YEAR OF TOTAL COVERAGE : 1954/55										
DATA NOT AVAILABLE										
7th YEAR OF TOTAL COVERAGE : 1955/56										
-		90,918		44,710	135,628	62,540				
8th YEAR OF TOTAL COVERAGE : 1956/57										
-		28,806		60,321	89,127	50,680	0	8	-	29
9th YEAR OF TOTAL COVERAGE : 1957/58										
-		20,681		41,155	61,836	33,430	0	-	-	29
10th. YEAR OF TOTAL COVERAGE: 1958 (Agosto - Dic. 1958)										
59,242		3,986		39,603	43,589	13,381	0	8.4	182,475	29

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
6th YEAR OF TOTAL COVERAGE : 1954										
-	6,314	424	408	12	4	0	-	-	-	618
7th YEAR OF TOTAL COVERAGE : 1955										
-	4,695	388	378	7	2	1	-	-	-	388
8th YEAR OF TOTAL COVERAGE : 1956										
-	27,072	707	669	35	3	0	-	-	-	707
9th YEAR OF TOTAL COVERAGE : 1957										
-	37,268	785	727	53	3	2	254	70	19	791
10th. YEAR OF TOTAL COVERAGE:										

(-) Information not available.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>1st September 1958</u> COUNTRY: <u>BOLIVIA</u>										
<u>SPRAYING OPERATIONS</u>										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	Nº. Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : 1st September 1958 - 30 April 1959										
181,171	1st 2nd	107,047 16,930	1st	5,222	129,199	41,987 6,637	607	7.5	505,469 (*)	
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(*) Data not complete.

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : 1st September 1958 - 30 April 1959										
-	23,710	991	689	131	133	38	763	22	12	1 Sept '58 - 4 April '59 552
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

- Information not available.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>29 September 1958</u> COUNTRY: <u>COLOMBIA</u>										
<u>SPRAYING OPERATIONS</u>										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED				INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of Inhabitants protected	Nº. Squads	
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.				DIELDRIN Tech.
1st. YEAR OF TOTAL COVERAGE : 29 September 1958 - 29 March 1959										
1,235,473	1st 2nd	1,137,508	1st	0	1,137,508	620,801	0	-	6,597,002	420
-		-				-			-	
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : 1st. January - 31 December 1958 (*)										
-	90,150	849	642	192	4	11	-	183	25	70,903
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(*) Evaluation operations have not yet been organized.. The above data refers to malaria survey to obtain delimitation of malarious area. jiv.
 (+) Cases not necessarily confirmed by laboratory examination. (-) Information not available

TABLE XII (Cont'd)

Date total coverage begun : <u>15 July 1957</u> COUNTRY: <u>GOSTA RICA</u>										
<u>SPRAYING OPERATIONS</u>										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED				INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	Nº. Squads	
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.				DIELDRIN Tech.
1st. YEAR OF TOTAL COVERAGE : July 15, 1957 - August 8, 1958										
67,059 58,641	1st 2nd	58,408 58,624	1st	0	117,032	27,936 24,491	0	7.6	290,582 287,535	16
2nd. YEAR OF TOTAL COVERAGE : September 1st, 1958 - March 1959										
58,858 60,413	3rd 4th	60,800 5,681	2nd	0	66,481	28,239 3,060	0	7.00 5.11	292,856 27,099	15 15
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : July 15, 1957 - August 8, 1958										
-	-	1,786	1,661	102	10	13	703	14	5	3 weeks missing average 15 cases per week 871
2nd. YEAR OF TOTAL COVERAGE : September 1st, 1958 - March 1959										
-	29,238	1,202	1,100	96	5	1	1,559	15	6	one week missing 432
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

- Data not available.

jlv.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>16 June 1958</u>		COUNTRY: <u>DOMINICAN REPUBLIC</u>								
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of Inhabitants protected	Nº. Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : 16 June 1958 - April 1959										
386,120		0	1st	333,145	333,145	0	30,887	11.4		28
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : 16 June 1958 - May 1959										
28,217	28,217	3,554	1,585	1,962	1	6	285	13	4	No report
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>April 1st, 1957</u> COUNTRY: <u>ECUADOR</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED				INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	Nº. Squads	
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL (*)	D.D.T. Tech.				DIELDRIN Tech.
1st. YEAR OF TOTAL COVERAGE : April 1st, 1957 - March 30, 1958										
286,946	1st) 2nd)	(*) 63,284	1st	257,697	300,318	37,345	29,372	8.03	1,777,566	
2nd. YEAR OF TOTAL COVERAGE : April 1958 - March 1959										
329,223	3rd 4th	47,394 80,847	2nd	269,099	397,340	23,777 36,091	39,334	6.87	1,092,450	
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(*) Sprayings

EVALUATION OPERATIONS

3rd cycle April-Sept. 1958

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : April 1st, 1957 - March 30, 1958										
-	47,993	2,258	1,085	1,140	3	30	25	33	12	July '57 - March '58 2,266
2nd. YEAR OF TOTAL COVERAGE : April 1958 - March 1959										
-	61,085	4,802	2,434	2,308	4	56	2,429	37	9	4,989
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(-) Information not available.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>July 1st, 1956</u> COUNTRY: <u>EL SALVADOR</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Sprayman/day.	Nº of Inhabitants protected	Nº Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL (*)	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : July 1st, 1956 - August 3rd, 1957										
	1st	259,935	1st	128,839	562,311	117,974	9,001	8.5	2,741,142	-
	2nd	173,537				93,531		8.8		
2nd. YEAR OF TOTAL COVERAGE : August 19, 1957 - July 1958										
217,603	3rd	126,329	2nd	202,728	441,324	59,244	32,919	9.4	2,105,404	76
	4th	112,267				50,628		9.3		
3rd. YEAR OF TOTAL COVERAGE : August 8, 1958 - April 1959										
231,975	5th	273,788	3rd	0	407,993	135,056	0	8.7	1,297,756	72
341,277	6th	134,205				68,534		8.9	633,704	
4th. YEAR OF TOTAL COVERAGE :										

(*) Sprayings

EVALUATION OPERATIONS

Nº SLIDES COLLECTED	Nº SLIDES EXAMINED	TOTAL Nº OF POSITIVES	PLASMODIA SPECIES				Nº of Voluntary Collaborators	Nº of Evaluators	Nº of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : July 1st. 1956 - August 3rd, 1957										
-	-	4,040	2,200	1,751	3	86	-	-	-	1956 No report 1957 Whole year 8,974
2nd. YEAR OF TOTAL COVERAGE : August 19, 1957 - July, 1958										
-	-	9,108	4,891	4,160	5	52	-	-	-	Aug 1, 57 - July 31-58 7,872
3rd. YEAR OF TOTAL COVERAGE : August 8, 1958 - April 1959										
-	43,524	9,424	5,479	3,926	0	19	1,314	20	4	Aug '58 - Feb. 28-59 7,163
4th. YEAR OF TOTAL COVERAGE :										

(-) Information not available.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>August 1st 1956</u> COUNTRY: <u>GUATEMALA</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	Nº. Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : August 1st. 1956 - September 15, 1957										
272,177		0	1st	306,306	306,306	0	-	8.42	-	28
2nd. YEAR OF TOTAL COVERAGE: September 4, 1957 - September 30, 1958										
321,975		0	2nd	331,090	331,090	0	38,499	8.56	1,477,675	22
3rd. YEAR OF TOTAL COVERAGE : October 15, 1958 - March 28, 1959										
341,000	1st 2nd	268,995		0	268,995	113,195	0	8.99	1,167,372	62
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : August 1st. 1956 - September 15, 1957										
-	30,940	7,061	5,011	2,000	4	46		20	12	Aug - Oct. 1956 Jan - Sep. 1957 12,605
2nd. YEAR OF TOTAL COVERAGE : September 4 1957 - September 30 1958										
48,211	48,211	10,084	6,174	3,834	1	75	150	21	12	Sept.-Dec. 1957 except Nov. Jan-Aug. 1958 (4,316)
3rd. YEAR OF TOTAL COVERAGE : October 15, 1958 - March 28, 1959										
45,019	45,019	8,174	5,094	3,046	0	34	1,320	22	10	Sept. 8-58 - Mar. 28-59 3,806
4th. YEAR OF TOTAL COVERAGE :										

- Information not available.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont 'd)

Date total coverage began : _____ COUNTRY: <u>HAITI</u>										
<u>SPRAYING OPERATIONS</u>										
HOUSES TO BE SPRAYED	N ^o . OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	N ^o . of inhabitants protected	N ^o . Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : September 1st. 1958 - December 1958										
756,126		0	1st	143,947	143,947	0	9,665	10.7	496,708	46
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

N ^o . SLIDES COLLECTED	N ^o . SLIDES EXAMINED	TOTAL N ^o . OF POSITIVES	PLASMODIA SPECIES				N ^o . of Voluntary Colaborators	N ^o . of Evaluators	N ^o . of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : June 1st - October 15, 1958 (*)										
10,123	10,123	546	0	523	23	0	-	25	3	1 June-30 Oct. 1958 10,029
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(*) Beginning before total coverage started.

