

LEPROSY NEWS AND NOTES

Information concerning institutions, organizations, and individuals connected with leprosy work, scientific or other meetings, legislative enactments, and other matters of interest.

FUTURE MEETINGS

The next meeting of the International Leprosy Association will be held in Havana, Cuba, April 3-11, 1948.

The Third Pan-American Conference on Leprosy has been invited to meet in Buenos Aires in 1949.

SECOND PAN-AMERICAN LEPROSY CONFERENCE

October 19-27, 1946

Leprosy is a major problem in Brazil, and there is perhaps no country in which the campaign against the disease is more highly organized. The beautiful capital of Brazil was therefore a most appropriate site for a conference which brought together one hundred delegates from seventeen different countries of the American continent. Particular regret was expressed at the absence of a delegate from Colombia, one of the most important countries as regards leprosy. The first Pan-American Leprosy Conference met in 1922, also in Rio de Janeiro.

The meetings were held under the chairmanship of Dr. Ernani Agricola, Director of the National Leprosy Service, in the auditorium of the Ministry of Education and Health, a large modern building in the center of the city, within easy reach of the hotels where the delegates were lodged.

Credentials of the delegates were received at a preliminary meeting. The first plenary session was presided over by the Minister of Education and Health, and the final meeting by the Minister for Foreign Affairs.

The official delegates and representatives were as follows:—

ARGENTINA

DELEGATES—Leonidas Llano, President; Frederico Guillot.

REPRESENTATIVES—*Patronato de Leprosos*: Hersilia Casares de Blaquier, Julia Valentina Bunge de Uranga, Salomon Schujman, Argüello Pitt. *Faculdade de Ciencias Medicas (Univ. de Buenos Aires)*: Pedro L. Balina, Marcial I. Quiroga, Guillermo A. Basombrio. *Reunion Dermatológica de Rosario*: Salomon Schujman, José M. M. Fernandez, Juan Bautista Serra,

Antonio Artacho, Eduardo Carboni. *Faculdade de Ciencias Medicas (Univ. Nacional de Córdoba)*: Enrique E. Tello, Rafael Garzon, Luiz Argüello Pitt. *Centro Antivenereo Sifilitico (Córdoba)*: Juan Bautista Serra, Antonio Artacho, Raul Musachio Lencinas, Ricardo Artacho. *Faculdade de Ciencias Medicas (Univ. Nacional del Litoral)*: Juan Bautista Serra. PROVINCIA DE SANTA FÉ: Raul Musachio. *Administración Sanitaria y Asistencia Social — Municipalidad de Rosario*: Antonio Artacho. *Administración Sanitario de la Asistencia Publica de Buenos Ayres*: Dr. Guillermo Basombrio.

BRAZIL

DELEGATES—Ernani Agricola, President; João de Aguiar Pupo, Francisco Eduardo Accioli Rabello, Joaquim Pereira Mota, Nelson Souza Campos, Orestes Diniz, João Batista Risi, Rubem David Azulay, Menandro Tapajoz, Alfredo Bluth, Jorge Lobo, Lauro Pinheiro Mota, Hildebrando Marcondes Portugal, Tomás Pompeu Rossas, Henrique Moura Costa, Lauro Souza Lima, Luiz Marino Bechelli, Humberto Cerruti, Aureliano Matos Moura, Adalberto Tolentino de Carvalho, José Pessoa Mendes, Antonio Carlos Horta, Ivon Rodrigues Vieira, José Mariano, Teófilo de Almeida, João Ramos e Silva.

REPRESENTATIVES—*Sociedade Brasileira de Dermatologia e Sifilografia*: A. F. da Costa Junior, F. E. Rabello, Joaquim Mota, J. Ramos e Silva, H. Portugal. *Sociedade Brasileira de Higiene*: Ernani Agricola, Joir Gonçalves da Fonte, Luiz de Campos Mello. *Faculdade Fluminense de Medicina*: Paulo Parreiras Horta, Rubem David Azulay, Augusto Mesquita, João Batista Risi. *Faculdade de Ciências Médicas*: Joaquim Motta, Hildebrando Portugal, H. C. Souza Araujo. *Sociedade de Medicina e Cirurgia do Rio de Janeiro*: Joaquim Motta, J. Moreira da Fonseca, Arthur Moses, A. F. da Costa Junior, André Mesquita. *Academia Nacional de Medicina*: H. C. Souza Araujo. *Sociedade Mineira de Leprologia*: Abrahão Salomão. Antonio Helio de Castra. *Sociedade Brasileira de Dermatologia (Secção de Minas Gerais)*: Olyntho Orsini de Castro, Armando Neves. *Faculdade de Medicina de Belo Horizonte*: Olyntho Orsini de Castro, Hanser Brant Aleixo. *Irmandade do Santíssimo Sacramento da Candelária*: Henrique de Moura Costa. *Departamento Estadual de Saúde do Pará*: Alfredo Bluth. *Serviço de Lepra de Santa Catarina*: Adalberto Tolentino de Carvalho. *Departamento Estadual de Saúde do Rio Grande do Sul*: Gilberto Mangeon. *Fundação Paulista Contra Lepra*: Antônio Carlos Mauri, Walter Hadler. *Diretoria de Saúde do Exército*: Jayme de Azevedo Villas Boas. *Departamento de Profilaxia da Lepra do Estado de São Paulo*: Nelson de Souza Campos, Duarte do Páteo Junior, Francisco Ribeiro Arantes, José Rivera Miranda, Helena Possolo, José Corrêa de Carvalho, Lauro de Souza Lima, Renato Pacheco Braga, Moacyr de Souza Lima, Reginaldo Quaglator, Antonio Carlos Mauri, Walter Hadler, Paulo Ratti de Souza. *Serviço de Lepra da Prefeitura do Distrito Federal*: Joaquim Pereira Mota, João Ramos e Silva, Alcides de Azevedo Silva, Olavo de Andrade Lyra, Caetano Gomes. *Divisão de Lepra do Departamento de Saúde de Minas Gerais*: Abrahão Salomão, Antonio Carlos Horta, Josefino Aleixo, Paulo Cerqueira Rodrigues Pereira, Orestes Diniz. *Serviço Nacional de Lepra*: Joir Gonçalves da Fonte, Luiz de Campos Mello, Avelino Miguez Alonso, Mitchell Sum Smollens, Lygia Cezar de Andrade, Wandyck Del Favero, Francisco Medeiros Dantas, Henrique Oliveira Borges da Rocha, Hilton Hermont,

INTERNATIONAL LEPROSY ASSOCIATION

RENEWAL OF MEMBERSHIP

To Dr. E. Muir

General Secretary-Treasurer

167 Victoria St., London, S.W.1, England

I remit herewith in the
(Check, draft, money order)

amount of for renewal of my
(One guinea, five dollars)

membership in the International Leprosy Association for the year

..... Please have THE INTERNATIONAL JOURNAL OF

LEPROSY addressed to me as follows:

.....
(Name)

.....

.....
(Address)

Very truly yours,

.....

NOTE: Members are requested to type or write very plainly the name
and address to which they wish communications to be sent.)

Paulo Roberto Aranha, João Damasceno Baeta, Vincente Risi. *Faculdade de Medicina de Porto Alegre*: Darcy José da Rocha. *Departamento de Profilaxia da Lepra do Estado de São Paulo*: Abrahão Rotberg. *Serviço de Profilaxia da Lepra do Estado de Sergipe*: J. Fraga Lima. *Serviço Especial de Saúde Pública*: Robert Mein. *Federação das Sociedades de Assistência aos Lazáros*: Eunice Weaver, Regina Carneiro, Julieta Batista Martins, Dilza Reis Sant'Anna, Dagmar Gentil, Neusa Feital, Sr. Edgard Teixeira Leite.

BOLIVIA

DELEGATES—Jorge Suárez, Guillermo Galindo Hijo.

CUBA

DELEGATES—Alberto Oteiza y Setien, President; Francisco R. Tiant, Francisco Leon Blanco.

COSTA - RICA

DELEGATE—Arturo M. Mom.

COLUMBIA

REPRESENTATIVES—*Instituto Frederico Lleras Acosta*: João de Aguiar Pupo, Nelson Souza Campos.

CANADA

DELEGATE—Evan Benjamin Rogers.

DOMINICAN REPUBLIC

DELEGATES—Fernando A. Defiló, Gilberto Gomez.

