

a 62374

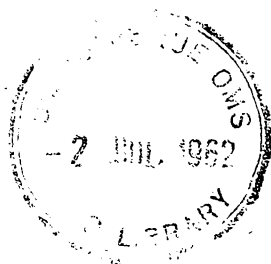
30 May 1962

ORIGINAL: ENGLISH

Supplement to WHO/Mal/348

CONTENTS

	<u>Page</u>
1. Epidemiological Assessment of Malaria Eradication as at December 1961	2
2. An Alternative Fluid Medium for Age-Grading Dissections	8
3. "Hurricane Hattie" in British Honduras	10
4. Resolutions of the Twenty-Ninth Session of the Executive Board	11



1. EPIDEMIOLOGICAL ASSESSMENT OF MALARIA ERADICATION AS AT DECEMBER 1961

The following note has been prepared by Dr C. W. Göckel, Epidemiological Assessment Unit, Division of Malaria Eradication.

The global epidemiological situation on malaria can be assessed in the Division of Malaria Eradication, Headquarters, on the basis of information from several sources, the most frequently used ones being:

- (a) The "Report on Development of Malaria Eradication Programme" to the World Health Assembly;
- (b) General routine reports from the field (monthly, quarterly, annual);
- (c) The quarterly reports on surveillance operations.

The first source of information, covering nearly all countries with areas originally infected with malaria, is naturally rather limited in detail especially as the data presented refer to the entire area under one phase, thus diminishing the value of the assessment.

Routine field reports - the second source of information - vary greatly in that reports are not consistent in the items of information provided or in the quality of reporting. Therefore it was necessary for the Malaria Eradication Division to develop a specialized reporting system for the purpose of a proper assessment of national malaria eradication programmes, a system now adopted by a great number of countries in which surveillance operations are carried out, and this constitutes the most reliable and efficient source for the purpose of continuous and up-to-date assessment.

A good many countries provide epidemiological information on both the attack and consolidation phase areas through the quarterly reports on surveillance operations. The present account, however, is limited to data from areas in the consolidation phase.

Table I shows the number of countries with areas in the consolidation phase at 31 December 1961 as given in the "Report on Development of Malaria Eradication Programme" to the Fifteenth World Health Assembly (A15/P&B/2) and the number of countries from which quarterly reports on surveillance operations have been received so far, as well as the proportion of people living in those areas.

These latter figures give an indication of the size of the consolidation phase areas. It can be seen that in the Eastern Mediterranean, European and South East Asian Regions, so far most of the countries with consolidation phase areas are participating satisfactorily covering 52%, 82% and 69.5% of the total population under consolidation respectively. In the Western Pacific Region, where 86% of the population are included in the reports, the actual information provided is not as satisfactory, due either to failure to separate the area sufficiently into reporting districts or to the long delay before the receipt of data.

A different situation exists in the American Region where only recently the special reporting system was introduced in a slightly adapted form. Here it can be assumed that the situation will gradually come into line with the other regions.

Although the epidemiological assessment necessitates a multitude of detailed information and individual consideration from country to country, certain principal data allow a rough but quick appraisal. The two main data are the annual parasite incidence¹ per thousand population (API ‰) which includes malaria cases of every origin, and the number of indigenous cases detected during a year. Such figures, however, become meaningful only if the surveillance operations from which they are derived, are adequate both in quantity and quality. Thus one basic requirement is the adequacy of the annual blood examination rate per hundred population (ABER ‰). Tables II and III present a crude overall epidemiological assessment of the consolidation phase areas as at December 1961. Table II uses as its source the quarterly reports on surveillance operations while for the remaining countries, in Table III, the information is taken from the "Report on Development of Malaria Eradication Programme" 1961.

According to the Eighth Report of the Expert Committee on Malaria (Wld Hlth Org. techn. Rep. Ser. 205, p. 20), the annual blood examination rate, should be approximately 1% for every month within the transmission season. The only countries in Table II falling short of sufficient case detection are Israel (1.1%), Afghanistan (3.3%) and Burma (4.1%). For the rest the annual blood examination

¹ In malaria eradication terminology, the proportion (per thousand of the population under surveillance) of the malaria cases detected during one year.

rate indicates adequate case detection coverage, thus allowing an appraisal of the annual parasite index. On the whole for most countries in Table II the annual parasite index is far below the maximum permissible level of 0.5‰. The only two countries exceeding this level are Mauritius and Southern Rhodesia, the former being in great parts replaced under attack phase, the other - Southern Rhodesia - is still only under pre-eradication survey (a limited study area) surrounded by areas not yet protected by total coverage spraying. As an indication that generally such overall figures have, for an entire consolidation phase area, little value unless the information can also be studied separately for the different epidemiological districts within a country, Greece and Turkey have been used where, in footnotes to Table II, the annual parasite indices are mentioned for the individual reporting districts. Such differentiation is not possible if the "Report on Development of Malaria Eradication Programme" 1961 is used as the only source.