(-) Information not available.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>January 21st, 1958</u> COUNTRY: <u>HONDURAS</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	Nº. Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : January 21st 1958 - December 31, 1958										
223,790		0	1st	223,063	223,063	0	10,598	8.11	1,348,478	24
2nd. YEAR OF TOTAL COVERAGE : January 1st, 1959										
-		-		-	-	-	-	-	-	-
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : January 21st, 1958 - December 31, 1958										
-	27,061	2,049	1,096	941	0	12	399	-	16	Jan. 1-Dec. 31 14,366
2nd. YEAR OF TOTAL COVERAGE : January 1st, 1959 - March 1959										
-	9,678	1,011	537	465	0	9	539	-	16	3,278
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(-) Data not available

jiv.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>January 1st, 1957</u> COUNTRY: <u>MEXICO</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº OF HOUSES SPRAYED				INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº of inhabitants protected	Nº Squads	
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	(*) TOTAL	D.D.T. Tech.				DIELDRIN Tech.
1st. YEAR OF TOTAL COVERAGE : January 1st 1957 - December 31, 1957										
3,089,349	1st 2,143,023 2nd 2,298,952	1st 219,662 2nd 459,064	2,362,685 2,758,016	1,710,381	67,005	9.30 9.85	10,802,294 12,597,171	540		
2nd. YEAR OF TOTAL COVERAGE : January 1st 1958 - December 31, 1958										
2,792,857 2,536,840	3rd 2,103,570 4th 1,971,557	2nd 685,814 3rd 531,742	2,789,384 2,503,299	844,681 835,510	75,085 59,966	10.21 10.52	12,501,599 11,212,496	538 457		
3rd. YEAR OF TOTAL COVERAGE : January 1st 1959 - March 31, 1959										
	5th 1,496,639	3rd 129,154	1,625,793	637,937	14,155	10.81	7,293,511			
4th. YEAR OF TOTAL COVERAGE :										

(*) Sprayings

EVALUATION OPERATIONS

Nº SLIDES COLLECTED	Nº SLIDES EXAMINED	TOTAL Nº OF POSITIVES	PLASMODIA SPECIES				Nº of Voluntary Collaborators	Nº of Evaluators	Nº of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : January 1, 1957 - December 31, 1957										
175,080	175,080	4,387	3,856	453	17	61	27,492	227	42	20,333
2nd. YEAR OF TOTAL COVERAGE : January 1, 1958 - December 31, 1958										
403,573	403,573	3,290	2,779	451	24	36	30,104	291	42	7,092
3rd. YEAR OF TOTAL COVERAGE : January 1, 1959 - March 31, 1959										
166,940	166,940	768	628	119	14	7	30,960	325	37	Jan'59 - March 28-59 344
4th. YEAR OF TOTAL COVERAGE :										

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>November 11, 1957</u> COUNTRY: <u>NICARAGUA</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	Nº. Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : November 11, 1957 - October 30, 1958										
-		0	1st	120,780	120,780	0	14,712	8.6	784,236	21
2nd. YEAR OF TOTAL COVERAGE : November 10, 1958 - April 30, 1959										
223,220	1st	134,539	2nd	0	134,539	61,836	0	8.77	760,999	
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : November 11, 1957 - October 1958										
-	25,307	835	390	440	0	5	112	15	4	743
2nd. YEAR OF TOTAL COVERAGE : November 10, 1958 - April 30, 1959										
-	17,317	988	435	542	0	11	255	30	4	Nov. 1-58 - April 30-59 596
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(-) Information not available

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>August 19, 1957</u> COUNTRY: <u>PANAMA</u>										
<u>SPRAYING OPERATIONS</u>										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	Nº. Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : August 19, 1957 - August 16, 1958										
152,957		0	1st	155,963	155,963	0	18,556	6.6	931,500	25
2nd. YEAR OF TOTAL COVERAGE : August 25, 1958 - April 30, 1959										
161,700		0	2nd	99,271	99,271	0	15,045	6.3	425,282	25
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : August 19, 1957 - August 16, 1958										
-	52,456	7,841	5,534	2,169	52	86	1,002	18	7	2,753
2nd. YEAR OF TOTAL COVERAGE : August 25, 1958 - April 30, 1959										
-	64,480	2,985	2,404	562	6	13	1,351	25	7	Sept. 10-58 - April 30-59 426
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>October 30, 1957</u> COUNTRY: <u>PARAGUAY</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	sprays
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : October 30, 1957 - November 1958										
126,902		0	1st	148,563	148,563	0	15,610	11.3	747,541	15
2nd. YEAR OF TOTAL COVERAGE : November 10, 1958 - March 31, 1959										
148,480		0	2nd	63,862	63,862	0	6,383	12.3	307,489	16
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : October 30, 1957 - November, 1958										
-	13,526	500	496	3	1	0	110	6	9	292
2nd. YEAR OF TOTAL COVERAGE : November 10, 1958 - March 30, 1959										
4,076	4,076	228	224	4(*)	0	0	189	12	9	58
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(*) Case imported from non-sprayed area.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>November 17, 1957</u> COUNTRY: <u>PERU (Coastal Region)</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº OF HOUSES SPRAYED				INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº of inhabitants protected	Nº. Squads	
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.				DIELDRIN Tech.
1st. YEAR OF TOTAL COVERAGE : November 17, 1957 - October 31, 1958										
527,081		(a) 357,030		121,666	478,696 (a)	152,290	14,356	7.8	1,867,208	50
2nd. YEAR OF TOTAL COVERAGE : November 11, 1958 - May 31, 1959										
527,081		223,455		169,133	392,588	94,648	21,934	9.06	1,937,926	
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(a) 70,266 sprayed twice a year.

EVALUATION OPERATIONS

Nº SLIDES COLLECTED	Nº SLIDES EXAMINED	TOTAL Nº OF POSITIVES	PLASMODIA SPECIES				Nº of Voluntary Collaborators	Nº of Evaluators	Nº of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : November 17, 1957 - October 31, 1958										
-	-	652	527	77	29	19	2,024	60	22	1-30 Nov. '57 1-Jan-31 Oct. '58 7,869
2nd. YEAR OF TOTAL COVERAGE : November 11, 1958 - April 30, 1959										
-	32,695	1,137	1,026	78	20	13	3,837	43	20	Nov. 1-58 - April 30-59 3,014
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>February 4, 1957</u> COUNTRY: <u>BRITISH HONDURAS</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	NO. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	No. of inhabitants protected	No. Squads
	CYCLE	Dieldrin XXXXX once	CYCLE	DIELDRIN. twice	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : February 4, 1957 - January 31, 1958										
17,655	1st	17,082			17,082		2,160			10
2nd. YEAR OF TOTAL COVERAGE : February 3, 1958 - December 1958										
11,599 6,056	2nd	11,873		(*) 7,470		49.03 (*)	5,143 4,150		94,937	4
3rd. YEAR OF TOTAL COVERAGE : April 22, 1959 - June 27, 1959										
18,726		DDT 10,211		0		3,521	0	7.5	-	9
4th. YEAR OF TOTAL COVERAGE :										
EMERGENCY SPRAYINGS: January - April										
		DDT 1,915		DIELD. 210		419	25	7.4	-	

(*) Plus 118 sprayed with DDT 100% in September 1958.

EVALUATION OPERATIONS

NO. SLIDES COLLECTED	NO. SLIDES EXAMINED	TOTAL NO. OF POSITIVES	PLASMODIA SPECIES				No. of Voluntary Collaborators	No. of Evaluators	No. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : February 4, 1957 - January 31, 1958										
	2,132	256	56	148	52	0	-	-	-	1957 319
2nd. YEAR OF TOTAL COVERAGE : February 3, 1958 - April, 1959										
	8,081	593	226	321	46	0	181	11	3	552
3rd. YEAR OF TOTAL COVERAGE : April 22, 1959 - June 27, 1959										
	2,349	272	48	187	36	1	181	11	3	1 Apr.-1 May 393
4th. YEAR OF TOTAL COVERAGE :										

(-) Information not available

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>February 12, 1957</u> COUNTRY: <u>GRENADA</u>										
<u>SPRAYING OPERATIONS</u>										
HOUSES TO BE SPRAYED	N ^o . OF HOUSES SPRAYED				INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	N ^o . of Inhabitants protected	N ^o . Squads	
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.				DIELDRIN Tech.
1st. YEAR OF TOTAL COVERAGE : February 12, 1957 - January 31, 1958										
-	1st	7,237			7,237	-	0	-	-	
8,162	2nd	7,920			7,920	1,985	0	7.2	26,496	2
2nd. YEAR OF TOTAL COVERAGE : February 16, 1958 - January 31, 1959										
8,162	3rd	7,942		0	7,942	2,390	0	6.2	28,181	2
8,329	4th	8,140			8,140	2,579	0	6.8	30,015	2
3rd. YEAR OF TOTAL COVERAGE : February 16 1959 - June 30 1959										
8,329	5th	6,824		0	6,824	2,239	0	7.5	25,242	2
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

N ^o . SLIDES COLLECTED	N ^o . SLIDES EXAMINED	TOTAL N ^o . OF POSITIVES	PLASMODIA SPECIES				N ^o . of Voluntary Collaborators	N ^o . of Evaluators	N ^o . of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : February 12, 1957 - January 31, 1958										
3,230	3,230	123	0	123	0	0	23	3	1	No Report
2nd. YEAR OF TOTAL COVERAGE : February 16, 1958 - January 31, 1959										
10,954	10,954	50	0	50	0	0	24	3	1	No Report
3rd. YEAR OF TOTAL COVERAGE : February 16, 1959 - June 30, 1959										
1,663	1,663	2	0	2	0	0	29	3	1	No Report
4th. YEAR OF TOTAL COVERAGE :										