EQUADOR

DELEGATE—Glynne Leite Rocha.

UNITED STATES

DELEGATES—Perry Burgess, President; Eugene P. Campbell, Malcolm H. Soule, Howard T. Karsner, G. H. Faget, F. A. Johansen, José N. Rodriguez.

REPRESENTATIVES — *American Leprosy Foundation*: Perry Burgess, Malcolm H. Soule, Howard T. Karsner, José N. Rodriguez. *The Institute of Inter-American Affairs*: Eugene P. Campbell.

FRENCH GUIANA

DELEGATE—Hervé Floch.

BRITISH GUIANA

DELEGATE—L. H. Wharton.

MEXICO

DELEGATE—José Barba Rubio.

NICARAGUA

DELEGATE—Heraclides Cesar de Souza-Araujo.

REPRESENTATIVE—Dom. José Mercedes Palma.

PANAMA

DELEGATE—Guillermo Castro.

PARAGUAY

DELEGATES—Victor Caldarera, President; Frederico S. Rios, Manuel Jimenez, Eduardo Rodriguez.

PERU

DELEGATE—Hugo Pesce.

VENEZUELA

REPRESENTATIVES—*Facultad de Ciencias Medicas (Universidad Central de Venezuela)*: Martin Végas, Jacinto Convit. *Ministerio de Sanidad y Asistencia Social*: Martin Végas, Jacinto Convit.

TRINIDAD

DELEGATE—Jorge Campbell.

The attention of the conference was concentrated on three main subjects: epidemiology, classification, and therapeutics. Papers on these were read at the plenary sessions, in the mornings and, occasionally, in the afternoons, but the chief discussions took place in smaller groups or commissions into which the delegates were divided, one for each of the main subjects. Their deliberations often lasted late into the night.

The whole atmosphere of the conference was one of friendliness and kind hospitality. Delegates and their wives, as they arrived, were met at the airport by informal reception committees and conducted to their hotels. Lunches and cocktail parties, and visits to beauty spots were arranged, and members and their wives were invited to a most enjoyable symphony concert in the beautiful Municipal Theatre.

Visits were planned to the leprosaria and to the headquarters of the Federal Leprosy Organization which coordinates and gives financial aid to the antileprosy campaign in the various States of the Brazilian Union.

After the last session, the conference delegates were invited to visit the antileprosy work, either in São Paulo or in Minas Gerais, free hospitality and passage by plane being generously arranged.

In all its deliberations, the conference had as its basis the findings of the International Congress held at Cairo in 1938, and a resolute attempt was made to assess and record the advances that have been made in the last eight years. How far this attempt has been successful can be judged from the unanimous resolutions passed by the conference and appended to this report.

The chief interest of the discussions centered around two points: the "South American Classification" and the "sulfone drugs versus chaulmoogra."

CLASSIFICATION: It was evidently expected by some of the South American delegates that there might be strong opposition to

their classification, and, indeed, that there would be a difference of opinion in their own ranks; there was, therefore, considerable surprise and pleasure when it was found that differences occurred only on minor points, and unanimous findings were arrived at. It was felt that the Cairo classification had two distinct defects. Of the two main types described, one was named on a histological basis (lepromatous), and the other on a topographical basis (neural). The second defect was that a large class of cases were left which was difficult or impossible to describe under either of these types.

In the South American classification the nomenclatures of each of the two main (or polar) types is on a histopathological basis (lepromatous and tuberculoid), each describing a distinct form of granulomatous appearance. The chief characteristic of the lepromatous type is the lepra (Virchow) cell with its foaming appearance and its many bacilli; while the tuberculoid is characterized by the epithelioid and giant cell often with a condensed tubercle-like structure, bacilli being generally absent or scarce. Each of these types has characteristic clinical appearances, while the lepromin test is positive, as a rule, in the tuberculoid and negative in the lepromatous. The peculiar histological appearance of each type may be found both in the skin and in the nerves; the term "neural" is, therefore, used only in sub-classification.

There are, however, many cases which cannot be fitted into either of the two polar groups. Histologically, their appearance is a small cell infiltration such as is found in any chronic inflammation, and few, if any, bacilli are present. Clinically there are flat macules or areas of skin showing hypopigmentation, especially in dark skins.

One of the chief difficulties has been to find a suitable term to denominate this type. "Chronic inflammatory" was suggested, but abandoned as the clinical appearance does not correspond with what is commonly suggested by that term. "Transitory" was put forward, as many cases are believed to pass through this form before becoming lepromatous or tuberculoid, or when the one polar form is passing into the other. But again, there are cases which remain in this form without further transition. "Incaracteristico" (uncharacteristic or non-characteristic) was the term most favored, implying that it lacked the special characters of both the polar forms, though the objection was raised that anything which has characters of its own could not reasonably be given that name.

In the end "Incaracteristico" or "Unidentified" was adopted, these being the two least objectionable terms.

The adoption of this classification by the conference was fol-

lowed by its rechristening. It is now called the "Pan-American Classification," and hopes were expressed that at the next International Congress it may receive universal recognition.

It was generally felt by all delegates to the conference, or at least by all those engaged in active antileprosy work, that the importance of a world-wide classification of general acceptance cannot be too much stressed. With it we have a common language in which, whatever their native tongue, all leprologists can write and talk and understand one another. From lack of it, too much confusion and contradiction has resulted in the past.

It is not claimed that the revised classification is perfect. This is shown by the divergence of opinion as to whether tuberculoid cases can change into lepromatous. Several delegates considered that this could not happen, but Dr. Lauro Souza Lima was able to show delegates three or four definite lepromatous cases, and at the same time photographs, biopsy sections, and lepromin scars which proved satisfactorily that they had formerly been typical tuberculoid cases.

Another point of importance, noted particularly by some of the delegates visiting Brazil for the first time, was the clinical differences in cases, and in the proportion of case types, between one country and another. Also, the results with chaulmoogra treatment appear to vary in different places. In evaluating these differences, an accurate uniform classification was felt to be of great importance.

Several papers were read on the Mitsuda or Lepromin Test, and there was general agreement as to its importance in classification and prognosis, but a warning was given that too implicit reliance should not be placed on it.

THERAPEUTICS: Papers were read on the results obtained with the new sulfone drugs. The most important of these was one read by Dr. Faget of the Carville Leprosarium, who has been using promin since March 1941, and diasone since 1943. He reported 25 per cent improvement with six months treatment, 60 per cent in one year, 75 per cent in three years, and 100 per cent in four years. As much as 50 per cent or more of those treated for four years had become bacteriologically negative. [See this issue of the JOURNAL, page 7.]

Dr. Faget considered the results with promin and diasone approximately equal, though diasone has the advantage of being given orally, while promin has to be given intravenously because of its toxic effect by the oral route.

Dr. Faget also reported on promizole, which he had been testing since 1945. Though he had not yet had sufficient time to assess its value, he thought it might be quicker in its action than the other two sulfones, as larger doses (6-8 grams a day) were tolerated, and a higher blood concentration could be obtained than with diasone.

Dr. Lauro de Souza Lima read a paper on diasone and promin which was of particular interest because of the large numbers under treatment, about four hundred on each of these drugs. He reported favorable results, though he had not yet had sufficient time to draw definite conclusions. Those of us who had an opportunity of inspecting his cases, later, were particularly impressed by the clinical and bacteriological results in early lepromatous cases, every one of which showed marked improvement.

Some striking contrast photographs were shown by Dr. Faget, but some of the delegates were inclined to doubt the evidence of the photos and suggested that subsidence of lepra reaction might account for the improved appearances.

On the whole, those who had had personal experience with the sulfone treatment were in its favor, though some without that experience expressed themselves as doubtful. All were in agreement that further time and larger numbers of patients were necessary before a final opinion could be given on the extent of their value. Hope was also widely expressed that other still more effective drugs might be found.

Dr. Faget also reported encouraging results after a short and limited trial with streptomycin by frequent injections, but could not yet express a full opinion. He thought that possibly a combination of sulfones and streptomycin might give enhanced results.

Dr. Schujman's paper on chaulmoogra oil claimed very favorable results with large doses up to 30 c.c. a week, or even more, in lepromatous cases. He particularly favored the intradermal method. Others spoke in favor of this way of giving the drug.