Table III lists those countries falling under the latter category. Judging from the annual blood examination rate it is obvious that the malaria situation in the Republic of South Africa, Bolivia, French Guiana, Portugal, India and the Philippines cannot be assessed from the figures available, as the case detection mechanism was unable to produce a sufficiently high number of slides. For the rest the annual parasite index shows a more varied picture than for the countries listed in Table II. Argentina, Mexico and Venezuela have rates only slightly below the maximum permissible limit, while Panama Canal Zone with 0.6 per thousand yields even a higher level. Other countries, such as Trinidad, Jamaica, Peru, USSR and Yugoslavia are far below 0.5‰ annual parasite index.

From these crude data alone in Table III it is impossible to make a statement as to the conditions of malaria eradication. It might be possible that a problem area or areas, as in the case of Mexico and Venezuela, with residual transmission, are alone responsible for the high annual parasite index or that the good condition in the majority of the consolidation phase area covers up the high annual parasite index of a problem area which, with more detailed reporting, would easily be detected.

TABLE 1. COUNTRIES WITH AREAS IN CONSOLIDATION PHASE 1961
(CONDITION OF ADEQUATE ASSESSMENT REPORTS UP TO 15 APRIL 1962)

Region	Total countries at 31 Dec. 1961	Information through Quarterly Reports on Surveillance			No information provided in quarterly report on surveillance operations in 1961
		Including 4th quarter 1961	Including 3rd but not 4th quarter 1961	Excluding 3rd/4th quarters 1961 and/or inadequate reporting	
Number of countries with areas in consolidation phase					
AFR	4	1	1	-	2
AMR	14	2	-	3	9
EMR	7	4	1	1	1
EUR	9	3	1	3	2
SEAR	4	2	1	-	1
WPR	5	1	-	3	1
Total	43	13	4	10	16
	Population in thousands	Proportion of population under consolidation phase			
AFR	1 559	17.0	9.0	-	74.0
AMR	17 879	0.6	-	6.0	93.4
EMR	12 569	40.0	10.0	46.0	4.0
EUR	30 167	81.0	1.0	3.0	15.0
SEAR	6 646	53.0	16.5	-	30.5
WPR	6 052	0.2	-	85.8	14.0
Total	74 872	41.5	6.0	19.0	33.5

TABLE II. COUNTRIES WITH AREAS UNDER CONSOLIDATION PHASE REPORTING IN 3RD AND 4TH QUARTERS 1961 - BY QUARTERLY REPORTS ON SURVEILLANCE OPERATIONS

Region and country	Annual blood examination rate %	Annual parasite incidence %	No. of indigenous cases	Remarks
<u>AFR</u>				
Mauritius	7.2	1.56	719	
S. Rhodesia	31	1	22	
<u>AMR</u>				
Grenada	14.3	0	0	
St. Lucia	20.7	0	0	
<u>EMR</u>				
Iraq	9.3	0.006*	5	*Most cases imported
Israel	1.1	X	0	8 cases reported
Jordan	4.5	0.046*	0	*Most cases imported
Lebanon	8.4	0.01	0	1 relapsing, 1 induced case, the rest (5) imported
<u>EUR</u>				
Albania	12.7	0.05	22	
Greece	6.7	0.05	56	See footnote 1
Romania	5.8	0.002	0	Most cases induced <u>P.m.</u> infections
Spain	6.1	0.08	9	All indigenous cases, from 1 focus
Turkey	7.5	0.06	667	See footnote 2
<u>SEAR</u>				
Afghanistan	3.3	0.14	0	
Burma	4.1	0.035	1	
Ceylon	9.4	0.012*	1	*Most cases imported
<u>WPR</u>				
North Borneo	8.1	0.3	0	All cases imported

¹ Total 24 reporting districts: in the formerly classified advanced consolidation phase areas the overall Annual Parasite Incidence was 0.028% ranging from 0.18 to 0%; in the formerly initial consolidation phase areas the overall annual parasite incidence was 0.06% ranging from 0.37 to 0%.