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>January 2nd, 1958</u> COUNTRY: <u>JAMAICA</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Sprayman/day.	Nº. of inhabitants protected	Nº. Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : January 2, 1958 - December 31, 1958										
278,909		0	1st	270,759	270,759	0	16,413	8.9	1,054,894	33
2nd. YEAR OF TOTAL COVERAGE : January 5, 1959 - May 2, 1959										
279,729	1st	23,802	2nd	94,355	118,157	5,189	5,808	10.6	451,035	33
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº SLIDES COLLECTED	Nº SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : January 2, 1958 - December 31, 1958										
56,266	56,266	205	0	199	6	0	0	25	10	2,919
2nd. YEAR OF TOTAL COVERAGE : January 5, 1959 - May 2, 1959										
8,838	8,838	209	0	206	3	0	0	23	10	Jan.3-May 2 1,096
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

jlv.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>January 16, 1956</u> COUNTRY: <u>ST. LUCIA</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	N ^o . OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	N ^o . of inhabitants protected	N ^o . Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : January 1956 - January 1957										
13,056	1st	16,748 ⁽¹⁾		0	16,748	5,420	0	-	65,250	2
2nd. YEAR OF TOTAL COVERAGE : February 1957 - December 1957										
13,050	2nd	12,251		0	12,251	2,425	0	-	49,352	2
13,310	3rd	12,236			12,236	2,070		-	46,974	
3rd. YEAR OF TOTAL COVERAGE : January 16, 1958 - February 14, 1959										
16,819	4th	15,817		0	15,817	3,985	0	5.37	57,508	4
16,819	5th	14,513			14,513	3,466	0	6.83	55,558	
4th. YEAR OF TOTAL COVERAGE : February 22, 1959 - June 27, 1959										
15,325	6th	9,875		0	9,875	2,362	0	7.40	41,078	4

EVALUATION OPERATIONS

N ^o . SLIDES COLLECTED	N ^o . SLIDES EXAMINED	TOTAL N ^o . OF POSITIVES	PLASMODIA SPECIES				N ^o . of Voluntary Collaborators	N ^o . of Evaluators	N ^o . of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. vlv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : January 16, 1956 - January 1957										
3,616	3,616	72	0	63	9	0	-	-	-	Year 1956 2,279
2nd. YEAR OF TOTAL COVERAGE : February 1957 - December 1957										
4,601	4,601	19	0	15	4	0	22	3	-	Year 1957 295
3rd. YEAR OF TOTAL COVERAGE : January 16, 1958 - February 14, 1959										
5,764	5,764	38	0	29	9	0	22	3	1	Year 1958 67
4th. YEAR OF TOTAL COVERAGE : February 22, 1959 - June 27, 1959										
2,928	2,928	3	0	3	0	0	22	3	1	

(1) 6,577 houses sprayed under the old control program. For analysis purposes this number has been added to the 9,420 of the last 4 months of 1956, and therefore it is called as (+) Cases not necessarily confirmed by laboratory examination. the first cycle.

TABLE XII (Cont'd)

Date total coverage began : <u>May 5, 1958</u> COUNTRY: <u>SURINAM</u>										
SPRAYING OPERATIONS										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED				INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of inhabitants protected	Nº. Squads	
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.				DIELDRIN Tech.
1st. YEAR OF TOTAL COVERAGE : May 5, 1958 - May 2nd, 1959										
35,540	1st	30,853	1st	7,098		9,711	389	5.84	151,525	13
35,540	2nd	33,086				12,804		9.00	190,951	14
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : May 5, 1958 - May 2nd, 1959										
38,279	38,279	3,547	71	3,340	120	16	19	14	3	No report
2nd. YEAR OF TOTAL COVERAGE :										
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

jlv.

(+) Cases not necessarily confirmed by laboratory examination.

TABLE XII (Cont'd)

Date total coverage began : <u>January 1, 1958</u> COUNTRY: <u>TRINIDAD</u>										
<u>SPRAYING OPERATIONS</u>										
HOUSES TO BE SPRAYED	Nº. OF HOUSES SPRAYED					INSECTICIDE USED (Kgs.)		Average of houses per Spray-man/day.	Nº. of Inhabitants protected	Nº. Squads
	CYCLE	D. D. T.	CYCLE	DIELDRIN.	TOTAL	D.D.T. Tech.	DIELDRIN Tech.			
1st. YEAR OF TOTAL COVERAGE : January 1958 - December 1958										
	-	1st	-	-	-	-	-	-	-	-
2nd. YEAR OF TOTAL COVERAGE : January 7, 1959 - June 27, 1959										
132,000	27,400	2nd	47,577	74,063	8,980	6,069	-	-	-	25
3rd. YEAR OF TOTAL COVERAGE :										
4th. YEAR OF TOTAL COVERAGE :										

EVALUATION OPERATIONS

Nº. SLIDES COLLECTED	Nº. SLIDES EXAMINED	TOTAL Nº. OF POSITIVES	PLASMODIA SPECIES				Nº. of Voluntary Collaborators	Nº. of Evaluators	Nº. of Microscopists	REPORTED CASES TO PAHO BY NATIONAL HEALTH SERVICE (+)
			P. viv.	P. fal.	P. mal.	Assoc.				
1st. YEAR OF TOTAL COVERAGE : January 1, 1958 - December 31, 1958										
-	31,925 (1)	376	58	318	0	0				Trinidad and Tobago 131
2nd. YEAR OF TOTAL COVERAGE : January 1, 1959 - June 30, 1959										
-	-	41	9	32	0	0	86	51	7	5
3rd. YEAR OF TOTAL COVERAGE :										
1st. YEAR OF TOTAL COVERAGE : of TOBAGO: (1)										
17,431	17,431 (2)	2 (3)	0	2	0	0		10		
2nd YEAR OF TOTAL COVERAGE, TOBAGO: January 1, 1959 - April 30, 1959										
5,735	5,735	0	0	0	0	0	86	7	7 (2)	

(1) January - October 1958

(2) Trinidad laboratory and microscopists

(+) Cases not necessarily confirmed by laboratory examination.

(3) Imported from Trinidad

(-) Information not available.

Table XIII

Results of Malaria Case Finding by Source of Slides and Reports in the Americas, 1958

Area	Total confirmed	Cases reported by physicians, hospitals, etc.			Malarionetric surveys			Active surveillance			Passive surveillance						Other sources		
		Number reported	Confirmed		Slides examined	Confirmed		Slides examined	Confirmed		Voluntary collaborators			Dispensaries rural hospitals, etc.			Number reported	Confirmed	
			Number	Per cent		Number	Per cent		Number	Per cent	Slides examined	Number	Per cent	Slides examined	Number	Per cent		Number	Number	Per cent
Total	54,809	191,576	16,431	8.6	659,160	7,263	1.1	486,277	6,795	1.4	168,142	7,916	4.7	153,626	15,683	10.2	9,281	721	7.8
Argentina	1,107	698	168	24.1	1,708	94	5.5	33,978	629	1.9	4,458	216	4.8	-	-	-	-	-	-
Bolivia	392	-	-	-	8,471	392	4.6	-	-	-	-	-	-	-	-	-	-	-	-
Brazil, São Paulo*	3,530	-	-	-	-	-	-	-	-	-	-	-	-	4,642	3,530	76.0	-	-	-
Colombia	683	74,279	...	...	83,800	670	0.8	-	-	-	-	-	138	13	9.4	-	-	-	
Costa Rica	2,162	15,483	469	3.0	-	-	-	32,021	1,063	3.3	2,310	313	13.5	788	317	40.2	-	-	-
Dominican Republic	2,676	7,045	2,108	29.9	7,362	31	0.4	-	-	-	-	-	-	-	-	-	3,377	537	15.9
Ecuador	3,853	495	87	17.6	785	39	5.0	25,873	1,634	6.3	12,448	953	7.7	11,689	1,097	9.4	418	43	10.3
El Salvador	9,351	9,953	1,588	16.0	22,827	2,737	12.0	949	199	21.0	11,716	2,879	24.6	6,170	1,948	31.6	-	-	-
Guatemala	12,829	7,730	3,747	48.5	4,316	541	12.5	13,903	876	6.3	3,329	448	13.5	32,478	7,122	21.9	422	95	22.5
Haiti	898	253	89	35.2	11,198	809	7.2	-	-	-	-	-	-	-	-	-	-	-	-
Honduras	2,049	27,061	2,049	7.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mexico	3,261	-	-	-	-	-	-	271,793	1,198	0.4	47,856	591	1.2	71,738	1,426	2.0	4,784	46	1.0
Nicaragua	1,154	510	510	100.0	-	-	-	9,513	644	6.8	-	-	-	-	-	-	-	-	-
Panama	7,253	34,362	4,865	14.2	1,121	235	21.0	-	-	-	77,203	2,153	2.8	-	-	-	-	-	-
Paraguay	500	7,068	338	4.8	5,714	154	2.7	744	8	1.1	-	-	-	-	-	-	-	-	-
Peru	1,043	165	4	2.4	5,514	490	8.9	9,482	186	2.0	8,816	363	4.1	-	-	-	-	-	-
Venezuela	1,138	385	3	0.8	461,305	984	0.2	-	-	-	-	-	-	22,746	151	0.7	280	-	-
British Guiana	51	1	-	-	1,430	39	2.7	-	-	-	-	-	-	90	12	13.3	-	-	-
British Honduras	231	2,112	212	10.0	6,788	19	0.3	-	-	-	6	-	-	-	-	-	-	-	-
French Guiana	15	-	-	-	217	-	-	-	-	-	-	-	-	500	15	3.0	-	-	-
Guadeloupe	3	3	3	100.0	-	-	-	6,024	-	-	-	-	-	842	-	-	-	-	-
Jamaica	139	2,966	-	-	21,024	(a)	...	7,847	102	1.3	-	-	-	1,226	37	3.0	-	-	-
Trinidad and Tobago	376	185	185	100.0	-	-	-	62,450	191	0.3	-	-	-	-	-	-	-	-	-
Windward Islands																			
Dominica	25	60	3	5.0	7,208	22	0.3	-	-	-	-	-	-	-	-	-	-	-	-
Grenada	52	762	3	0.4	4,662	5	0.1	5,328	44	0.8	-	-	-	-	-	-	-	-	-
St. Lucia	38	-	-	-	3,710	2	0.1	6,372	21	0.3	-	-	-	579	15	2.6	-	-	-

* For Brazil only data from the State of São Paulo are available.