Drs. Bechelli and Rotberg read a series of papers inquiring into the history of the use of chaulmoogra and giving reasons for the general belief in its efficiency, reasons which they considered were not always justified.

Both in the preliminary sessions and in the commission on treatment there was a good deal of difference of opinion, some upholding chaulmoogra and others holding it of little value, and there seemed danger of a chaulmoogra versus sulfone contest.

After discussions, however, it was agreed that chaulmoogra should have further trial, efforts being made to carry out properly controlled experiments so as to determine its actual value.

It was also agreed that until the sulfone drugs had been further tried out and were more generally available for all patients, chaulmoogra must remain the standard treatment for leprosy.

It was with considerable satisfaction that the conference at last adopted, without dissenting voice, the unanimous report of the therapeutics committee.

EPIDEMIOLOGY: A number of interesting papers were read on epidemiology. From South America, and particularly from some of the Brazilian states, well-planned and thoroughly executed surveys were exhibited. These surveys, first extensive and later intensive, continue to bring in large numbers of cases and to supply valuable statistics. Delegates had an opportunity of studying the leprosy filing system in Rio de Janeiro and also in the states of São Paulo and Minas Gerais; this is probably the most elaborate and thorough in existence. The report on epidemiology contains certain advances on the Cairo Congress findings made as the result of experience during the last eight years.

EXTRAORDINARY SESSIONS: An important feature of the conference were the extraordinary sessions and special lectures to which all delegates were invited. Perhaps the most popular of these was a lecture given by Mrs. Eunice Weaver, President of the Federation of Societies for Assistance to Lepers and for Control of Leprosy. This Federation was formed in 1932 to coordinate the work of eight private societies, and has done invaluable work, especially in connection with preventoria for the care of children.

Other lectures were on Leprosy Problems in the British Empire, arranged by the Brazilian Society of English Culture, and on Social Welfare in connection with Leprosy.

Delegates were also invited to the National Academy of Medicine, where they listened to an oration on the antileprosy work being accomplished in the countries represented at the conference.

The opportunity was taken to hold a meeting of the International Leprosy Association, first of the Council, and later of the members present at the conference. Other delegates interested were also invited to be present, and some forty new members of the Association were enrolled. It was agreed, with acclamation, to put forward the name of Dr. H. W. Wade as President of the Association in place of Dr. Emile Marchoux, the late president, and of Dr. Alberto Oteiza y Setien, chief delegate from Cuba, as a member of the Council, in place of Professor Eduardo Rabello.

It was approved provisionally that the next International Leprosy Congress should be held early in 1948, and Havana, Cuba, was

suggested as a suitable location. Later an invitation from the Government of Cuba was received through Dr. Oteiza.

It was agreed that the International Journal of Leprosy should again be published in four annual issues, beginning in 1947. This, as formerly, is made possible through the generosity of the Leonard Wood Memorial, which through Mr. Perry Burgess, has promised to make up the expenses of the Journal in excess of the members' subscriptions. Dr. J. A. Doull has been asked to continue, with the help of Dr. Huldah Bancroft, to act temporarily as editor during the illness of Dr. Wade.

The meeting sent a unanimous message of sympathy to Dr. Wade, and hopes for his speedy recovery.

The method used at the conference of coming to a decision over disputed points is worthy of mention. Only the leader of each of the seventeen delegations had a vote, and the chairman put the question, for or against, to each of these in turn. The method worked satisfactorily.

A committee, also consisting of the leaders of the delegations, was appointed to receive and put in proper form before the conference the findings of the three committees. The official languages of the conference were Portuguese, Spanish, English, and French. Most of the papers and discussions were necessarily in the first two of these, but abstracts of many of the papers were given in English, and parts of the discussion were translated.

The last session was at eleven o'clock on Sunday morning, presided over by the Minister of Foreign Affairs. The next day many of the delegates went to São Paulo as guests of that State. There they had an opportunity of visiting the Padre Bento Colony, one of the five large colonies with about 9,000 patients. The State anti-leprosy activities are excellently organized and are on a larger scale, perhaps, than in any other country. A particular feature is the leprosy library, which takes in 600 medical journals and circulates the titles of articles to all doctors every month. Those articles required are copied and supplied on application.

First to last, the conference was a great success. It has certainly been an important landmark in the campaign against leprosy.

— E. Muir.

CLASSIFICATION OF LEPROSY

REPORT OF SUBCOMMITTEE ON CLASSIFICATION*

The Committee on Classification of the Second Pan-American Conference of Leprosy recommends the adoption of the fundamental types denominated in the "South American Classification" for the American countries, as modified during discussion at the Conference.

The classification is based on the separation of two distinct types, Tuberculoid and Neural. This committee follows in a definite way the recommendations made by the Cairo International Conference of Leprosy that "further research should be continued on the questions raised by the minority," this minority being South American members of the Classification Committee. In fact, research followed since then on this continent and reported in an editorial in the "Revista Brasileira de Leprologia" of June 1939, was discussed and confirmed by Brazilian and Argentine leprologists at various meetings, especially those at Tres Coracoes and São Paulo. At the same time, research on the same subject was carried on in Cuba, Mexico, and Peru, and in 1942 at the convention of the American Medical Association, the Cuban leprologists put forward this classification, thus making it known in the United States of America.

THE THREE TYPES

We have sought, by dividing cases primarily according to their histopathological differences, and at the same time by using evidence of clinical signs and immuno-biological reactions, to produce a comprehensive classification which can be used as a guide in prophylaxis, epidemiology, prognosis, and in the treatment of leprosy.

With this in mind, the Committee adopts three fundamental types, namely: Lepromatous (L), Uncharacteristic (I), and Tuberculoid (T). Each of these three fundamental types presents specific clinical forms, which are defined below.

These varying clinical forms are divided according to their objective and evolutive character. Thus, the lepromatous type includes the "macular," because this form is frequently found on both sides of the dividing line between the lepromatous and the unchar-

* This committee was comprised of the following members: Dr. Pedro L. Baliña (*President*), Dr. Nelson de Souza Campos (*Secretary*), Dr. Francisco R. Tiant (*Co-Secretary*), Dr. Ernest Muir, Dr. Francisco Eduardo Rabello, Dr. Hugo Pesce, Dr. Howard T. Karsner, Dr. Joaquim Mota, Dr. José M. M. Fernandez, Dr. Leon Blanco, and Dr. Martin Vegas. Supplementary members were: Dr. Argüello Pitt, Dr. Eduardo Carboni, Dr. Enrique Tello, and Dr. Glynn Rocha.

acteristic types. These are to be distinguished from infiltrative and nodular, which are the more advanced forms. Since there are cases with only nerve involvement, but in which a diagnosis of the lepromatous type can be made, this type includes a neural form. Though we consider that as a rule there is a certain degree of general diffusion in all forms of the lepromatous type, we add a generalized form, — to include advanced cases with extensive cutaneous, neural, and visceral involvement.

In the uncharacteristic type,* macular, neuro-macular, and purely neural forms are distinguished. The meaning of these terms is obvious. Though we recognize that there are always some changes in the nerves supplying lesions of the skin, we give a separate macular form to distinguish cases of the uncharacteristic type in which the skin lesion is clinically the only obvious one. Neuro-macular forms are those which, in addition to having the characteristic macular eruption, show nerve trunk involvement with definite neural symptoms.

Under the tuberculoid type are the macular, papular, neural, and reacting forms. As in the lepromatous type, we give a separate macular variety, as this form is often on the line dividing the tuberculoid and uncharacteristic types in cases passing from the one to the other. By neural is understood the form in which there is involvement of the nerve trunks, causing the characteristic clinical signs. In extreme cases of the neural form, there may be caseation.

DEFINITION OF THE TYPES

LEPROMATOUS (L) TYPE — Severe and intractable cases, with negative reaction to lepromin, and lepromatous lesions of the skin, mucosa, nerves, and other organs. The bacteriological examination of the lesions is always positive. Histologically the appearance is that of a specific granuloma. It is the type principally responsible for the spread of infection.

UNCHARACTERISTIC (I) TYPE (UNDETERMINED) — As a general rule benign, but relatively unstable. The lepromin reaction may or may not be positive. It is manifested by well-defined cutaneous and neural lesions. The bacteriological examination is generally negative, but, when positive, only a few bacilli are found. Histo-

* The letter (I) is used to represent "incharacteristico," the English equivalent of which is "Uncharacteristic." Wherever the term "Uncharacteristic" appears in this report, it means a type of leprosy with definite clinical manifestations, which anatomically or pathologically is an inflammatory reaction of an indefinite character. The term "Uncharacteristic" is used for lack of better terminology.

logically the appearance is that of a chronic, non-specific inflammatory process. Cases may eventually become contagious.

