

LEAGUE OF NATIONS

C.H.1282

C.H./Malaria/248.

HEALTH ORGANISATION.

MALARIA COMMISSION.

REPORT BY THE ACTING PRESIDENT OF THE MALARIA COMMISSION  
ON THE FIRST SESSION OF THE REPORTING COMMITTEE OF THAT  
COMMISSION (Geneva, October 27th - 30th, 1937).

-----

The Reporting Committee\* of the Malaria Commission held its first session at Geneva from October 27th-30th, 1937. In the absence of the President of the Commission, the Committee appointed Colonel SINTON to preside over this session.

After sending a message of sympathy and regret to Mme. Lutrario on the occasion of her recent bereavement, the Committee considered the following items on the agenda:

I.

SECOND AWARD OF THE DARLING PRIZE.

In accordance with the amendments made in the

-----  
\* President: Professor G. BASTIANELLI, Director of the "Ettore Marchiafava" Institute of Malariology, Rome.

Vice-Presidents: Professor Edmond SERGENT, Director of the Pasteur Institute, Algiers.

Dr. M. CIUCA, Professor at the Faculty of Medicine, Deputy Director of the Cantacuzène Institute, Bucharest.

Dr. L. W. HACKETT, Assistant Director of the International Health Division of the Rockefeller Foundation, Rome.

Lieut.-Colonel J. A. SINTON, Ministry of Health Malaria Laboratory, Horton, England.

Rapporteurs: Professor G. PITTALUGA, Director of the School of Public Health, Madrid.

Professor J. RODHAIN, Director of the Prince Leopold Institute of Tropical Medicine, Antwerp.

Professor P. SERGUIEFF, Director of the Institute of Tropical Medicine, Moscow.

Professor W. SCHÜFFNER, former Director of the Division of Tropical Hygiene at the Royal Tropical Institute, Amsterdam.

Present at the meeting: Drs. CIUCA AND HACKETT,  
Lt. Colonel J. A. SINTON, Chairman,  
Professors PITTALUGA, RODHAIN and SCHÜFFNER,  
Dr. PAMPANA, Secretary of the Malaria Commission.

Statutes of the Darling Foundation by the Health Committee at its twenty-fifth session (April 1937), the Malaria Commission is no longer called upon to pronounce on the merits of candidates. The Acting President of the Commission, however, desired privately to ascertain the views of the members present at the meeting before submitting his proposals to the Committee of the Foundation, which will meet early in November.

## II.

### STUDY OF MALARIAL EPIDEMIOLOGY IN CEYLON.

Professor Claus SCHILLING, member of the former Malaria Commission, in 1936 sent a letter to the Secretariat suggesting that the Commission should undertake exhaustive investigations into the malaria situation in Ceylon, with a view to obtaining data which might be of use in the event of a fresh epidemic. This letter was brought to the notice of the members of the former Commission, together with a communication from one of the members, Mr. SENIOR WHITE, who endorsed Professor SCHILLING'S proposal and pointed out some of the most serious gaps in our knowledge of malarial epidemiology in the island.

The Committee, after examining these proposals, considered that the catastrophic malarial epidemic which occurred in Ceylon in 1934-1935 formed part of the cycle of malarial epidemics which appear to occur in the island at intervals of five or six years. It also considered that this was an almost unique opportunity for studying the phenomena upon which this periodical occurrence is based and for taking the best steps to prevent a repetition of an epidemic which broke out with extreme suddenness in 1934.

The Committee in no way underestimates the work which such studies would involve and which would have to be carried on for a number of years. This work involves the collection and examination of all data relating to the nosology of the population and the biology of the anopheles, which should be taken into consideration. It is only in this way that an adequate judgment can be formed of the conditions of the problem.

The Committee adopted the following resolution:

"The Committee is of opinion that much more information is required about the causation and course of malarial epidemics. It draws the attention of administrations of all countries where such periodic catastrophes are liable to occur, to the urgent necessity of making such investigations not only during, but especially prior to, these outbreaks."