- None.

(a) Incomplete.

positive cases, the "passive" surveillance carried out by lay collaborators, rural dispensaries, health centers, etc., produced 7.3 per cent.

Table XIV indicates the nature of the confirmed malaria cases in the Americas in 1958, and Table XV shows the annual confirmed cases during the period 1956-58, according to the stage of development of each program and the type of malaria infection. It should be kept in mind that the larger number of cases in the last few years is in keeping with the increase and improvement in the reporting network. As a rule, before the start of the eradication program the reporting network was more deficient and only few of the reported cases had received laboratory confirmation.

Finally, Table XVI shows the national budgets for the programs in 1957, 1958, and 1959. As can be seen, there has been a gradual increase in these budgets, particularly in countries where vector resistance to insecticides has been observed.

II. THE PROBLEM OF ANOPHELINE RESISTANCE TO INSECTICIDES

In the report presented to the XV Pan American Sanitary Conference reference was made, for the first time, to the appearance of resistance in a malaria vector in the Region. In effect, in July 1958 it was confirmed that the Anopheles albimanus was resistant to dieldrin and to DDT in certain localities of El Salvador.

This finding made it necessary to intensify in all the programs, particularly those of the Central American countries, the tests for susceptibility in accordance with the WHO standard method. The standard kits developed by WHO for making the tests have been distributed to the countries since February 1958. As the personnel gained experience in the determination of base-line susceptibility, better information on the problem began to be obtained. In February 1959, on the basis of acquired experience, a pamphlet of supplementary instructions was published that made it possible to standardize the tests. Table XVII shows the most significant results of the investigations made in various countries up to July 1959. It can be noted that anopheline vector resistance has already been found in British Honduras (A. albimanus), Colombia (A. punctimacula), Cuba (A. albimanus), Ecuador (A. albimanus), El Salvador (A. albimanus), Guatemala (A. albimanus), Honduras (A. albimanus), Mexico (A. pseudopunctipennis), Nicaragua (A. albimanus), Jamaica (A. albimanus), and Trinidad (A. aquasalis).

The percentage of resistant specimens in the anopheline population varies in different places; but it is known that when a few resistant specimens appear it is not long before the insecticide in question becomes ineffective in the eradication campaign.

In an attempt to find solutions to the problem, the Director convened in January 1959, a meeting of a group of specialists in insect genetics to

Table XIV

Origin of Confirmed Cases of Malaria in the Americas, 1958

Country or other political unit	Total	Imported	Introduced	Sporadic	Induced	Indigenous	Undetermined
Argentina	1,107	81	302	109	3	612	-
Bolivia	392	-	-	-	-	392	-
Brazil, São Paulo	3,530	441	...	...	...	2,738	351
Colombia	683	42	2	...	...	39	600
Costa Rica	2,162	...	...	...	...	...	2,162
Dominican Republic	2,676	-	-	-	-	2,676	-
Ecuador	3,853	...	...	...	...	...	3,853
El Salvador	9,351	-	-	-	-	9,351	-
Guatemala	12,829	-	-	-	-	12,829	-
Haiti	898	45	...	...	...	117	736
Honduras	2,049	-	-	-	-	2,049	-
Mexico	3,261	4	-	-	-	3,257	-
Nicaragua	1,154	...	...	...	...	...	1,154
Panama	7,253	...	...	...	...	...	7,253
Paraguay	500	-	-	-	-	500	-
Peru	1,043	1	-	-	2	1,040	-
Venezuela	1,138	392	53	2	5	686	-
British Guiana	51	8	-	28	-	15	-
British Honduras	231	...	...	...	...	...	231
French Guiana	15	5	-	10	-	-	-
Guadeloupe	3	-	-	3	-	-	-
Jamaica	139	...	...	...	...	...	139
Panama Canal Zone	71	-	71	-	-	-	-
Surinam	2,244	-	-	-	-	2,244	-
Trinidad and Tobago	376	-	-	376	-	-	-
Windward Islands							
Dominica	25	-	-	-	-	25	-
Grenada	52	1	-	-	-	51	-
St. Lucia	38	-	-	-	-	38	-

Table XV

Confirmed Cases of Malaria by Stage of Eradication and Type of Infection
in the Americas, 1956 - 1958

Country or other political unit	Year	Total confirmed cases		Confirmed cases by stage of eradication of area (a)				Confirmed cases by type of infection (b)			
		Number	Rate per 100,000 population	Eradicated area	Area under surveillance	Area sprayed regularly	Area irregularly or not sprayed	P. vivax	P. falciparum	P. malariae	Mixed
Total	1958	57,124	46.0	219	146	51,976	4,765	35,731	19,719	344	375
	1957	69,847	41.5	93	121	32,651	36,982	47,827	20,095	420	842
	1956	40,850	25.0	157	375	33,513	6,805	28,809	10,462	498	862
Argentina	1958	1,107	5.5	122	25	660	300	1,064	36	3	4
	1957	785	4.0	8	16	761	-	727	53	3	2
	1956	707	3.6	-	1	706	-	669	35	3	-
Bolivia	1958	392	11.9	-	-	392	-	c) 276	c) 73	c) 61	c) 18
	1957	...	...	...	...	...	...	...	...	...	...
	1956	1,343	41.5	-	-	-	1,343	a) 1,011	a) 273	a) 225	a) 166
Brazil	d) 1958	3,530	31.8	...	...	...	3,530	3,509	15	1	5
	1957	31,712	51.8	...	-	...	31,712	24,741	6,470	30	471
	1956	18,099	30.2	9	-	18,090	-	13,685	3,937	9	468
Colombia	1958	683	5.1	...	...	683	...	511	117	4	51
	1957	e) 2,536	19.2	...	...	...	e) 2,536	1,700	739	58	15
	1956	1,642	12.7	-	-	954	688	c) 1,103	c) 500	c) 78	c) 39
Costa Rica	1958	2,162	201.7	-	-	2,162	-	2,002	145	7	8
	1957	1,153	111.4	-	-	1,153	-	1,033	92	18	10
	1956	f) 1,205	122.0	-	-	1,205	-	1,051	83	4	17
Dominican Republic	1958	2,676	95.9	-	-	2,676	-	1,388	1,282	2	4
	1957	1,533	56.8	-	-	1,533	-	890	630	12	1
	1956	904	34.7	-	-	904	-	569	324	10	1
Ecuador	g) 1958	3,853	96.2	-	-	3,853	-	1,718	2,087	4	44
	1957	1,675	43.1	-	-	1,675	-	808	835	3	29
	1956	...	...	...	...	...	-	...	...	...	...
El Salvador	1958	9,351	384.2	-	-	9,351	-	4,932	4,381	-	38
	1957	6,655	283.2	-	-	6,655	-	3,649	2,949	5	52
	1956	5,802	255.8	-	-	5,802	-	3,449	2,239	7	107
Guatemala	1958	12,829	361.5	-	-	12,829	-	7,786	4,690	-	83
	1957	5,653	164.8	-	-	5,653	-	3,812	1,792	4	45
	1956	2,397	73.6	-	-	2,397	-	1,691	694	-	12
Haiti	1958	898	26.2	...	...	...	898	1	850	46	1
	1957	1,987	58.7	-	-	-	1,987	8	1,429	136	14
	1956	563	16.8	-	-	563	-	74	462	27	-
Honduras	1958	2,049	112.5	-	-	2,049	-	1,096	941	-	12
	1957	190	10.7	-	-	190	-	103	87	-	-
	1956	74	4.3	-	-	-	74	51	23	-	-
Mexico	1958	3,261	10.1	-	-	3,261	-	2,808	395	26	32
	1957	4,387	14.0	-	-	4,387	-	3,856	453	17	61
	1956	4,233	13.9	-	-	-	4,233	3,486	668	32	47
Nicaragua	1958	1,154	83.9	...	...	1,154	...	655	495	10	-
	1957	746	56.0	-	-	-	746	446	294	4	2
	1956	458	35.6	-	-	458	-	321	65	10	-
Panama	1958	7,253	728.9	-	-	7,253	-	5,407	1,749	51	46
	1957	7,550	786.5	-	-	7,550	-	4,796	2,565	61	128
	1956	239	25.4	-	-	239	-	133	85	17	4
Paraguay	1958	500	29.9	-	-	500	-	497	3	-	-
	1957	206	12.6	-	-	206	-	204	2	-	-
	1956	70	4.4	-	-	-	70	...	...	...	...
Peru	1958	1,043	10.2	-	3	1,040	-	824	167	37	15
	1957	639	6.4	-	-	639	-	...	...	...	...
	1956	308	3.2	-	-	308	-	219	61	28	-

Table XV (cont'd)