TUBERCULOID (T) TYPE—The most benign and stable form of the disease, almost always giving a positive lepromin reaction. It is manifested by characteristic lesions of the skin and nerves. As a rule, the bacteriological examination is negative, but, when positive, the bacilli are generally very scarce. Histologically, it is a tuberculoid granuloma. For all practical purposes, this type of the disease may be considered as non-contagious.

The above particulars apply to non-reactive tuberculoid cases, but there is a form of this type which is reactive or acute, and which does not closely follow the same description. The lepromin reaction is less frequently, or less strongly, positive; the skin lesions present special clinical characteristics; bacteriological examination of the skin lesions is frequently, and of the nasal mucosa occasionally positive, though this may only be for a transitory period. The only thing that identifies these cases with the non-reactive tuberculoid type is the histological appearance, and this may be obscured by the signs of the acute phase (edema, dissociation, focal loosening, vacuolization, etc.). Such cases can be considered contagious as long as they are positive bacteriologically, and eventually they may change into the lepromatous type.

In some cases a non-reacting tuberculoid becomes reactivated and later subsides to the original type as described by Wade. In others (as described by Souza Campos) an uncharacteristic lesion becomes a reactivated tuberculoid, and later is transformed into a lepromatous lesion or else subsides into its original form.

SUMMARY OF TYPES AND CLINICAL FORMS

Type	Variety of Clinical Form
Lepromatous (L)	Macular
	Infiltrative (in plaques or diffuse)
	Nodular
	Neural
	Generalized
Uncharacteristic (I) or Unidentified	Macular
	Neural
	Neuro-macular
Tuberculoid (T)	Macular
	Papular
	Neural
	Reactive

DESCRIPTION OF LESIONS

LEPROMATOUS TYPE: The lesions corresponding to this type may be:

1.—*Lepromatous macules: erythematous macules* are rose-colored, red or purplish-red. Initial lesions which are yellowish, brownish, copper, or

rust-colored, are called *pigmented macules*, or if also hyperemic, they are called mixed or *erythematous pigmented macules*.

In any one case, macules of one color may predominate, or there may be a variety of colors. The macules may appear uniform and have an irregular and diffuse shape. The central part of the lesion may appear normal or hypochromic and be well defined from the erythematous and/or pigmented part which surrounds it.

2.—*Infiltration*: When the lesions assume this characteristic they usually have the same distinctive colors as the macules, but they appear elevated above the surrounding skin. They may be either circumscribed plaques of variable size, or diffuse infiltrations. In the latter, the color often assumes a peculiar aspect due to the fatty content of the lesion. As to size and shape, the infiltrative lesions, not only the well-defined but the diffuse ones, may present the same peculiarities common to the lepromatous macules.

3.—*Tubercles*: Circumscribed lesions originating in the skin, which may or may not be elevated. They are consistent to touch; the color may be red, purplish, brownish, or coppery. They are of various sizes: miliary, piriform, lenticular, and at times even larger. They may be isolated or confluent or become mixed by coalescence forming masses which may be quite large, assuming the appearance of a mammary teat.

Tubercles, as well as the other infiltrative skin lesions, may also invade the mucous membrane, where they retain the same characteristics as when found on the skin.

4.—*Nodules*: Nodules are palpable subcutaneous lesions, which may or may not cause an external swelling. They are spherical and of variable size, smaller than a pea in some cases, but much larger in others. Nodules which in their growth become adherent to the skin tend to give the skin a reddish or purplish coloration with an orange-peel appearance.

5.—*Ulcers*: These lesions usually follow the softening and necrosis of nodules, tubercles or infiltrations of the skin or mucous membrane.

6.—*Cicatricial lesions*: These are found characteristically as sequelae of infiltrative and ulcerative lesions.

7.—*Lepromatous Reaction*: Very frequently in cases of the lepromatous type, there are periods of reaction commonly called "Lepra Reaction." The clinical picture is manifested by erythematous polymorphic or nodular skin reaction, which may or may not be associated with neural, ocular, or visceral reactions. There are febrile manifestations, general weakening, and pain. Lepromatous reaction occurs in acute, sub-acute, or chronic forms.

UNCHARACTERISTIC TYPE: Macules of the uncharacteristic type may be erythematous or chronic or combine these two appearances. These three forms may be combined in the same person. They generally lack infiltration, but in rare cases they may present distinct elevation of the skin. In all there is a variable degree of sensory change.

Customarily the lesions of the uncharacteristic type are from 3 to 5 cm. in diameter and very few in number. At times the lesions may be rose-colored and disseminated. The demarcation of these lesions may be distinct or indistinct, and it is a peculiar trait that both qualities may be found in the same lesion at the same time.

Besides erythema there may be seen hypochromic spots of varying intensity, due to disturbance of normal melanogenesis. Some of these present themselves as well-circumscribed areas, in other cases as a more diffuse form, and in not a few cases one section of the lesion may be diffuse and another well-circumscribed.

The erythematous macule is almost always found in a diffuse form, with ill-defined contours. These macules show a mixture of erythema and hypochromia, there being cases with all intermediate tones in the entire skin surface and others with a peripheral rosy halo with or without well-defined margins.

The erythematous macule is seen as a hyperemic lesion, the color varying from a pale rose to red, of a variable size and a relatively well-defined margin; however, it may be diffuse.

TUBERCULOID TYPE: The tuberculoid type may be manifested by simple, erythematous macules, or pigmented erythematous macules, similar to the form seen in the uncharacteristic type, or it may be manifested by brownish macules, with well-defined edges, presenting a fine desquamation similar to pityriasis.

However, the most characteristic feature of the tuberculoid type is the tubercle, here, having a particular aspect, represented by miliary papular lesions. These lesions may be the size of a pinhead or even smaller, have a reddish-violet or coppery-red color; may be elevated to a small degree, and at times may present a little desquamation; they may be isolated or more frequently confluent and even conglomerate.

These elements (tubercles) may be few in number but are often found joined together to form plaques of a variable size and configuration having a finely granulated surface.

In other cases one can see the fusion of these elements (tubercles) to form plaques having a circular or elliptical configuration. But oftener the miliary tubercles unite in the periphery of the plaque, forming a more or less wide margin, which is well-defined on the outer edge, but ill-defined in the center, and made up of several papular elements, compressed in a straight line but distinct or fused, forming a margin with a granular surface.

The most characteristic plaques are annular, irregularly oval or of a variable geographical configuration; the margins may be continuous or interrupted; the center is usually hypochromic and covered with fine scales. The preceding description refers to the quiescent lesions (stable) of the tuberculoid type. The reactive form is eruptive and polymorphic, with hyperemic tubercles. The surface is raised, generally of a purplish color, and of variable size. The eruption appears rapidly and subsides into a sub-acute phase.

In childhood there is seen a variation of the reactive picture, represented by one or a few thickened lesions which leave depressed characteristic scars.

USEFUL NEUROLOGICAL SYMPTOMS FOR CLASSIFICATION OF CASES

Compared to the symptoms of the cutaneous form of leprosy, the neurological syndromes are an expression of the specificity of the disease to attack the nerves. These syndromes do not possess sufficiently distinct characteristics to be placed in either of the three principal forms. Due to

this, it is necessary to emphasize the aspects that may help in the diagnosis of this type of leprosy. In these cases, with few exceptions, are the anesthetic forms, the nerve thickenings, the amyotrophies, and certain trophic phenomena such as trophic ulcers and ulcerations.

Anesthetic zones. Leprosy cases in which the disease is manifested only by anesthetic areas with or without anhydrosis, and changes in the skin follicles may, in practice, be classified in the "uncharacteristic" type, purely neural form. If there is associated with the anesthetic area some thickening of a subcutaneous nerve it may nearly always be classified without mistake in the tuberculoid type of the pure neural form.