² Total 12 reporting districts: 3 districts having an annual parasite incidence higher than 0.1% (0.2, 0.145 and 0.135% respectively).

X Due to inadequate case detection mechanism the annual parasite incidence cannot be calculated.

TABLE III. COUNTRIES WITH AREAS UNDER CONSOLIDATION PHASE. - INFORMATION FROM
 "REPORT ON DEVELOPMENT OF MALARIA ERADICATION PROGRAMMES" 1961
 (Countries not included in Table II)

Country	Annual blood examination rate %	Annual parasite incidence ‰	Indigenous & unclassified cases	Remarks
Republic of South Africa	0.2	X*	9	*Most cases imported
Argentina	103	0.4	0	Mostly imported or introduced
Bolivia	2.6	X*	1	* Ditto
Trinidad and Tobago	5.9	0.005	0	
French Guiana	4.4	1.2	33*	*All unclassified
Guadeloupe	6.4	0	0	
Jamaica	17.4	0.01*	1	*Mostly relapsing
Mexico	6.2	0.22	1 822	
Panama Canal Zone	14.5	0.6	25	
Peru	28	0.02	0	
Surinam	8.7	0	0	
Venezuela	28.5	0.31	0	50 imported or introduced
Bulgaria	17	0	0	
Portugal	0.5	X	5	
USSR	?	0.032*	51	*Mostly relapsing
Yugoslavia	116	0.05	0	All imported or induced
India	3.2	0.01	12	
Philippines	4.4	0.48	1 132	977 imported from attack phase area

X Due to inadequate case detection mechanism the annual parasite incidence cannot be calculated.

2. AN ALTERNATIVE FLUID MEDIUM FOR AGE-GRADING DISSECTIONS

Miss Gonnella Spruit, until lately a Technician with the Organization in South-East Asia, during the course of her work on the determination of the physiological age of anophelines using Polovodova's method, found that the recommended dissecting fluid, physiological saline, was not entirely satisfactory. She reported that physiological saline when used as a dissecting medium for ovary dissection, had the following disadvantages:

- (a) the preparation dried out rapidly;
- (b) the eggs became very fragile and when the eggs ruptured their contents obscured the rest of the preparation and it became difficult to observe the thickenings of the follicular tube;
- (c) it was not possible to preserve the preparation by using a cover-slip.

In an attempt to improve on the original technique, various experiments were carried out.

Weak solutions of crystal-violet, methylene-blue and eosin were tried to ascertain if the follicular thickenings would show up more clearly, and the effects of these dyes were also tried in combination with diluted acetic acid (as with Türk's solution). The results of these tests were, however, not satisfactory. Glycerin used by itself as a dissecting medium caused deformation of the eggs but they did not rupture. By a process of trial and error it was found that a mixture of physiological saline with the glycerin, in a proportion of two or three parts saline to one of glycerin, prevented both the deforming and the rupturing of the eggs. The addition of about 3% formalin assisted in clarifying the preparation and in preserving it.

The final medium recommended is:

glycerin	- 10 parts
physiological saline	- 25 parts
formalin	- 1 part

The reported advantages of this medium are:

- (1) The preparation remains moist for several hours.
- (2) Only a small drop of the medium is required which facilitates the dissection.
- (3) Even though the walls of the eggs may be pierced when being teased out, the contents do not erupt and spoil the preparation.
- (4) When the preparation is covered with a cover slip and sealed it may be used and re-examined after several months. (In this connexion, Dr Luen, WHO Malariologist, reports that he examined a slide made four and a half months previously which had been stored horizontally in a covered petri dish, at room temperature (28-40°C) and exposed to daylight. The mounting (dissecting) fluid had remained clear; the ovariole structure and the follicular dilations were clearly seen. The preparation was considered to have remained in a good condition and would be quite suitable for demonstration purposes.)

Note: Another technique has recently been brought to our notice by Dr J. Austin Kerr, Research Officer, ME/AMRO. This is reported by C. H. Schmidt and M. S. Williams in the Quarterly Report of Entomological Research by the United States Department of Agriculture on Insects of Military Importance, Quarter ending 31 December 1961.