Country or other political unit	Year	Total confirmed cases		Confirmed cases by stage of eradication of area(a)				Confirmed cases by type of infection (b)			
		Number	Rate per 100,000 population	Eradicated area	Area under surveillance	Area sprayed regularly	Area irregularly or not sprayed	P. vivax	P. falciparum	P. malariae	Mixed
Venezuela	1958	a)1,138	18.0	95	50	975	-	1,047	68	12	11
	1957	899	14.7	83	65	751	-	793	84	12	10
	1956	1,266	21.3	33	42	1,191	-	1,200	64	1	1
British Guiana	1958	51	9.6	-	-	51	-	8	23	20	-
	1957	3	0.6	2	-	1	...	2	1	-	-
	1956	36	7.2	-	-	36	-	-	31	5	-
British Honduras	1958	h) 231	268.6	...	...	231	...	53	121	38	-
	1957	212	252.4	-	-	212	-	53	121	38	-
	1956	72	87.8	-	-	72	-	23	49	-	-
Dominica	1958	25	39.1	...	25	...	...	-	25	-	-
	1957	1	1.6	-	-	-	1	-	1	-	-
	1956	...	...	...	...	...	...	...	...	...	...
French Guiana	1958	15	50.0	-	15	-	-	-	15	-	-
	1957	15	51.7	-	15	-	-	-	15	-	-
	1956	29	96.7	-	-	29	-	1	28	-	-
Grenada	1958	52	56.5	-	-	15	37	-	52	-	-
	1957	134	142.6	-	-	134	-	-	134	-	-
	1956	160	179.8	-	-	160	-	-	159	1	-
Guadeloupe	1958	3	1.2	-	-	3	-	-	-	3	-
	1957	1	0.4	-	-	1	-	-	1	-	-
	1956	...	...	...	...	...	...	...	...	...	...
Jamaica	1958	139	8.5	-	-	139	-	-	135	4	-
	1957	265	16.6	-	-	265	-	1	251	13	-
	1956	397	25.4	-	-	-	397	9	358	30	-
Panama Canal Zone	1958	71	129.1	-	28	43	-	53	18	-	-
	1957	109	198.2	-	-	109	-	72	37	-	-
	1956	...	...	...	...	...	...	...	...	...	...
St. Lucia	1958	38	41.3	-	-	38	-	5	29	4	-
	1957	19	20.9	-	-	19	-	-	16	3	-
	1956	67	75.3	-	-	67	-	-	59	8	-
Surinam	1958	i)2,244	816.0	-	-	2,244	-	33	1,220	10	3
	1957	87	34.7	...	-	87	-	44	43	-	-
	1956	447	198.7	115	332	-	-	...	...	...	...
Trinidad and Tobago	1958	376	47.9	2	-	374	-	58	317	1	-
	1957	695	90.8	-	25	670	-	89	601	3	2
	1956	332	44.7	-	-	332	-	64	265	3	-

- (a) Includes 18 cases in 1958 from areas originally without malaria.
- (b) No data on type of infection for 997 cases in 1958, 663 in 1957 and 567 in 1956.
- (c) Mixed infections also appear under the respective infections by single species.
- (d) State of São Paulo only.
- (e) Includes 24 cases not specified as to plasmodial species.
- (f) Includes 50 cases not specified as to plasmodial species.
- (g) 9-month period.
- (h) Includes 19 cases not specified as to plasmodial species.
- (i) Includes 978 cases not specified as to plasmodial species.

Table XVI

National Budgets* for Malaria Eradication in the Americas, 1957-1959

Country or other political unit	Date of initiation of program	National budget 1957	National budget 1958	National commitments 1959
Argentina	Sept. 1949	348,886	491,364	387,674
Bolivia	Sept. 1958	a) 81,300	b) 450,000	b) 450,000
Brazil c)	Jan. 1959	a) 2,258,290	...	3,000,000
São Paulo	1 Sept. 1958	...	...	1,000,000
Colombia	8 Sept. 1958	a) 747,575	1,901,485	2,270,320
Costa Rica	15 July 1957	246,913	246,913	264,598
Cuba	**	**	**	d) 90,000
Dominican Republic	1 July 1958	a) 379,060	450,000	450,000
Ecuador	18 March 1957	e) 433,664	463,664	512,435
El Salvador	1 July 1956	e) 530,208	564,800	615,643
Guatemala	1 Aug. 1956	480,000	f) 803,000	b) 908,898
Haiti	Sept. 1958	a) 340,486	g) 596,322	h)
Honduras	Jan. 1958	a) 318,110	f) 499,000	b) 653,945
Mexico	2 Jan. 1957	4,160,000	4,400,000	6,000,000
Nicaragua	10 Nov. 1958	207,807	f) 397,995	b) 615,728
Panama	19 Aug. 1957	456,052	428,304	669,026
Paraguay	30 Oct. 1957	130,841	f) 196,430	b) 217,227
Peru	15 Nov. 1957	i) 525,862	i) 815,311	i) 815,311
Venezuela	1950	7,140,154	7,941,991	...
British Guiana	j) Jan. 1947	86,481	69,622	...
British Honduras	4 Feb. 1957	e) 37,330	38,500	72,887
Dominica	June 1959	a) 2,059	a) 1,941	8,313
French Guiana	k) May 1948	105,878	82,141	80,000
Grenada	Feb. 1957	19,344	19,269	20,000
Guadeloupe	Nov. 1955	100,977	95,238	90,000
Jamaica	Jan. 1958	a) 277,778	f) 338,800	b) 501,961
Panama Canal Zone	...	50,000	...	...
St. Lucia	1 July 1956	17,440	34,253	35,000
Surinam	2 May 1958	a) 60,526	129,475	175,200
Trinidad and Tobago	Jan. 1958	a) 285,294	291,176	293,030

- a) Preparatory period only.
- b) Provided jointly by Government and I.C.A.
- c) Not including the State of São Paulo.
- d) For preliminary investigation.
- e) Based on reported expenditures.
- f) Supplemented with I.C.A. assistance.
- g) To be met with PAHO assistance.
- h) Program temporarily interrupted.
- i) Western Peru only.
- j) Refers only to the coastal area.
- k) Reimportation in 1954, spraying recommenced.

* All amounts shown are in U.S. dollars.

... Data not available.

** Report not received.

Table XVII

Resistance or Susceptibility of Adult Mosquitoes to DDT and Dieldrin,
by Country, State, and District in the Americas until July 31, 1959

Country or other political unit	State	District*	Anopheles species	Resistant to insecticide	Susceptible to insecticide	Dates	Investigator	
Bolivia	Cochabamba	Campero(2)*	pseudopunctipennis		D, L	6/59	Borda	
	Cordillera	Mizque	"		D?	9/58	Borda	
		Santa Cruz	"		D?, L	1/59	Borda, Pereira	
	Pando	Tahuamanu	darlingi		D, L	4/59	"	
						12/58	Borda y Salazar	
Brazil	São Paulo	Cananéia	cruzii		D	1/59	Rosario, Cavalcante, Martins	
Colombia	Choco	Quibdo	darlingi		D, L	8-9/58	Ferrer, Garcés, Cubillos	
		Riosucio	punctimacula	D		2/59	Ferrer, González, Garcés	
	Valle del Cauca	Buenaventura	neivai		D, L	2-3/59	Suárez, Suárez, Ferrer	
Costa Rica	Puntarenas	Central Aguirre	albimanus punctimacula		D, L	6-9/58	Vargas	
					D?	5/59	Vargas	
Cuba	Oriente	Manzanillo	albimanus	L	D	7/59	Duret	
		Holguín	"	L	D	7/59	Duret	
		Bayamo (2)	"	L	D	6-7/59	Duret	
Ecuador	Guayas	Yaguachi Guayaquil	albimanus		L	2-3/59	Moreno, Salazar	
					D, L	8-10/58	López	
					L	2-3/59	Cepeda, Pesantez; Villavicencio	
		Daule	"	"	D	4-5/59	Villavicencio	
		Naranjito(3)	"	L	L	3/59	Villavicencio, Pesantez	
					L	3/59	Padilla; Villavicencio	
					L	4/59	Cepeda, Pesantez, Villavicencio	
	Esmeraldas	Esmeraldas(2)	"		L	3-4/59	Delgado	
	El Oro	Machala (2)	"	"	L	D	4/59	Villavicencio
						D	6-7/59	Villavicencio
					D		Cepeda; Orellana	
	Santa Rosa	"	L	D	6-7/59	Villavicencio; Moreno		
	Arenillas	"	L	D	7/59	Moreno; Cepeda		
	Babahoyo	"		L	5/59	Villavicencio		
	Vinces	"		D	5/59	Orellana		
El Salvador	S. Vicente	Santo Domingo	albimanus	D, L		11/58	Duret, Parada	
				D, L		2-3/59	Parada; Hobbs	
				L		6/59	Viramontes	
	La Libertad	La Libertad(3)	"	D, L		7/58	Duret, Heredia	
				D, L		2-3/59	Parada	
				D		6/59	Viramontes	
	La Union	La Union(2)	pseudopunctipennis		D?	5/59	Viramontes	
						7/58	Duret, Heredia	
						1-2/59	Parada	
Sonsonate	Acajutla(2)	"	D, L		7/58	Duret, Heredia		
San Miguel	San Miguel	"	D, L		7/58	Duret, Parada		
Santa Ana	Metapen	"	L		11/58	Duret, Parada		
Cabañas	Presa 5 de Nov.	"	L		11/58	Duret, Parada		
Guatemala	Chiquimula	Chiquimula	pseudopunctipennis		D, L	4/59	Menchaca	
						4/59	Menchaca	
						6/59	Ochoa; Menchaca	
	Escuintla	San José(2)	"		L	9/58	Dary	
					D?, L	10-12/58	Dary	
					D?, L	4/59	Ochoa, Menchaca	
					L	6/59	Dary, Ochoa	
					D, L	3/59	Dary, Menchaca	
		La Democracia	"		D	7-8/59	Dary, Menchaca	
	Tiquisate(2)	"	L	D	8-10/58	Dary		
		"	L	D?	6/59	Dary, Ochoa, Menchaca		
		"	L	D	6-7/59	Dary		
Guatemala Suchitepéquez	Amatitlán	"	"		D?	7/59	Ochoa	
						7/59	Menchaca	
Retalhuleu	Cuyotenango	"		D?	7/59	Ochoa		
	Caballo Blanco	"		D, L?	7/59	Menchaca		