Nerve thickening. Leprosy cases that present only nerve thickening with complete absence of any cutaneous or visceral manifestations connected with the thickened nerve are relatively frequent. It is therefore practically impossible to make a clinical diagnosis of the type without the help of the lepromin reaction or a puncture biopsy of the nerve. If the lepromin reaction is negative, doubtful or weakly positive, and the nerve puncture is negative for acid-fast bacilli, the case should be classified as a purely neural form of the uncharacteristic type awaiting the nerve biopsy which will determine the type. If the lepromin reaction is negative and the nerve puncture positive for *Mycobacterium leprae*, the biopsy will determine if the case is one of the lepromatous or uncharacteristic type. However, it is well to know that these cases are extremely rare.

Relatively less rare are the cases in which there is purely nerve thickening with a lepromin reaction clearly positive and negative nerve puncture. Above all, the examination should reveal tumefaction in the course of the nerve, with or without fluctuation or fistulas and retracted scars adherent to the nerve. In practice, all of these cases should be classified as a form of tuberculoid type.

Amyotrophies and Trophic Phenomena. Leprosy cases with partial or total atrophy of the muscles of the extremities, mutilations, trophic ulcers, etc., with regional anesthesia, occasionally without anesthesia, are hard to classify satisfactorily. In these cases the diagnosis as to type is resolved in the same manner as already explained in cases with nerve thickening.

Bacterioscopy. (Bacteriological examination)

1. Collecting material:

- (a) From the tissue. We recommend Wade's technique.
- (b) From the nasal mucosa. A speculum should be used so that the lesion from which material is to be collected can be properly visualized.

2. Staining:

The commonly used Ziehl-Neelsen technique or any modification dictated by practice is recommended.

3. Results:

Negative, when no bacteria can be found in at least 100 fields.

Positive:

- | | |
|-------|--|
| (+) | rare—one or less than one bacteria per microscopic field. |
| (++) | numerous—when bacteria are seen in all microscopic fields. |
| (+++) | abundant—when a great many bacteria or globuli are seen in all microscopic fields. |

When the nasal mucosa is positive and there are no other manifestations of the disease, the results should be interpreted with caution.

Investigations:

When special bacteriological examinations are made the following should be considered:

- 1) Number of bacteria (degree of positivity)
- 2) Morphology (granular form, or coccithrix, etc.)
- 3) Disposition (isolated or in groups)
- 4) Acid resistant (preserved, lessening, or lost)

Histology.

1. Collecting material. We recommend that the biopsy should always be done surgically.
2. Definition.
 - (a) A lepromatous lesion is a specific granuloma characterized by vacuolated cells of Virchow. A reactive lepromatous lesion is the peri-focal exudative lesion characterized by edema, hyperemia, and polymorphonuclear infiltration, associated with the specific granuloma.
 - (b) A tuberculoid lesion is the granuloma in which epithelioid cells customarily found are surrounded by lymphocytes. A tuberculoid granuloma accompanied by exudative phenomena of hyperemia and edema which changes its characteristic appearance (vacuolization by edema).
 - (c) An uncharacteristic lesion is one represented by slight peri-vascular, peri-neural, peri-glandular, and peri-follicular lymphocytic infiltration.
3. Interpretation. The histological examination is of absolute value in the diagnosis of the lepromatous type, but only of relative value in the tuberculoid and uncharacteristic types. In the last two the histological examination is of value only when correlated with the clinical diagnosis.

Immunology

1. Designation:

Lepromin reaction—

- (a) Fernandez reaction.
- (b) Mitsuda reaction.

2. Technique:

As a routine the doses to be used intradermally are 0.1 to 0.2 cc. In research it is necessary to specify dosage employed.

3. Region:

Healthy skin, preferably on the anterior-external surface of the arm, anterior surface of forearm, interscapular surface, anterior surface of thigh, or the anterior abdominal wall at the level of the umbilicus.

4. Antigen:

Insofar as clinical practice is concerned, a categorical difference can not be made between the integral (Mitsuda-Hayashi or Muir) antigen or bacillary (Dharmendra) antigen. We recommend that the latter be used for the reason that it can be standardized. In order to insure homogeneous results, we recommend that reliable institutions prepare the antigens.

For research purposes we recommend not only the above-mentioned lepromins but also others obtained by different techniques (Fernandez-Olmos, purified protein Dharmendra, etc.).

5. Reading results:

- (a) Fernandez reaction. — The results should be read 48 hours after the injection.

Interpretation:

Negative (—) absence or a halo less than 5 mm.

Doubtful (\pm) halo greater than 5 but less than 10 mm.

Positive (+) to be considered positive a halo with a good well-defined erythematous infiltration, not smaller than 1 cm.

Positive (++) same type of reaction but larger than 2 cm.

- (b) Mitsuda reaction. To be read between 20 and 30 days. Consideration to be given to size, color, infiltration, and evolution.

Interpretation:

Negative (—) when there is absence of visible or palpable reaction.

Positive (+) elevated reaction, infiltrated, with a rose to purplish color, progressive and persistent, and 3-5 mm. in diameter.

Positive (++) the same, greater than 5 mm.

Positive (+++) when there is ulceration.

We recommend investigations in the different countries, as to

- (a) Degree of positiveness in both reactions (Fernandez and Mitsuda) in the tuberculoid type especially in reactive form, and in the uncharacteristic type.
(b) The same in healthy individuals (adults and children) of endemic and non-endemic areas.
(c) The same for contacts.

COMMENTS ON THE MEETINGS OF THE COMMITTEE
ON CLASSIFICATION

Dr. E. P. Campbell has provided translation of the report of the Committee on Classification of the Second Pan-American Conference on Leprosy. Presented in Portuguese, the report was adopted

by the conference as a recommendation to the various countries, with the object of gaining experience in its use. With added experience, these reports may well serve for further discussion at the next International Conference on Leprosy.

The report gives a brief review of the adoption of a classification at the Cairo meeting, and points out that the minority raised questions at that time which justified further study. As a matter of fact, the minority at that time was made up of representatives from the Latin American countries.

In drawing up the classification given in the current report, every effort was made to preserve the essentials of the Cairo classification. Nevertheless, the report is based essentially on the South American classification. It is to be remembered that there are two main structural forms, namely, lepromatous leprosy and tuberculoid leprosy. The leproma is the specific granuloma of leprosy. The tuberculoid form is not structurally diagnostic, but is a peculiar sort of inflammation which is fairly distinctive. Between these two extremes, there is an uncharacteristic form where the lesion is simply a non-specific form of inflammation with infiltration of lymphocytes and other mononuclear cells, together with growth of fibrous tissue.

The report gives details of the structural forms and description of the clinical features. There is one note of importance to the effect that there are really two kinds of reactive tuberculoid lesions. In the one, the tuberculoid type of tuberculoid lesion is the original condition.

Following the description are comments on diagnosis including bacterioscopy, histology, and immunology. The term bacterioscopy is used because the only method available is that of making smears. Of interest also is the fact that the biopsy should be by surgical incision rather than by needle or trephine.

The application of the lepromin reaction can be either by use of the Mitsuda or the Fernandez antigen. Others are also acceptable, but in any event the antigens should be prepared in a first-class laboratory. Included in the regions recommended for lepromin tests is the anterior abdominal wall. The translator (Dr. E. P. Campbell) thinks it is hazardous to use this site, because of the possibility of masking intra-abdominal disorders. The details of the readings and the reactions are given.

After the adoption of the report by the conference, it was voted to change the name from South American Classification to Pan-American Classification.

— Howard T. Karsner.

THE EPIDEMIOLOGY OF LEPROSY

REPORT OF THE SUB-COMMITTEE ON EPIDEMIOLOGY.*

Our present knowledge of the epidemiology of leprosy is still incomplete due to the failure to grow the causative agent outside the human body, either in susceptible animals or in artificial media. In addition, due to special clinical features such as extreme chronicity, prolonged period of latency, variability in the initial recognizable features, a variety of clinical courses, and lack of a therapeutic test, our understanding of the biology of this disease is made very difficult. It is thus recognized that new methods of attack must be employed further to advance our knowledge of its epidemiologic characteristics. In the clinical field, for example, the skin manifestations should be studied by continuous observations of the lesions in the same individuals, over a long period of years and from the earliest to the latest stages. Likewise, in the collection of statistical information, data should be extended over long periods, in order to adjust for the variable evolutionary features cited above. Statistical methods employed in the study of other chronic diseases or in the analyses of life insurance and economic statistics, such as the use of life tables and long cycle seasonal analyses of economic trends, should be employed in the study of leprosy.