## III.

### PROGRAMME OF RESEARCH.

The Committee considered in the first place the action taken on the programme of studies laid down on September 20th, 1933, in Document C.H./Malaria/209. It is glad to note that most of the proposed studies have been

undertaken, either by members of the Commission or by malariologists outside the Commission. Most of the knowledge derived from the proposed studies on treatment has been taken into account in the Fourth General Report of the Malaria Commission.

The Committee notes that the draft Fourth General Report of the Commission has been sent to members for their remarks and criticisms. These observations have been communicated to the Drafting Committee, so that it may take account of them in the final text of the report or in the annex of the report prepared for the purpose. The Committee recommends that, as soon as the report has been approved by the Health Committee, the conclusions should be communicated to the medical press, so that they may receive the publicity which they deserve at the earliest possible date.

a) Investigations of malarial immunity.

The Committee notes with satisfaction the continued co-operation since 1933 between the malaria laboratory at Horton and the malaria laboratories in different parts of Roumania. This co-operation has yielded important information regarding the biology of certain strains of plasmodium and questions of immunisation between different species and different strains.

The Committee recommends that this co-operation be continued under the auspices of the Health Organisation in view of the importance which attaches to such studies.

The Committee considers that experiments in therapeutic and prophylactic treatment might be carried on in order to ascertain the action of the medicaments on the processes of immunisation or premonition of the organism against various kinds of malaria parasites. In particular, the time when immunity appears and its mechanism should be studied.

b) Drug prophylaxis.

The Committee, in accordance with the suggestions of the Fourth Report, considers that experiments in drug prophylaxis should be carried on, according to the rules already laid down by the Malaria Commission, by the administration of atabrin at the rate of 0.20 grammes twice a week (dose for adults). These experiments should be undertaken and carried on for two years in endemic localities, selecting if possible at least two different places; they should be under the direction of qualified malariological centres. The object of these experiments would be to confirm or to make clear the prophylactic efficacy of such bi-weekly doses, which has been proved to be greater than that of the daily doses of 0.05 grammes in the two tests in the Federated Malay States and Sardinia (Italy) during the "League of Nations" experiments of 1935-1936. In view of the object to be attained, the Committee

urges that the exact programme of these new experiments, the medical supervision of the groups of population upon whom they are carried out and the scientific direction should be carefully defined in connection with the Secretary of the Malaria Commission, in order that the conclusions to be drawn from these investigations cannot be contested.

If some information could be obtained as to the value of clinical prophylaxis as a means of protection in non-infected individuals as contrasted with infected ones, the results would be of great practical importance.

There is evidence to suggest that atebirin tends to accumulate in the body. It is possible therefore that once an optimum concentration has been reached in the blood, the dosage might be reduced, or the intervals between doses increased, while the same defensive effect of the drug would be maintained.

The advantages of a gradual reduction in the prophylactic doses of atebirin, both from the standpoint of possible toxic effects and from that of cost, do not need to be stressed.

The Committee would like to suggest that, either under the auspices of the League of Nations or through a number of malariological centres in endemic countries directly connected with a laboratory of scientific research, the possibility should be studied during these two years of work, of a progressive diminution of the prophylactic dose of atebirin, starting from the dose which appears to give really effective protection, namely, 0.40 grammes per week.

c) Malaria in deltas.

The problem of malaria in deltas has been studied in many areas. The variations in malaria have been found to depend largely upon interference with the natural flora and fauna of deltas in so far as they affect the multiplication and distribution of certain species and races of anophelines, and also upon the facilities for the spread of infection resultant upon the introduction of immigrant populations necessary for the development and colonisation of such areas.

d) Housing and malaria.

As regards studies of housing in relation to malaria, the Committee considers that the subject continues to deserve the attention of all research workers and it again points out the importance of personal prophylaxis by means of the mechanical protection of houses and mosquito nets, the usefulness of which is again confirmed.

e) The bionomics of anophelines, with special reference to differences shown by varieties of different species.

The discovery that many anopheline species are not homogeneous but are really groups of related species,

structurally very similar and even indistinguishable in the adult stage, but differing widely in instincts and adaptations, is of great importance to the epidemiology of malaria. A. maculipennis is the best known of these both on account of its geographical range and because it lends itself in a special way to study by reason of certain peculiar morphological and biological characters. Nevertheless there are still great gaps in our knowledge of the distribution of its component forms, as well as of their biology and relationship to malaria and of the tests which should be applied to determine their genotypic validity.