Table XVII (Cont'd)

Country or other political unit	State	District*	Anopheles species	Resistant to insecticide	Susceptible to insecticide	Dates	Investigator	
Guatemala (cont.)	Zacapa Alta Verapaz	Teculután S. Pedro	albimanus vestitipennis	L	D D, L	11/58 11/58	Dary Dary	
Honduras	Comayagua	Villa San Antonio	albimanus	D, L D, L		12/58 5/59	Austin, Turcio Turcio	
	Cortez	La Isla Santa Cruz de Yojoa	"	L?	D?	2/59	Austin, Turcio	
	Francisco Morazán	Cedros (2)	"	L	D	1/59	Austin, Turcio	
	Choluteca	Tegucigalpa	"	"	L	D	1/59	Austin, Turcio
					L	D	4/59	Turcio
				L	D?	11/58	Austin	
Mexico	Morelos	Temixco (3)	pseudo-punctipennis	L L	D	7-9/58 2/59	Martínez Palacios	
	Guerrero	Acapulco (2)	albimanus "		D?, L D, L	9/58 2/59	Shields Viramontes, Menchaca, Ruiz	
	Puebla	Izúcar de Matamoros (2)	pseudo-punctipennis "		D, L D, L	9/58 9/58 11/58	Viramontes	
	Michoacán	Parácuaro (2) Apatzingán (2)	"	"	L	D	9/58	Martínez Palacios
					L	D	9/58	Martínez Palacios
	Veracruz	Tlacotalpan Tlalixcoyan	"	"		D, L D, L	9/58 9/58	Martínez Palacios
					D, L	9/58		
Nicaragua	Chinandega	Morazán (2) Chichigalpa (3)	albimanus "	D, L D, L		7/59 10/58	Domínguez, Ruiz Heredia, Austin, Domínguez	
						2-3/59	Vindel	
	Managua	Managua (3) Tipitapa (5)	"	"	D, L D, L		6/59 10/58	Vindel Heredia, Domínguez
							3/59	Ruiz; Domínguez; Vindel
	León	León (10) Quezalque (2)	"	"	D, L D, L		5-7/59 4-7/59	Vindel Vindel; Ruiz; Domínguez
							6/59	Vindel
	Rivas	Paz Centro	"	"	D, L	5/59	Ruiz	
	Masaya	Potosí	"	"		4/59	Ruiz	
	Chontales	Tisma	"	"	D		7/59	Vindel
					L?	D?	10/58	Austin, Domínguez
	Nueva Segovia	Jalapa	"	"	L		10/58	Heredia, Domínguez
Panama	Panama	Arraiján Panama (2)	albimanus " triannulatus neomaculipalpus		? D, L D, L	5/59 10/58 12/58	Conte Conte Conte	
						L	12/58	Conte
						L	12/58	Conte
	Colon	Colon	"	"	L?		6/59	Conte
							L	6/59	Conte
	Chagres (2)	"	"	"	D?, L?		11/58	Conte
							L?	5/59	Conte
Coclé	Porto Bello Aguadulce	albimanus "	"	L D, L		5/59 11/58	Conte Conte	
Paraguay	Concepción	Cerro Lorito	albitarsis		L	12/58	Atilio Pereira	
Peru	Lima	Lima	pseudo-punctipennis "		L D	12/58 1-3/59	Napán Napán	
	Tacna	Sama Zarumilla	"	"	D	3/59	Napán	
					L, D	3/59	Napán	
	Tumbes	Tumbes Alto	"	"		D, L	3/59	Acosta
						D, L	3/59	Acosta
Loreto	Amazonas Yavarí	benarrochi "	"	D, L D, L	6/59 6/59	Acosta Acosta		

Table XVII (Cont'd)

Country or other political unit	State	District*	Anopheles species	Resistant to insecticide	Susceptible to insecticide	Dates	Investigator
British Honduras	Belize Punta Gorda	Belize	albimanus	L	D	2/59	Heredia
		P. Gorda	"	L?	D?	5/59	Heredia
French Guiana		Cayenne	aquasalis		D?, L	2/58	Fauray
Jamaica	St. Catherine	Amity Hall	albimanus	L	D?	11-12/58	van Seventer
			"	L		2/59	van Seventer
	Hanover	Logwood	"	L		12/58	van Seventer
	Clarendon	Salt River	"	L		4/58	van Seventer
			"	L?	D	1/59	van Seventer
	Portland	Orange Bay	"				
	St. Marys	Dover	"	L?	D?	1/59	van Seventer
	Westmoreland	Frome	"		L	11/58	
		Big Bridge	"		L	12/58	van Seventer
	St. Andrews	Ferry	"		D	11/58	van Seventer
	Kingston						
St. Elizabeth	Pedro Bay	"		L	11/58	van Seventer	
St. James	Success	"					
	Pond	"		L	12/58	Aarons	
	Manchester	Alligator	"				
		Pond	"		L?	1/59	Aarons
Surinam	Paramaribo	Paramaribo	aquasalis		D?, L	5/59	van Seventer
Trinidad	Moruga	Moruga	aquasalis	L	D?	2-3/59	van Seventer
		Barataria Insectary	"		BHC	1/59	Omardeen

Key: D = DDT; L = dieldrin; D? or L? = This conclusion is not fully established, due to small numbers of mosquitoes tested, or use of test papers of insufficient strength. It represents an indication, not full confirmation.

* The figure in parentheses after the district name represents the number of localities tested in that district.

Notes: Many more tests were done in some countries than are listed here. Early testing was somewhat experimental in nature. Tests which did not contribute to a conclusion on presence or absence of resistance were omitted. Multiple tests in the same district which led to the same conclusion were combined in the table, unless separated by more than two months.

Failure to achieve conclusive results was sometimes due to lack of sufficient mosquitoes. This in turn might be due to adverse seasonal factors, or to the results of spray programs. Sometimes control lots of mosquitoes died for unknown reasons.

recommend the basic guidelines for the investigations that should be made. The group recommended that, in order to obtain material for study, it was necessary to establish colonies of resistant anopheles in appropriate research centers. With the assistance of the interested countries and the collaboration of the Entomology Department of the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, measures were taken to establish colonies of pure strains, that is, specimens resistant exclusively to a given insecticide or group of insecticides.

The preliminary colony is already established in El Salvador and in April it was producing about 1,000 specimens per day. The eggs are sent to Baltimore, where it is expected the mosquito colony will consolidate, so as to obtain secondary colonies composed of pure strains for the planned investigations. Once this is accomplished, material can be sent to all laboratories interested in participating in the program, within the recommendations established in the Seventh Report of the WHO Expert Committee on Malaria.

In addition, instructions have been given to the effect that an attempt be made to colonize locally the species found in each country with evident signs of resistance, so that the same process as that described above for the A. albimanus strain in El Salvador may be followed.

The University of Illinois has also offered its facilities for carrying out genetic studies in connection with the problem.

The Organization obtained the collaboration of the United States Public Health Service, through the Communicable Disease Center in Atlanta, Georgia, to begin studies on new insecticides. With the cooperation of the Government of El Salvador an area was selected for such studies, which are now in a full stage of development. The Government of Mexico also started investigations of this same kind, in collaboration with the Organization.

All of the investigations mentioned above are coordinated with the studies being made by WHO in other regions of the world.

III. INTERNATIONAL COOPERATION

International cooperation in the malaria eradication program has continued on an increasing scale, with respect both to technical advice and to training of personnel, provision of equipment and materials, and investigations for the solution of special problems.

As can be seen in Table XVIII the number of PASB/WHO consultants, totalling 24 in 1957, rose to 86 in 1958 and to 109 in July 1959. The increase has been especially marked with respect to sanitary inspectors to assist in supervising field activities, and entomology aides to assist in intensifying vector-susceptibility tests.

Table XVIII

PASB/WHO Full Time Staff for Malaria Eradication in the Americas in 1957, 1958 and 1959*

Country or other political unit	Medical officers			Sanitary engineers			Sanitary inspectors			Others		
	1957	1958	1959	1957	1958	1959	1957	1958	1959	1957	1958	1959
Total	13	25	28	5	16	19	3	35	47	3	10	15
Argentina	-	-	-	-	-	-	-	-	-	-	-	-
Bolivia	1	1	1	-	1	1	-	3	4	-	-	-
Brazil (a)	1	1	1	1	1	1	-	-	-	-	-	-
São Paulo	-	-	-	-	1	1	-	2	3	-	-	-
Colombia	1	1	2	-	1	1	-	4	5	-	b)1	b)1
Costa Rica	1	1	1	-	-	-	-	1	1	-	-	-
Cuba	1	-	1	-	-	-	-	-	-	-	-	-
Dominican Republic	1	1	1	1	1	1	-	2	3	-	-	-
Ecuador	1	1	1	-	1	1	-	2	4	-	-	-
El Salvador	1	1	1	-	1	1	-	1	2	-	-	-
Guatemala	-	1	1	-	-	1	1	2	3	-	-	-
Haiti (c)	-	2	-	-	1	-	-	3	-	-	a)3	-
Honduras	-	1	1	-	-	1	1	1	2	-	-	-
Mexico	1	2	2	1	1	1	1	1	2	-	-	-
Nicaragua	1	1	1	-	-	1	-	1	2	-	-	-
Panama	1	1	1	-	1	1	-	1	1	-	-	-
Paraguay	-	1	1	-	1	1	-	1	1	-	-	-
Peru	-	1	1	1	1	1	-	3	4	-	-	-
British Guiana	-	-	-	-	-	-	-	-	-	-	-	-
British Honduras	-	-	1	-	-	-	-	-	1	-	-	-
Guadeloupe	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	-	1	-	1	1	1	-	2	2	-	-	-
Surinam	-	1	1	-	-	-	-	1	2	-	-	-
Trinidad and Tobago	-	-	-	-	-	-	-	-	-	-	-	-
Windward Is. (e)	-	-	-	-	-	-	-	2	2	-	-	-
Inter-zone or inter-country projects	2	6	9	-	3	4	-	2	3	f)3	g)6	h)14

* As of July 31, 1959.