FACTORS INFLUENCING THE COMMUNICABILITY OF LEPROSY
BIOLOGICAL FACTORS:(a) *Age*

With regard to age grouping, we follow the recommendations of the Cairo Conference, which is as follows: 0-4, 5-9, 10-14, 15-19, 20-29, 30-39, 40-49, 50-59, and 60 and over. A child is taken to mean any person below the age of 15 years. In addition, we propose the concurrent use of the biophysiological age grouping proposed by Castaldi and Nobecourt. (See appendix).

There is evidence of a higher predisposition to leprosy in childhood, but, whether this is due to the fact that the child presents a virgin soil to the contagion or to some specific biological factor, is not conclusively shown. This is recommended as a fruitful field of study.

(b) *Sex*

In most countries, the prevalence of leprosy in the male sex seems to predominate over the female, especially in the lepromatous type. Again, the available data is not sufficient to allow definite conclusions as to whether this is due to a definite biological factor or to extrinsic factors such as greater chance of exposure.

* This committee consisted of: Dr. João de Aguiar Pupo (*President*), Dr. José N. Rodriguez (*Secretary*), Dr. Abrahão Rotberg, Dr. Duarte do Páteo Junior, Dr. F. A. Johansen, Dr. Fernando A. Defilo, Dr. Guillermo A. Basombrio, Dr. George Campbell, Dr. Jorge Suárez, Dr. Alberto Oteiza y Setién, and Dr. Orestes Diniz. Supplementary members were: Dr. Alcides Silva, Dr. Joir Gonçalves da Fonte, and Victor Caldarera.

(c) *Race and Nationality*

There is as yet no proof of any increased susceptibility to race or nationality at birth. In investigating the relative frequency of leprosy in different nationalities or races within a country, the racial and national composition must be known.

(d) *Immunity and/or Resistance*

The investigation of these factors by the various biological tests (including the Mitsuda test) has emphasized the great importance of employing antigens of known composition, standard dosage, and uniform interpretation of results. In no other way can the factors of individual or group immunity be accurately assessed by these biological tests.

We consider it advisable that in the experimental period some arrangement be made whereby a central agency should undertake the production, standardization, and distribution of antigens to properly accredited research organizations.

(e) *Reservoirs of Infection*

Studies made of conjugal and familial transmission of leprosy, has brought forth additional data which confirm the idea that the lepromatous form of the disease is the chief source of spread.

Conclusive studies are still wanting, however, to establish the degree to which the uncharacteristic and tuberculoid forms may act as sources of spread.

SOCIOLOGICAL FACTORS:

There are no reliable data, so far, relative to the importance of the individual components under this heading, such as hygiene, nutrition, economic status, occupation, and culture, on account of the difficulty of establishing definite groupings of the population, based on these factors. It seems apparent that the incidence is highest in the poorest groups of the population, but there is no statistical proof of this fact.

With regard to housing, it is often possible to devise a fairly reliable index of over-crowding. Such indices usually show a positive correlation with the incidence of leprosy.

MESOLOGICAL FACTORS:

(Ecology, physiologic, or physiographic ecology)

Data is available regarding the varying conditions in the different regions of South America, which vary from almost total absence of leprosy in the Bolivian region (characterized by its elevation, cold, and rigorous climate), to the hot humid climate of the French Guiana, associated with very high incidence, as well as the low incidence in the Brazilian North-eastern Region. The conditions in Bolivia, where the population is distributed in three distinct planes of elevation, seem to offer unexcelled opportunity for the study of the influence of altitude and, possibly, climate, on the incidence of leprosy, considering the supposed non-existence of the disease above 4,000 meters.

It would be of utmost value to determine whether leprosy is really non-existent in Chile, as it is said, and to investigate the possible causes of this phenomenon.

EPIDEMIOLOGICAL SURVEY

We are of the opinion that a complete epidemiological study of leprosy in any country should include at least two or preferably three types of surveys:

1. The general survey
2. The intensive census
3. The continuous follow-up investigation of household contacts.

1.—The *general survey* is based on the search for all cases of the disease, and should preferably be extended to the examination of contacts. This work will be greatly facilitated by the establishment of permanent "skin dispensaries" located at important foci of the disease and "traveling clinics" over the rest of the country. This type of survey is essentially a part of the general leprosy campaign, and one of its practical results is the detection of the bacteriologically positive cases, as completely as possible. The data derived is necessarily incomplete, discontinuous, and of very limited value from an epidemiological point of view. For this reason, it is necessary that this general type shall be supplemented by either one or preferably both of the following types of survey.

2.—*The intensive census*

- (a) Such a census must be limited to a well defined area, and, if possible, to an already recognized administrative or municipal unit.
- (b) The census must be house-to-house in type, and should include every individual in the area. For this purpose, a preliminary census by the local administrative or health authorities is advisable.
- (c) Following this census, an examination of every individual is made by a physician trained to recognize the different manifestations of leprosy.
- (d) A detailed study of all the factors influencing the communicability of leprosy already mentioned above is perhaps possible in this type of survey, and also the use of the Mitsuda or some similar immunologic test.
- (e) A follow-up of every individual in the census area, including all cases of leprosy and household contacts.

This type of survey should be undertaken in several sample areas carefully chosen to bring out possible differences with regard to occupation, climate, altitude, incidence of leprosy, and other factors.

3.—*The continuous follow-up investigation of household contacts*

By this means of studying the evolution of the disease, clinical, pathological, and immunological factors, as well as transmissibility, can be correlated and integrated into a more complete understanding, as it occurs among house contacts. As new facts come to light by both the intensive census and the continuous type of survey, they may be put into practical application in modifications of the general approach.

RECOMMENDED FIELDS FOR EPIDEMIOLOGICAL RESEARCH

1. During World War II many persons coming from areas where leprosy is absent, were suddenly located in areas of variable leprosy endemicity for variable but known periods of time. A study of selected groups might provide basic information regarding the incubation period of this disease, as well as important data with regard to evaluation of the leprosy hazard in military campaigns.

2. Graphs that have been made in the preventoria of São Paulo indicate that in children who have been separated from their diseased parents after a certain period of contact, the first symptoms of the disease appear between the first and the fifth year after the separation had been made, maximum being during the first year. Further studies on this subject carried out in other regions may throw light upon the matter.

3. The history of the spread of leprosy in the different countries of America should be carefully investigated, so as to permit a study of the spread and development of the disease in the Western Hemisphere.

USEFUL RATES AND INDICES

1. *Morbidity prevalence rate*: The number of cases of leprosy occurring in a population at a specific date:

$$\text{M.P.R.*} = \frac{\text{Number of cases of leprosy}}{\text{Total population}} \times 100,000 \quad (10,000 \text{ or } 1,000 \text{ may be used})$$

2. *Morbidity incidence rates*: The number of new cases of leprosy appearing in a population during a period of time, usually one year.

$$\text{M.I.R.*} = \frac{\text{Number of new cases of leprosy}}{\text{Total population}} \times 100,000 \quad (10,000 \text{ or } 1,000 \text{ may be used})$$

3. *Infectivity ratio*: The number of bacteriologically positive or "open" cases per 100 cases of leprosy.

4. (a) *Childhood prevalence rate*: The number of cases of leprosy under 15 years of age per 100,000 of the population under 15 years at a specific date.

- (b) *Childhood incidence rate*: The number of new cases of leprosy under 15 years of age appearing in the population under 15 years of age during a year per 100,000 of such population.

- (c) *Childhood case ratio*: The number of cases of leprosy under 15 years of age per 100 cases of leprosy.

5. *Sex ratio*: The number of cases of leprosy of either sex per 100 cases of leprosy.

6. *Household contact rate*: The number of household contacts per 100 cases of leprosy.

7. *Household contact incidence rate*: The number of cases of leprosy appearing in a year in 1,000 household contacts under observation for a year.

The above rates and indices are useful only after census studies of the population have been made.

*The important difference between these rates is the time factor.