This Committee recommends that the Malaria Commission promote the advance of knowledge in this field by collecting and publishing from time to time the existing information on these subjects, by endeavouring to extend investigation to areas of Europe about which little is known in this respect, and by encouraging the study of similar species-complexes in other parts of the world.

The Committee considers that the longevity of a carrier species of anopheline may be an important factor in determining its danger as a transmitter of malaria. It recommends that the studies which have been commenced in England and Roumania upon this aspect of malariology should be continued.

It is hoped that this problem will form the subject of investigation in other countries.

f) Insecticidal spraying.

The Committee notes that the use of insecticidal spraying for the destruction of adult mosquitoes is reported to be a promising anti-malaria measure in some localities, and it recommends that further investigations should be undertaken into the value of this method under different conditions.

The Committee desires to point out that any beneficial effects are probably closely related to the habits and more especially, the resting places of the anopheline responsible for the carriage of malaria in any area.

It recommends that a study of such habits should form part of any investigation into the value of insecticidal spraying.

g) Mesological methods of malaria control.

Naturalistic or, more correctly, mesological methods of malaria control usually depend so closely on the character of the particular anopheline vector concerned and on the local and even individual circumstances surrounding the breeding places and influencing the behaviour of the insect, that the Committee believe it impossible in the present state of our knowledge to outline a specific programme of study and experimentation in this field. Such a measure as the introduction of exotic larvivorous fish, of which gambusia is the outstanding example, has a certain

general application especially in the case of mosquitoes which breed in standing water, and has few attendant disadvantages as far as we can judge by published reports. Other measures involving the deliberate physical, chemical or biological modification of conditions affecting the life of the mosquito in all its stages are still empirical and relatively specific in applicability.

The Committee considers that the first step in advancing knowledge and stimulating research in this important field is to collect information and to publish a critical report on what is actually being done in various parts of the world along these lines.

The Committee proposes that this task be entrusted to Dr. HACKETT with the collaboration of a worker from the East.

#### IV.

#### PROPOSED INTER-GOVERNMENTAL CONFERENCE ON ANTI-MALARIAL MEDICAMENTS.

The Committee has considered the proposal referred to the Malaria Commission by the Health Committee relating to the proposed inter-governmental conference on anti-malarial medicaments, of which the Committee was requested to study a possible programme and to indicate some preparatory studies.

The Commission considers that an Inter-governmental conference on anti-malaria drugs is advisable, and that it would not be possible to hold such a conference earlier than the Autumn of 1939 because of the large amount of data which it will be necessary to collect if the results are to be of practical importance.

The agenda of the conference suggested by the Health Committee at its Twenty-fifth session, included the following problems for discussion:

- "(1) Present production as compared with world requirements;
- (2) Cost of production and market prices;
- (3) Relative costs of a plan of co-ordinated measures of treatment and prevention by the administration of drugs according to the substance employed;
- (4) Methods of distribution of the various substances."

1. Present state of production in comparison with world requirements. The Committee considers that this question should be studied in two parts: (1) present production of anti-malarial medicaments; (2) prospects and possibilities of increasing stocks of medicaments in future.

The Committee considers that, before making even an approximate estimate of world requirements of anti-malarial drugs, it will be necessary to investigate

the morbidity and mortality actually due to this disease; it recommends such investigations to the careful attention of all Governments and administrations in malarious countries. It also suggests that account should be taken of this problem in the preparation of all general health investigations in tropical countries.

In most tropical countries where scattered populations of poor and weak people predominate, the Committee is of opinion that in the present state of knowledge our object should be the provision of adequate facilities for the treatment of attacks of malaria rather than more expensive methods aiming at a radical cure of infection. The latter may not only be wasteful of drugs but possibly even dangerous through their effects upon the tolerance of the population.

The Committee is of opinion therefore that estimates of the requirements of anti-malarial drugs in any such countries should be calculated rather upon the number of malarial attacks per person per annum than upon the actual number of infected persons.