(a) Excluding São Paulo.

(b) Malaria statistician.

(c) Program temporarily suspended.

(d) One health educator and two administrative officers.

(e) Includes staff for islands of Dominica, Grenada, and St. Lucia.

(f) One entomologist, one administrative officer and one laboratory technician.

(g) Three entomologists, one administrative officer, one parasitologist and one laboratory technician.

(h) Four entomologist, three administrative officers, 2 parasitologists and five entomology aides.

This international staff consists of 28 medical officers, 19 sanitary engineers, 47 sanitary inspectors, 4 entomologists, 3 administrative officers, 2 parasitologists, 5 entomology aides, and 1 laboratory technician. The number is still insufficient, however, and every effort is being made to recruit more specialists, not only to reinforce the campaign personnel in the various countries but also to carry out special studies.

In addition to this staff technical collaboration is provided by specialists of other institutions which, under the financial auspices of the Organization, are conducting research in the fields of chemotherapy, vector resistance to insecticides, and the use of new insecticides.

The personnel training program has been continued and intensified, as can be seen in Tables XIX and XX, which show, respectively, fellowships awarded for regular courses and travel grants awarded to certain specialized personnel for observations visits to other campaigns.

Venezuela has continued to offer its collaboration through the international course given at the School of its Division of Malariology, for which it offers fellowships to the countries of the Continent. These fellowships are awarded by the Government of Venezuela to cover the training and stipends of the students, whereas the Organization defrays their expenses for travel from the country of origin to Maracay and, on completion of their studies, for an observation visit to other eradication programs. The expenses of fellows coming from other Regions are covered by the Organization.

The courses in Mexico, Jamaica, and Brazil are supported through financial and technical collaboration between the respective governments and the Organization, and the one in Jamaica also receives substantial aid from the United States International Cooperation Administration.

During 1959 -- up to 31 August -- the following personnel received training in the above-mentioned courses for service in the Americas: 31 medical officers, 15 engineers, and 32 sanitary inspectors, not including the personnel of Venezuela, Mexico, Jamaica, and Brazil who attended the courses in their own countries without fellowships from the Organization.

In addition to the above, mention should be made of the valuable cooperation given by all the countries in facilitating visits of their national programs by fellows of all categories, so that they may observe at first hand the work under way, the problems met with, and the success achieved.

Under the auspices of the Organization, border meetings continued to be held for the purpose of coordinating activities in the areas concerned. The VII Meeting of Directors of National Malaria Eradication Services of Central America, Mexico, and Panama took place in Panama City from 13 to 17 April 1959. In an atmosphere of extreme cordiality, the group discussed, with a fully realistic approach, the eradication problem encountered by the

Table XIX

Personnel Trained in Malaria Eradication Techniques at International Centers, 1949-1958 and 1959*

Country or Other Political Unit	Total	Venezuela				Mexico						Jamaica						Brazil							
		1949-1958		1959		1949-1958			1959			1949-1958			1959			1949-1958			1959				
		Physicians	Sanitary engineers	Physicians	Sanitary engineers	Physicians	Sanitary engineers	Sanitary inspectors	Physicians	Sanitary engineers	Sanitary inspectors	Physicians	Sanitary engineers	Sanitary inspectors	Other	Physicians	Sanitary engineers	Sanitary inspectors	Other	Physicians	Sanitary engineers	Sanitary inspectors	Entomologists	Physicians	Sanitary engineers	Sanitary inspectors
Total	462	72	26	12	4	32	36	77	18	8	32	15	14	23	a)4	b)27	c)27	15	d)13	1	2		1	1	2
Argentina	14	1		1	1	1	3	3	1		2									1					
Bolivia	23	7	3	1	1	2	6		1		1									1					
Brazil	53	1	1	8		14	11	3	5	5	4	1													
Chile	3						1	1	1		1														
Colombia	41	24	4		1	2	1	1	1	1	4												1	2	
Costa Rica	9	2			1	1	1	4																	
Cuba	6	1	1						4																
Dominican Republic	5	2				1		1		1															
Ecuador	5	3		1																	1				
El Salvador	13	1				1		6	1		4														
Guatemala	19	2	1				2	6	1	1	6														
Haiti	20	4						16																	
Honduras	14		2					8			4														
Mexico	27	14	10				2	1																	
Nicaragua	9	2	1			1		3	1		1														
Panama	12			1		1	1	7			2														
Paraguay	12	2				2		6			1										1				
Peru	27	3	2		6	6	6	8				1													
Puerto Rico	14		1					1																	
U. S. A.	19						2	1					e)7	8				1							
Uruguay	3	1						1			1														
Venezuela	1								1																
British Guiana																									
British Honduras	5							1			2														
Dominica																									
Grenada																									
Guadeloupe																									
Jamaica																									
Other W.H.O. Regions	108	2							1			13	7		4	27	27	f)14	13						

* As of August 15, 1959. National personnel of Venezuela, Mexico, Jamaica and Brazil trained in their respective country are excluded.

- (a) 3 sponsored by WHO and 1 by ICA.
 (b) 17 sponsored by WHO and 10 by ICA

- (c) 13 sponsored by WHO and 14 by ICA.
 (d) 7 entomologists sponsored by WHO, 4 entomologists, 1 parasitologist and 1 biologist sponsored by ICA.
 (e) 5 sponsored by ICA.
 (f) 3 sponsored by WHO and 11 by ICA.

Table XX

Fellowships for Study Travel in Programs for Malaria Eradication
in 1957, 1958 and 1959*

Country or other political unit	Total	Physicians			Engineers			Entomologists			Others		
		1957	1958	1959	1957	1958	1959	1957	1958	1959	1957	1958	1959
Total	63	8	20	1	10			6	4	1		9	4
Brazil	12		9						3				
Colombia	4	1	1		1				1				
Costa Rica	2		1		1								
Cuba	1			1									
Dominican Republic	1	1											
El Salvador	1				1								
Guatemala	2							2					
Haiti	4		2									a)2	
Honduras	4	1			1			1				b)1	
Mexico	8	1	3		2			1		1			
Nicaragua	2	1			1								
Panama	1				1								
Paraguay	2				1							c)1	
Peru	3				1			2					
Venezuela	3		3										
British Guiana	4												d)4
Dominica	1											a)1	
Grenada	1											a)1	
Guadeloupe	1		1										
Jamaica	2	2											
Surinam	3	1										e)2	
Trinidad	1											a)1	

- * Up to 15 August, 1959.
(a) Laboratory technicians.
(b) Chemist.
(c) Accountant.
(d) 3 laboratory technicians and 1 pharmacist.
(e) 1 sanitary inspector and 1 laboratory technician.

participating countries. The conclusions and recommendations of that meeting are of utmost importance to all those interested in the subject. The Organization cooperated actively in the work of the meeting, and the final report has been distributed widely among persons interested in this field of activity.

The Organization has continued supplementing, in a modest though increasingly significant way, the valuable financial aid provided by UNICEF and by ICA in the form of equipment and supplies. Tables XXI and XXII show, respectively, the antimalarial drugs and the other equipment and materials furnished during 1958 and through 31 July 1959. All the countries receiving drugs have signed an agreement with the Organization to use them in accordance with the standards established by the Organization. These standards, in general terms, establish the methods for treatment of patients, according to the stage of development of the campaign, and mass treatment is accepted only when the use of insecticides is not indicated, either because of vector resistance or because the vector's resting habits are extradomiciliary. The contribution of other equipment and supplies has consisted mainly of items not regularly provided by UNICEF, such as protective equipment for personnel handling dieldrin, certain laboratory material, vehicles to transport international advisers, and in some cases technical grade insecticide for treatment of walls painted with material on which wettable powder cannot be used.

Finally, Table XXIII shows the direct international contributions made to the countries during 1957, 1958, and 1959.

The figures in themselves are eloquent enough to demonstrate how international cooperation is developing in the campaign to eradicate malaria in the Continent, and they are even more significant for the fact that they represent, almost exclusively, voluntary contributions made by the governments. Never before in the history of public health has there been such firm unity among peoples in the fight against a single disease.