APPENDIX:

BIOPHYSIOLOGICAL AGE GROUPS OF CASTALDI
AND NOBECOURT*

AGE	LIFE'S PERIOD	BIOLOGICAL CHARACTERS
0 to 15 days	Newborn	Fall of umbilical cord with healing
15 days to 1 year	Infant (Little childhood— Castaldi)	Breast feeding—infant
1 to 2 years	Pre-scholar (Middle childhood— Nobecourt)	First dentition, from 6th to 30th month
2 to 6 years		TURGOR PRIMUS from 2nd to 5th year. Growing period from 5th to 6th year (PRO- CERITAS PRIMA)
6 to 10 years	Scholar (Great childhood— Nobecourt)	Beginning of the 2nd dentition, with the ap- pearance of the 1st posterior molar at 6 years of age. The 2nd turgor (TURGOR SECUNDUS) period extends, from the 6th to the 10th year.

AGE	WOMAN LIFE'S PERIOD	AGE	MAN LIFE'S PERIOD
10 to 13 years	Pre-puberty period	10 to 15 years	Pre-puberty period
13 to 15 years	Puberty	15 to 18 years	Puberty
15 to 21 years	Adolescence and pre-adult age	18 to 25 years	Adolescence and pre-adult age
21 to 35 years	Period of growing virility	25 to 40 years	Period of growing virility
35 to 40 years	Period of constant virility	40 to 50 years	Period of constant virility
40 to 50 years	Period of decreasing viril- ity, including the climac- teric, which begins at the age of 45 and has a variable duration from 1 to 4 years.	50 to 60 years	Period of decreasing viril- ity, including the climac- teric, which begins at the age of 50 and has a variable duration from 1 to 4 years.
50 to 60 years	Period within which pre- cocious oldness may surge		
Over 60 years	Old age	Over 60 years	Old age

	GENERAL	WOMAN	MAN
Groups of ages	0 to 15 days	10 to 13 years	10 to 15 years
	15 days to 1 year	13 to 15 years	15 to 18 years
	1 to 2 years	15 to 21 years	18 to 21 years
	2 to 6 years	21 to 35 years	25 to 40 years
	6 to 10 years	35 to 40 years	40 to 50 years
	60 years and over	40 to 50 years	50 to 60 years
		50 to 60 years	

COMMENTS ON THE MEETINGS OF THE COMMITTEE
ON EPIDEMIOLOGY

In two long meetings of the full Committee all members had the opportunity of expressing their views. The outstanding contributions at the discussions in my opinion were the following:

1. Prof. Aguiar Pupo suggested that in the study of the age distribution of leprosy, it would be more useful to employ the biophysiological age grouping proposed by Castaldi and Nobecourt rather than the usual chronological age groups.

* Luigi Castaldi — *Acrescimento corporeo e costituzione del uomo*. Firenze 1923.
Precis de Médecine Infantile Paris 1912 — P. Nobecourt.

2. Prof. Pupo also emphasized that studies on the clinical manifestations of leprosy appearing among household contacts of leprosy patients should be continuous and *evolutive*; that is, the individual lesions of the same patient should be observed continuously from their earliest appearance to their full development or to their disappearance, as the case may be. In this connection, the writer stated that in statistical studies of chronic diseases such as leprosy, the data to be collected must also cover a period of many years. In other words, such statistical studies must likewise be continuous and evolutive and that the life table method of analysis is the best available for this purpose.

3. Dr. Suarez of Bolivia called attention to the special topography of his country which renders it suitable for epidemiological inquiries as to the effect of altitude and climate on the incidence of leprosy. He stated that there is no leprosy in the "Andean alti-plane"; moderate incidence in the middle level, and high incidence at sea-level.

Other members suggested that it would certainly be instructive to investigate the alleged absence of leprosy in the Bolivian "altiplane" as well as the often repeated statement that the disease does not exist in Chile.

4. Dr. Oteiza of Cuba mentioned the value of "permanent dispensaries" and of "traveling clinics" particularly for case-finding purposes, and experience in Cuba shows that these institutions are very useful in the organization of a general leprosy campaign.

The task of actually preparing the report fell upon the writer as Secretary of the Committee. The work proved to be very laborious due to lack of clerical help.

I wish to acknowledge valuable help generously given by Drs. George Campbell, Eugene P. Campbell, and Abrahão Rotberg.

— J. N. Rodriguez.

TREATMENT OF LEPROSY

REPORT OF THE SUBCOMMITTEE ON THERAPEUTICS*

1. It is the consensus of the committee that there have been divergent opinions on the effect of chaulmoogra oil and its derivatives in

* The committee consisted of the following members: Dr. G. H. Faget, (*President*), Dr. Lauro de Souza Lima, (*Secretary*), Dr. Arturo M. Mom, Dr. H. C. Souza Araujo, Dr. Henrique Moura Costa, Dr. Hervé Floch, Dr. Jacinto Convit, Dr. L. H. Wharton, Dr. Lineu da Silveira, Dr. Rafael Garzon, and Dr. Salomon Schujman. Supplementary members were: Dr. Alfredo Bluth, Dr. Frederico Guillot, and Dr. Thomaz Pompeu Rossas.

the treatment of leprosy. Some leprologists believe that this is due to the fact that chaulmoogra oil has not always been used according to proper methods. For this reason the Committee advises that the efficacy of chaulmoogra oil be re-evaluated by the use of more intensive dosage for a more prolonged period.

(a) It is the opinion of the majority of the members of the Committee that the minimal useful dose should be 20 to 30 c.c. per week, used by every route of administration, given regularly and for the longest period of time, but never for less than one year, using recently extracted oil of the best quality (*Hydnocarpus wightiana*).

2. The Committee finds that the sulfone drugs have an efficient therapeutic action in lepromatous leprosy. The improvement with this treatment is progressive and appears to be in direct proportion to the duration of the treatment and to the size of the dose tolerated by the patient.

3. The Committee finds that the sulfone drugs have been used for too short a time and in relatively too few cases to approve them as yet as definite chemotherapeutic agents for leprosy. But the results are so promising that at present they must be considered as truly active drugs.

4. Although the sulfones are not dangerous in therapeutic doses, they are not free from toxic manifestations. These toxic manifestations should be carefully studied and evaluated in individual patients.

5. The Committee finds that carefully controlled therapeutic studies should be continued with the present sulfones and any of the new derivatives of the sulfone group as well as all new hopeful drugs, in order that the optimal dose and the best method of administration of each may be determined.

6. The Therapeutic Committee recommends that in endemic countries of leprosy, whenever possible, a comparative study be made of the results of treatment with chaulmoogra oil and the sulfones in two groups of patients of the lepromatous form, quantitatively and qualitatively identical, preferably without previous treatment.

7. The Committee recommends that this comparative study in groups of patients of lepromatous form subjected to this experiment be made under uniform conditions, and that the following be considered:

- (a) Clinical alterations, especially muco-cutaneous lesions
- (b) Histopathologic alterations

- (c) Bacteriologic alterations
- (d) Possible modifications in immuno-biologic conditions which can be verified by biologic tests.

8. Considering the importance and the variety of conditions amenable to surgery in leprosy and their effect on the general well-being of the patient and the fact that these conditions may interfere with efficient anti-leprotic treatment, the Therapeutic Committee resolve to recommend that research be instituted on this problem, and advise that a surgical service be installed in all the large leprosaria where these problems can be solved by surgical specialists.

9. The Committee recommends that solicitations be made, through the medium of competent sanitary authorities of the various governments represented in this Conference, for the necessary assistance and sufficient financial resources for the continuation and intensification of research in the therapeutic field.

COMMENTS ON THE MEETING OF THE COMMITTEE ON THERAPEUTICS

In my opinion the Second Pan-American Conference on Leprosy held in Rio de Janeiro October 19 to 31 was a great success in spite of the language difficulties which confronted some of the delegates. Fortunately I can speak French and English fluently and have a reading knowledge of Spanish and Portuguese and can understand these languages when spoken in professional words. Since the great majority of contributions were in Portuguese and Spanish, many of the American delegates who were not familiar with these languages had to rely upon a very poorly abstracted translation of these papers into English.

As an American delegate of the Therapeutic Committee, I wish to report the general spirit of cordiality that prevailed at the Second Pan-American Conference. When everything did not run smoothly and there was contention, it was in a friendly spirit that differences of opinion were finally adjusted. Arguments were limited to scientific matters. The delegates expressed their views and convictions frankly, honestly, and in a professional manner, with the over-all purpose of obtaining the scientific truth revealed by the discussion.

As the American delegate of the Therapeutic Committee, I was honored by being elected the President of this section of the Congress. As such I was able not only to participate in but to guide the discussions along proper scientific channels.