## 2. Cost of production and market prices.

The Committee considers that it is essential to obtain information regarding

- (i) the cost of production in comparison with the market prices of anti-malarial drugs;
- (ii) the prices at which different anti-malarial drugs are available for Governments and large organisations (cost of purchase, taxation, etc.)
- (iii) the retail prices to private individuals through Governments and commercial agencies in both urban and rural areas.

The Committee recommends that the technical organisations of the League of Nations should collect all the information on this item of the agenda.

3. Method of distributing the febrifuge. The Committee recommends that information be collected regarding the present methods of drug distribution to malaria patients and the cost of such measures and their efficacy. It would also welcome proposals for the improvement of such methods.

4. The Committee considers that, until more exact information is available about the price of anti-malarial drugs and the cost of their distribution, it is impossible to make even an approximate estimate of the relative costs of any plans of co-ordinated measures of treatment and prevention by drug therapy, more especially as these costs may vary enormously in different circumstances and in different countries.

It recommends therefore that this point should not be included in the provisional agenda of the Conference.

The provisional agenda of the Conference recommended by this Committee is therefore as follows:

- 1) Present state of production in relation to world requirements; probabilities and possibilities for the future.
- 2) Cost of production, sale price to Governments and large organisations, retail prices.
- 3) Methods of distributing drugs.

\*

\*

\*

### Preparatory Work for the Conference.

The Committee has prepared certain draft questionnaires for obtaining the information required. As the form of such documents is especially important if the maximum amount of relevant information is to be obtained, members of the Committee have been asked to express their considered opinions upon these questionnaires and to make suggestions upon which the final texts will be determined by the Health Section.

The Committee recommends that the approved questionnaires be issued under the authority of the Health Organisation to all Governments and other bodies or persons from whom it is hoped that relevant information may be obtainable.

The material obtained in answer to the questionnaires, from health authorities through the collaboration of members of the Commission and from other sources, will be worked up by the Secretariat in a draft report which will be circulated to all members of the Malaria Commission, who will be asked for observations and suggestions on points within their province, with a view to the drafting of the final report for submission to the Conference.

V.

### RECOMMENDATIONS OF THE INTERGOVERNMENTAL CONFERENCE OF FAR-EASTERN COUNTRIES ON RURAL HYGIENE (Bandoeng, August 3rd-13th, 1937.

The Committee examined with the greatest care the text of the recommendations dealing with malaria, all of which it approved in their entirety.

#### A. Health Surveys.

The Committee, having considered the proposal of the Conference that health surveys should be undertaken in

certain selected areas in Eastern countries, suggests that, when schemes for such surveys are framed, with due reference to the personnel available, the programme should include:

1. a study of morbidity due to malaria;
2. a study of the influence of malaria on general mortality;
3. a study of the economic and social effects of malaria on the population; and that
4. consideration should be given to the possibility of carrying out certain field experiments in clinical prophylaxis on the lines laid down in the resolutions in the preceding section.

B. Annual Round Table Conference at Singapore.

The Committee welcome the suggestion from the Conference that a round table conference should be held annually at Singapore while the malaria courses are in session. It approves of the suggestion that the agenda of the first meeting should contain the following items:

- 1) Mesological (naturalistic) methods of malaria control;
- 2) The co-operation of the participants in health survey - in so far as they concern malaria - which may be undertaken in their respective countries;
- 3) Their views on the possibility of organising a campaign in certain experimental areas as a controlled demonstration;
- 4) The co-operation of the participants in providing the Secretariat of the Commission with such material as may be called for by the Inter-governmental Conference on Anti-Malarial Drugs, and
- 5) Such other subject as appears important to the Conference.

VI.

MALARIOLOGY COURSES.

a) Courses in Europe. The Committee calls attention to the great value of the malariology courses that have been held in Europe under the auspices of the Health Organisation of the League, and observes that that value would be enhanced if practical work could be organised at stations in countries other than those in which the courses are held.

b) Singapore Courses in Malariology. The Committee note with great pleasure the good results which have attended the international malaria course at Singapore and wish to express their gratitude to Dr. Allen and to the lecturers and teachers from Malaya and elsewhere who have taken so much trouble to ensure the success of the undertaking.