Table XXI

Drugs Provided to Malaria Eradication Projects, 1958-1959*
(in thousands of tablets)

Country or other political unit	Chloroquine 150mg.		Primaquine			Pyrimethamine 25mg.	
	1958	1959*	1958	1959*		1958	1959*
			25mg.	15mg.	5mg.		
Argentina	1,144	-	20	-	-	97	-
Bolivia	870	400	15	10	20	76	-
Brazil	10,853	8,000	200.5	70	130	-	-
São Paulo	2,143	-	37.5	-	-	184	-
Colombia	7,837	-	137	-	-	664	-
Costa Rica	339	250	6	3	6	28	-
Cuba	-	50	-	-	-	-	-
Dominican Republic	1,934	300	34	5	10	165	-
Ecuador	1,629	500	28.5	20	20	140	-
El Salvador	1,520	-	26.5	50	50	128	-
Guatemala	1,088	-	19	15	30	92	-
Haiti	3,277	-	57.5	-	-	280	-
Honduras	1,026	-	18	3	6	88	-
Mexico	-	3,000	12	30	70	300	-
Nicaragua	827	-	19.5	3	6	72	-
Panama	728	400	12.5	20	20	60	-
Paraguay	560	-	10	-	-	48	-
Peru	2,302	-	40.5	15	30	196	-
British Guiana	-	-	-	-	-	-	55
British Honduras	66	30	1	2	2	6	-
Dominica	50	-	1	-	-	-	-
Grenada	23	-	0.5	-	-	4	-
Guadeloupe	-	-	-	-	-	30	-
Jamaica	1,030	-	18	-	-	82	-
St. Lucia	48	-	1	-	-	60	-
Surinam	101	200	2	5	10	10	25
Trinidad	-	362	-	-	-	-	48

* As of July 31, 1959.

Table XXII

Equipment and Supplies, Excluding Drugs, Contributed to Malaria Programs by PAHO, January 1958 to July 1959

Country or other political unit	Protective equipment					Laboratory supplies						Other				
	Helmets	Bands	Visors	Gloves	Ponchos	Mailing tubes	Surgi-tubes	Plastic tubes	Microscopes	Slides (gross)	Giemsa (grams)	Vehicles	Motors	DDT. (lbs.)	Dieldrin (lbs.)	Kerosene (imp. gals.)
Argentina						6,000	10	20								
Bolivia	50	180	160	40	80	10,000	10	20								
Brazil						83,000	20	40	47			b) 1				
Colombia						100,000	10	20								
Costa Rica						500	10	20								
Cuba						5,000	20	20				b) 1				
Dominican Republic	166	332	664	166	166	2,000	10	20								
Ecuador	206	412	824	206	206	50,000	10	20								
El Salvador a)	230	476	952	238	238	10,000	10	20			300	b) 1				
Guatemala a)	250	500	1,000	250	255	10,000	10	20		1,340		b) 1				
Haiti	341	682	1,364	341	341							b) 2				
Honduras a)	165	330	660	165	165	10,000	10	20		70	2,835					
Mexico						250,040										
Nicaragua a)	117	234	468	117	117	10,000	10	20		22,680						
Panama	137	274	548	137	137	10,000	10	20		35						
Paraguay	174	808	408	102	408	10,000	10	20				b) 1				
Peru	618	1,236	3,672	368	668	75,000	10	20					c) 1	38,877	7,533	
British Guiana	36	72	144	96	36											
British Honduras	38	38	76	19	19	900	10	20								
Dominica						130						d) 1				
Grenada						120										
Jamaica	25	200	400	194	209	2,500	10	20				b) 1				50,000
St. Lucia						110	10	20				d) 2				
Surinam	5	10	20	5	5	550	10	20								
Trinidad						1,150	10	20								

- (a) Due to the change from Dieldrin to DDT in the spraying operations, the protective equipment is being transferred to other projects.
 (b) Station Wagons.
 (c) Marine motor.
 (d) Motorcycles.

Table XXIII

International Contributions* to Malaria Programs in the Americas, 1957-1959

Country or other political unit	Date of initiation of program	1957			1958				1959			
		PAHO/SMF	WHO/TA	UNICEF /	PAHO/SMF	WHO/TA	UNICEF /	ICA (USA) (fiscal year)a	PAHO/SMF	WHO/TA	UNICEF /	ICA (USA) (fiscal year)a
Total		510,540	169,944	4,148,300	1,060,470	235,367	5,956,900	3,012,000	1,476,063	210,444	4,951,000	4,776,000
Argentina	Sept. 1949	9,692	-	-	11,453	-	-	-	18,300	-	230,000	-
Bolivia	Sept. 1958	-	b) 11,222	-	46,910	13,849	256,000	c) 450,000	87,691	12,883	143,000	c) 550,000
Brazil d)	Jan. 1959	b) 13,737	-	-	-	-	-	} e) 1,490,000	116,619	-	-	} e) 2,570,000
São Paulo	1 Sept. 1958	-	-	-	31,432	-	-		63,162	-	-	
Colombia	8 Sept. 1958	b) 59,260	b) 10,575	-	100,032	15,603	1,142,000	e) 500,000	176,187	-	755,000	e) 366,000
Costa Rica	15 July 1957	16,510	2,000	96,100	22,583	-	48,000	-	42,344	-	42,000	-
Cuba	**	-	b) 9,836	-	-	-	-	-	b) 29,185	-	-	-
Dominican Republic	1 July 1958	b) 30,106	b) 5,000	-	74,416	-	108,000	-	59,865	-	103,000	-
Ecuador	18 Mar. 1957	14,236	9,205	277,000	36,522	26,213	127,000	e) 100,000	60,220	23,211	148,000	e) 100,000
El Salvador	1 July 1956	20,891	5,000	180,600	44,068	23,306	151,000	-	67,562	7,691	230,000	-
Guatemala	1 Aug. 1956	13,567	10,051	137,500	39,163	15,985	198,000	c) 50,000	41,652	21,786	200,000	c) e) 350,000
Haiti	Sept. 1958	b) 42,400	b) 15,000	-	259,910	19,319	170,000	e) 75,000	f) 215,477	f) 1,360	f) 170,000	-
Honduras	Jan. 1958	b) 13,302	b) 5,000	-	15,875	11,876	207,000	c) 150,000	30,288	18,803	130,000	c) 550,000
Mexico	2 Jan. 1957	99,183	30,423	2,400,000	117,932	51,976	2,625,000	-	50,459	58,563	1,700,000	-
Nicaragua	10 Nov. 1958	27,558	5,000	167,000	25,228	6,922	-	c) e) 100,000	53,624	-	247,000	c) e) 200,000
Panama	19 Aug. 1957	15,615	12,368	148,000	26,189	18,292	86,000	-	33,915	22,568	146,000	-
Paraguay	30 Oct. 1957	23,203	-	146,000	25,373	14,125	87,000	c) e) 85,000	16,716	19,220	86,000	c) e) 75,000
Peru	15 Nov. 1957	49,670	4,264	514,000	60,321	17,901	404,000	-	119,127	24,359	350,000	-
Venezuela	1950	-	-	-	2,070	-	-	-	-	-	-	-
British Guiana	Jan. 1947 g)	-	-	-	1,580	-	-	-	e) 19,200	-	-	-
British Honduras	4 Feb. 1957	2,348	1,000	18,700	4,380	-	8,000	-	22,719	-	13,000	-
Dominica	June 1959	-	-	-	-	-	-	-	3,500	-	5,500	-
French Guiana	May 1948 h)	-	-	-	-	-	-	-	-	-	-	-
Grenada	Feb. 1957	-	12,000	4,400	10,225	-	5,000	-	12,398	-	9,500	-
Guadeloupe	Nov. 1955	897	-	-	7,271	-	-	-	-	-	-	-
Jamaica	Jan. 1958	b) 24,466	-	-	44,516	-	204,600	c) 12,000	58,467	-	130,000	c) 15,000
Panama Canal Zone	...	-	-	-	-	-	-	-	-	-	-	-
St. Lucia	1 July 1956	5,127	12,000	6,500	10,328	-	-	-	9,812	-	3,000	-
Surinam	2 May 1958	b) 4,108	b) 5,000	-	35,232	-	22,300	-	34,784	-	30,000	-
Trinidad and Tobago	Jan. 1958	b) 24,664	b) 5,000	b) 52,500	7,461	-	108,000	-	32,790	-	80,000	-

(a) ICA fiscal year does not necessarily correspond to the respective natl. fiscal years.

(b) Preparatory period.

(c) Local costs.

(d) Excluding the State of São Paulo.

(e) Imported supplies.

(f) Program temporarily interrupted.

(g) Refers only to the coastal area.

(h) Reimportation in 1954, spraying recommenced.

* All amounts shown are in U.S. dollars.

/ UNICEF contribution is listed under year of implementation even though allocation may have been made in a previous year.

- None.

** Report not received.

... No information.

directing council



PAN AMERICAN
HEALTH
ORGANIZATION

XI Meeting

regional committee

WORLD
HEALTH
ORGANIZATION

XI Meeting



Washington, D.C.
September 1959

CD11/23 (Eng.)
CORRIGENDUM I
21 September 1959
ORIGINAL: SPANISH

Topic 20: REPORT ON THE STATUS OF MALARIA ERADICATION IN THE AMERICAS - VII REPORT

CORRIGENDUM

Page 3, last paragraph:

"such practice will not interfere" instead of "such practice will interfere"

Page 43, Table XV

Bolivia, 1956. Confirmed cases by type of infection (b), c) 1,011, c) 273, c) 225, c) 166 instead of a) 1,011, etc.

Page 46, Table XVII

Colombia, Riosucio, punctimacula, D?

This conclusion is not firm. One test only was done, and its results are equivocal.

Page 47, Table XVII

Peru. Add this note: A review of the records from April to December 1958, made subsequent to the printing of this table, in the light of reports recently received, indicates that resistance to dieldrin was present in the following departments in 1958: Arequipa, Ayacucho, Ica, Junin, Lima and Lambayeque.