"A modification of the technique developed by Detinova is being used at the present time to determine the physiological age of Anopheles quadrimaculatus females. The females are dissected in a drop of Ringer's solution on a glass slide. By placing a dissecting needle at the base of the abdomen and pulling carefully at the apex, the last abdominal segment and the accompanying reproductive tract is removed. The ovaries are transferred to a drop of a 1:40 solution of alkyl-aryl-sulfonate in distilled water and allowed to stand for at least 45 seconds, while the sheaths loosen, after which the ovarioles are separated with dissecting needles. For a clear and more permanent preparation a small drop of glycerine is mixed gently with the ovarian material. Then a cover slip is placed on the preparation. The ovarioles are then observed under phase contrast or dark field illumination. Approximately 20 to 30 slides can be prepared in an hour.

"Originally a 1:20 solution of "Trend" detergent (liquid) in tap water was used to loosen the ovariole sheaths. This technique caused a cloudy precipitate that made observation of follicular relics and photomicrography difficult. Upon request the manufacturer sent samples of the main components of "Trend" - alkyl-aryl-sulfonate and sodium-tripoly-phosphate. The latter was ineffective as it did not loosen the ovariole sheaths. A 1:40 solution of alkyl-aryl-sulfonate in distilled water proved to be satisfactory but 1:20 and 1:30 dilutions were too strong, as they completely disrupted the ovariole cell membrane. A 1:40 dilution in Ringer's solution produced a cloudy precipitate." Editor.

3. "HURRICANE HATTIE" IN BRITISH HONDURAS

Reports are frequently received of the various technical and administrative difficulties encountered in malaria eradication programmes but, fortunately, the situation which was to be found in British Honduras on the morning of 1 November 1961 following "Hurricane Hattie" is unique.

The following graphic account has been taken from the October and November 1961 reports of Mr J. M. Serrano, Sanitarian, submitted to Dr Fausto Fernandez, Project Leader of British Honduras 1.

"During the night of 31 October 1961 and during the next day, British Honduras was hit by a monster hurricane. Trees fell like debris, branches destroying everything in their path. Pieces of zinc flew like helpless birds. Houses were smashed flat during the hours of darkness and nothing could be done at the time. By 6.00 a.m. on the morning of 1 November houses were floating in 15 feet of water. Some were moved over 200 yards from their site. When the rains of the hurricane had decreased Belize city as we knew it had gone and was replaced by an enormous reservoir. There were flocks of dead poultry, hogs and dogs floating by. Furniture, including refrigerators and radios, was being carried along by the flood. Boats brought in by the high tides from the seashore were to be found in the centre of the destroyed city. Many government buildings had gone; the government offices had to be installed in the main hospital. The hospital warehouse had gone and also the laboratory. The malaria office was saved and was used as a storeroom for what was left.

Only one tin of chloroquine and two tins of primaquine were left out of 28 tins of chloroquine and 18 tins of primaquine which we had before the hurricane. The slides were packed in heavy boxes and were therefore saved. Only four drums (800 pounds) of DDT were saved from the hurricane and over 40 000 pounds were lost. All tools, the pressure washer and the big jack excepted, were gone. These two units were too heavy to be washed away or stolen. Regarding the vehicles, the PASB station wagon was almost divided in half by a big fallen tree while parked in the yard of the hospital. This is completely written off. Two other pick-ups are out of commission and only five vehicles are in operation. The balance of the vehicles are under government use during the emergency but the equipment is not

being used at its best. We have tried to keep up the morale among the discouraged collaborators. Some have lost their houses and some have lost members of their family; it is hard to make these people think about malaria.

This is a dangerous time when flooded areas are being reflooded by the rains and there is a building up of the anopheline population. The life of the people has changed and many movements are taking place. All that we need is a few malaria cases to start the disease all over again. It must be understood that thousands of people are living in roofless or partially destroyed houses without any protection from the mosquitos. Only a good surveillance system could detect any residual or new foci but under the present conditions we cannot move our field personnel."

The campaign in British Honduras has been one of the most successful in Central America. It began in 1957 using dieldrin but when resistance of A. albimanus to this insecticide was reported in 1959, a change was made to two sprayings a year of DDT. In 1957 there were 235 cases and in 1961, with an adequate system of surveillance, only 23 cases were reported, of which at least 3 were imported. Great efforts have been made to overcome the difficulties caused by the hurricane and the latest reports are very encouraging. Following "Hurricane Hattie" only one case has been reported - this occurred in February 1962 and the present indications are that this may be an imported case from Guatemala.