The Committee considers it advisable that doctors detailed to attend the Singapore courses should, as far as possible, be limited to students who have had previous experience in malariology and who are sufficiently familiar with this work to be able to take full advantage of the instruction offered.

In order that the full benefits of the courses may be felt, it is recommended that in countries where trained malariologists are available, preliminary instruction should be given and selected students sent to attend the courses at Singapore.

c) Malaria Courses for Engineers, as recommended by the Intergovernmental Conference of Far East Countries on Rural Hygiene.

The Committee approve of the suggestion that there should be inaugurated at Singapore a course in malariology for engineers whose sphere of duty lies in malarious countries. It is suggested that this course should last from two to three weeks. The Committee believes that instruction in parasitology, pathology and treatment of malaria should be limited to a minimum. More attention should be devoted to entomology in connection with the biology of the anopheles and less to the morphological and systematic aspects of the subject. On the other hand, there should be relatively extensive instruction in the factors involved in the spread of malaria; and the engineer should make himself fully familiar with all practical and technical anti-malaria methods.

On the basis of the principles indicated above, a provisional programme for such a course is given in Appendix I. It should be remembered, however, that such a programme is purely a tentative one and is drawn up as an aid to the organisers of such instruction, but at the same time leaving them with full powers to modify the programme as may appear desirable to suit local circumstances.

The suggestion made at the Inter-Governmental Conference of Far Eastern countries on Rural Hygiene that suitable pamphlets should be issued for the guidance of engineers is approved. Such pamphlets should contain information on the various aspects of malariology in relation to engineering, and be of such a nature that enlarged and revised editions may be published as often as considered necessary.

VII.

STANDARDISATION OF THE TERMINOLOGY EMPLOYED IN MALARIOLOGY.

The Committee considered a communication from Dr. EJERCITO, the member of the Malaria Commission representing the Philippines, asking whether the Malaria Commission could usefully endeavour to standardise the terminology most commonly employed (a) in the epidemiology of malaria and (b) in questions relating to the species, sub-species, varieties, and races of anopheles.

(a) The Committee examined a memorandum drawn up on this subject by the Secretary of the Commission, and decided to entrust the further work for the standardisation of the nomenclature employed in malariology to a sub-committee consisting of Sir Rickard CHRISTOPHERS (Chairman), Dr. HACKETT, Professor SERGENT, Professor SCHUEFFNER, and the Secretary of the Commission. The memorandum will be sent to all members of the Commission, who will be asked to append their observations. These will be embodied in a general report, which will be examined by the Sub-Committee with a view to its making suggestions conducive to the desired objects. The report and suggestions will be circulated to all members of the Malaria Commission, and will be finally discussed at the next meeting of the Reporting Committee and, if possible, at the full meeting of the Commission which it is proposed to hold in connection with the Third International Malaria Congress.

(b) With regard to the second question raised in the Ejercito proposal - that of standardising entomological terminology - the Committee considers that this is a matter of zoological systematics, and is therefore not within its province.

VIII

PROPOSALS OF THE COMMISSION CONCERNING THE CONFERENCE OF AMERICAN COUNTRIES ON RURAL HYGIENE, TO BE HELD AT MEXICO CITY IN DECEMBER 1938.

The Committee notes with satisfaction that a Conference on Rural Hygiene for American countries is to be held, under the auspices of the League, at Mexico City in 1938.

Recognising the great importance of the malaria question in connection with rural hygiene, especially in tropical countries, the Committee suggests:

1. That the Fourth Report should be translated into Spanish and widely circulated to members of the Conference.
2. That the Report on Housing and Malaria by Sir Rickard CHRISTOPHERS and Professor MISSIROLI should also be translated into Spanish and made available to the Conference.

3. That a brief history of the Malaria Commission's work, more especially in connection with rural hygiene, should be prepared for the Conference, in consultation with the members of this Reporting Committee, and should be translated into Spanish.
4. The Committee suggests that the Conference should give serious consideration to the recommendations concerning malaria approved by the Inter-Governmental Conference of Eastern Countries on Rural Hygiene, of which a Spanish text should be made available to the Mexico Conference.
5. The Committee suggests that malariologists in different American countries should give their attention to the following questions, which have been considered by the Reporting Committee at its present session:-
  1. Malarial immunity in relation to different kinds of strains.
  2. Clinical drug prophylaxis by the administration of atebirin beginning at a maximum dose of 0.40 per week (adults).
  3. The biological characteristics of the anopheles.
  4. Differential characteristics of varieties of the same species.
  5. Insectidal spraying as an anti-malarial measure, and the biological foundations on which it is based.
  6. Mesological methods of malaria control.
  7. The genesis of malaria epidemics.
  8. The influence of malaria on general morbidity and mortality.
  9. The economic and social effects of malaria.
  10. Methods of distributing anti-malarial drugs among rural populations.

The Committee recommends that, if health surveys are undertaken in the rural districts of American countries, due attention should be given to malaria in framing the programmes of such surveys.

## IX

### THIRD INTERNATIONAL MALARIA CONGRESS (AMSTERDAM).

The Committee is of opinion that, to ensure that the Malaria Commission is represented at this Congress, the President of the Commission should be asked to draw up a general report surveying the whole of the Commission's activity from 1931 to 1937.

Although it is felt that it would be premature at the present stage to draw up an agenda for the meeting of the Commission which might be held at the time of the Congress so as to profit by the presence of many of the members at Amsterdam, the Committee decides to place upon its agenda forthwith the question mentioned in Section VII of the present report (Standardisation of Nomenclature employed in Malariaology).

With regard to the other points on the agenda of the Commission's meeting, the Committee leaves it to its Chairman and the Secretary of the Commission to draw up the agenda in due course.

As the International Malaria Congress is to be held on September 29th and 30th, 1938, it seems desirable that the Commission should have an opportunity of meeting on the evening of September 28th. This session should be preceded by a short meeting of the Reporting Committee, which might take place the same afternoon.

#### X.

#### STUDY TOURS.

The Committee, having in mind the great advantages which have accrued from study tours in the past, recommends that another such tour should be undertaken in certain countries of the Mediterranean Basin, in particular Albania, Bulgaria, Egypt, Greece, Italy and Palestine.

The object of such a tour would be the collection of information regarding the effects of the more important anti-malarial campaigns which have been carried out in these regions, with special reference to the anti-mosquito measures employed.

Such a tour would also provide an opportunity for obtaining data which would be useful in the preparatory work for the inter-governmental Conference on anti-malarial drugs, as well as information about naturalistic methods and other subjects of interest to the research programme of the Commission.

The Committee thinks that the knowledge collected during this tour might usefully be published as a special report.

COURSES IN MALARIOLOGY FOR ENGINEERS

Provisional Draft Programme.

Introductory lectures on the part played by the engineer in the production and reduction of malaria and on the relation of the engineer and the malariologist .....		
Protozoology, pathology, and use of the microscope..	6	hours
Clinical and therapeutic aspects of malaria .....	2	"
Entomology: elementary lessons in morphology .....	3	"
"      : biology of the dangerous anopheles of the Far East .....	5	"
<u>Epidemiology:</u>		
Elements of vital and health statistics; malaria surveys; endemic, imported, indigenous, epidemic and hyperendemic malaria: factors involved. Climatology and malaria. Immunity and malaria. Children and immigrants. Problem of changes of population .....		)
Geology and topography in malaria investigations)	8	"
"Wet cultivation"; silt in suspension in water; salinity of water .....		)
Problem of irrigation; canals and embankments. )		)
Siting; housing in relation to malaria .....		)
Principles of malaria legislation .....	1	hour
<u>Malaria control:</u>		
Malaria surveys .....	1	"
Drug prophylaxis of labour forces .....	1	"
Sites of houses; types of dwelling; screening; peridomestic waters; mosquito-netting .....	1	"
Levelling and drainage (open, subsoil, by absorption, etc) .....	5	"
Water supply and malaria .....	1	"
Anti-larval measures:		
Physical properties of oils and derivatives employed; Paris green, technique and prices .....	2	"
Bonification .....	2	"
Biological,( mesological) and naturalistic methods .....	2	"
<u>Total</u> for malaria control .....	16	"
Field demonstration of malaria control in urban and rural districts .....	8	half-days.