4. RESOLUTIONS OF THE TWENTY-NINTH SESSION OF THE EXECUTIVE BOARD

Development of the Malaria Eradication Programme

The Executive Board,

Having considered the report of the Director-General on the development of malaria eradication programmes;

Noting the progress made in implementing malaria eradication programmes in general and in achieving malaria eradication in some areas;

Having noted the demonstrated need for sound and detailed planning before and during malaria eradication operations; and

Noting the continued need for international assistance in building up trained national staff and basic health facilities to support future malaria eradication programmes,

1. REQUESTS the Director-General to bring the report up-to-date for presentation to the Fifteenth World Health Assembly;
2. URGES governments undertaking malaria eradication programmes to make a realistic stock-taking of staff, basic health facilities, and sources of finance which will be needed to complete a malaria eradication programme;
3. URGES governments of countries with areas in the consolidation phase and in which consequently the immediate threat of malaria has decreased, to maintain, undiminished, the eradication effort during this phase and to make adequate provisions for maintenance of eradication when achieved, suitably integrated with the national health services of the country;
4. URGES governments of countries which have not yet begun malaria eradication programmes, to take suitable steps to establish necessary manpower and administrative bases for initiating malaria eradication programmes; and
5. REQUESTS the Director-General to make available on request such technical advisory services and related assistance to governments as may be needed for the establishment of pre-eradication programmes.

Malaria Eradication Special Account

The Executive Board,

Having considered the report of the Director-General on the Malaria Eradication Special Account;

Bearing in mind the provisions of resolution WHA14.27,

1. NOTES the report;
2. THANKS donors whose contributions have made it possible so far to finance the planned malaria eradication operations;
3. REITERATES the importance of continued voluntary contributions in order to ensure the financing of the malaria eradication field operations under the transitional arrangements laid down by the Fourteenth World Health Assembly;
4. EXPRESSES the hope that Members in a position to do so, and especially the more economically developed countries, when deciding on their support to the Special Account will take into consideration the conviction expressed by the

Fourteenth World Health Assembly in resolution WHA14.27 that voluntary contributions will also remain essential to provide additional resources to enable more rapid and broader prosecution of the programme;

5. REQUESTS the Director-General to continue his fund-raising efforts as in the past.

Malaria Eradication Postage Stamps

The Executive Board,

Having considered the Director-General's progress report on the plan for the issue of malaria eradication postage stamps from which it appears that the majority of the world's governments have already decided to participate;

Noting with satisfaction the publicity which this project has already begun to bring to the malaria eradication programme and the decision of a number of governments to donate to the Organization quantities of the proposed stamps as well as related philatelic material or a percentage of the proceeds from the sale of these items;

Taking cognizance of the arrangements made for the sale of stamps and other philatelic material which may be donated to the Organization and of the Agreement concluded for that purpose with the "Inter-Governmental Philatelic Corporation",

1. EXPRESSES the conviction that, because of its publicity value and as a potential source of financial contribution to the malaria eradication programme, the plan for the issue of malaria eradication postage stamps warrants universal participation;
2. URGES governments to issue postage stamps and related philatelic material devoted to the malaria eradication programme as a demonstration of their interest in the problem of malaria and of their support of the efforts to free the world from this disease;
3. STRONGLY RECOMMENDS all participating governments, in view of the humanitarian character of this world-wide philatelic event, to produce the proposed stamps and related philatelic material in sufficient quantities so as to ensure the widest distribution possible and an adequate supply for all collectors;

4. DRAWS attention to the fact that the date of issue need not necessarily be 7 April 1962, that any other date prior to 31 December 1962 is in order, but that stamps relating to malaria issued after 31 December 1962 should not be considered as part of the Organization's malaria eradication postage stamp plan;
5. INVITES governments concerned to donate, whenever possible, quantities of stamps and other related philatelic material to the Organization for philatelic sale;
6. SUGGESTS again to the governments carrying out antimalaria programmes to take advantage of this philatelic event in order to augment the funds available for national antimalaria programmes;
7. REQUESTS the Director-General during this last preparatory stage to pursue all possible efforts with a view to persuading those governments who have not yet taken a positive decision to do so, and to report on the matter to the Fifteenth World Health Assembly and thirtieth session of the Executive Board.