In the Therapeutic Section the principal argument arose among the chaulmoograists and the anti-chaulmoograists. Data for and against the therapeutic value of this ancient remedy were submitted for consideration. The difference of opinions is well reflected in the first paragraph of the recommendations of the Committee on Therapeutics. On the other hand, it was shown that there was a general agreement among the leprologists who had had experience with the new sulfa drugs. All agreed that they were effective remedies for leprosy. Best of all, it was their unanimous opinion that they were active therapeutic agents for the lepromatous cases, the most malignant form of the disease. Clinical experience with promin or diasone was reported by some of the doctors from Brazil, Argentina, British Guiana, Costa Rica, and the United States. The study of this new treatment of leprosy was started at the U. S. Marine Hospital in Carville, Louisiana, by the U. S. Public Health Service. The Medical Officer in Charge, Dr. G. H. Faget, was officially recognized as the pioneer of the sulfone therapists. He was given credit for being the first to report upon the value of promin and diasone; and so far the sole experience with the newest of this group, promizole, has been obtained among the patients at the Carville Leprosarium under his direction.

It is gratifying that many of the chaulmoograists, having had no previous experience with the sulfone medication, acknowledged their demonstrated favorable therapeutic action in the lepromatous form of the disease. They were no doubt able to arrive at this decision after seeing the photographic exhibit of the Carville Leprosarium on the subject. These kodachrome photographs of patients before and after treatment with promin, diasone, and promizole were undeniable evidence in favor of these remedial drugs. This exhibit, in addition to the photographs projected on the screen by some of the leprologists who read papers on the subject, carried more weight than the spoken words. Especially true is this because the theses were read in four languages, Portuguese, Spanish, English, and French, and many of the delegates were not conversant with all four languages.

Covering the entire Conference, I personally feel, and I think this feeling is shared by the other United States delegates, that the Second Pan-American Conference on Leprosy was of extreme importance to all of the countries represented there by their leprologists. Friendships were established among the delegates and views were exchanged between these scientific men from neighboring countries which will be profitable to all. A spirit of good-will and of mutual cooperation prevailed. Each of the representatives of the various countries brought valuable contributions and each gained

profitable knowledge to return home with and to spread to others in their country who are interested in this world-wide problem. There is no doubt that the United States delegates contributed their share to the success of the meeting and are bringing back just evaluations of the wonderful scientific progress being made by the medical profession in the neighboring South and Central American republics and in the West Indies. The work towards the eradication of leprosy is especially outstanding in Brazil.

The Second Pan-American Anti-Leprotic Conference was a step forward on the road towards the alleviation of the sufferers of leprosy. It is a fitting prelude to the next International Leprosy Conference which is proposed to be held in Havana, Cuba, in April, 1948.

The Second Pan-American Conference on Leprosy has opened the door to new avenues in the therapeutic field which encourages further researches both in the re-evaluation of chaulmoogra oil and its derivatives and especially in the establishment of the sulfone drugs on a permanent basis as a true remedy for leprosy. For the leprosy patients, this Conference has signalled a brilliant advance for their welfare. It has renewed their hopes for the successful treatment of their dreaded disease. Let us pray that this progress will continue and lead to the ultimate goal: that many patients, at present in segregation, may be restored to health and returned home henceforth to live a useful life in their community.

The visiting delegates were invited to visit leprosariums and preventoriums in the states of Rio de Janeiro, Minas Gerais, and São Paulo. There are 21 states in Brazil and each one has at least one leprosarium, a few have from 2 to 5. There are 20,500 patients in isolation. In speaking to various Brazilian leprologists, I have been informed that there are between 40,000 and 50,000 cases of leprosy in Brazil. One outstanding leprologist said that in his opinion a complete survey would probably reveal close to 100,000.

I was one of the American delegates who visited the National Anti-Leprosy Service in Rio de Janeiro which is the central office for all Brazil. There statistical data on all cases are tabulated and filed by a very efficient punch-card system. It is felt that this organization has a tremendous job to do and that it is doing it well. It is an important department for systematizing and solving the serious problem which this disease poses to the health and welfare of the general population of this great country.

The American delegates also visited some of the leprosaria in the states of Rio de Janeiro and São Paulo. Personally, I was impressed with the well-organized and capably administered one

which I visited. The patients, on a whole, seemed satisfied with their professional care, their comfortable quarters, and the part they played in the administration of their own welfare in this institution. The spirit of hope radiated in their faces and in their speeches when the new sulfone drugs were mentioned.

In conclusion I wish to say that I personally feel that in the therapeutic field we are in a transitional period. It seems that chaulmoogra oil will gradually be abandoned as an inadequate remedy for leprosy. The sulfone drugs will temporarily replace chaulmoogra. If further studies substantiate the good results thus far obtained, and there is every reason that they will, the sulfones will be adopted everywhere as the new treatment of leprosy. They will be recognized as the best remedies until better ones are discovered, if such is the case. Let us hope so—for a true specific would solve the leprosy problem since it would be a more effective prophylactic measure than segregation.

— G. H. Faget.

TWELFTH PAN-AMERICAN SANITARY CONFERENCE,
CARACAS, VENEZUELA,

January 12th to 24th, 1947.

Important and far-reaching decisions were reached by this Conference: Dr. Fred L. Soper of the Rockefeller Foundation, who has had long experience in Latin America, was elected Director of the Pan-American Sanitary Bureau, succeeding Dr. Hugh S. Cumming, who was elected Director Emeritus; principles of relationship with the World Health Organization were agreed upon, and a broad plan of reorganization of the Pan-American Sanitary Organization was accepted. The old organization comprised a conference of delegates from all American Republics, meeting once in four years; a Directing Council, elected every four years by the Conference, and including representatives of seven Republics and the Director, Vice-Director, and two counsellors of the Bureau; and the Pan-American Sanitary Bureau which, although not designated as such, was the secretariat. The new organization has four parts: the Conference which is to continue unchanged, except that provision for membership of Canada is made; a Directing Council consisting of delegates from each member of the Conference and which is to meet at least once annually; an executive committee of representatives of seven members appointed for terms of three years, and which must meet at least once every six months; and the Pan-American Sanitary Bureau. When the Agreement between the World Health Organization and the Pan-American Sanitary Or-

ganization is consummated, the Directing Council will function as the Regional Committee of W.H.O. for the Americas.

At the Conference there was a strong movement towards broadening the work of the Bureau, especially in the direction of promoting health insurance, improved hospitals and other facilities, and other matters of great socio-medical importance.

Special committees of the Conference reported on tuberculosis, venereal diseases, zoonoses, food and drugs, organization of public health services, and on health aspects of post-war migration.

The Second Pan-American Conference on Health Education was held concurrently.

8 HIGH LIGHTS OF WARTIME CULION *

H. WINDSOR WADE, M.D.
Palawan, Culion, The Philippines
Medical Director, Leonard Wood Memorial
Editor, The International Journal of Leprosy

When, on the morning of Monday, December 8th, 1941—not, in this part of the world, Sunday, December 7th—the appalling news came over the air that the Japanese had struck at Pearl Harbor, and then that they had attacked the Philippines, Culion was ill-prepared for the emergency, materially or otherwise. True, the administrator had had the foresight to procure an unusually large stock of rice, the one indispensable item of the dietary, but there was no extraordinary stock of other supplies. Cut off from Manila except by radio telegraph, the colony was—supposedly temporarily—in charge of one of the staff who, though a man of good will, was inexperienced in administration.

Immediately, though as a medical institution Culion should have been classified as an “open,” non-combative community, it was subjected to the same orders as the rest of the country. Volunteer Guards, nervously patrolling the place at night; black-out, for which preparations had not been made; air-raid alarms, sounded off whenever a plane was seen in the distance; and most absurd of all, the organization of all firearm holders to resist parachutes—as if, should the Japanese desire to occupy this non-strategic place, they would not simply land from the sea. That order led to some strange antics, including the carrying of a weirdly miscellaneous collection of firearms by doctors, nurses, and others between their posts in the colony proper and their homes in Balala, the “sano” reservation; but fortunately that silly business was abandoned before the first planes looked the place over closely early in January 1942, so there was no popping off at them and no reprisal strafing.

After that the main concern was food. Though at first the patients would agree to only a slight reduction of the rice issue, it soon had to be cut to less than one half. This was a bare existence level, especially since

* Published with Permission of the Editor of *The Star*, Carville, La., U.S.A 6 (1946) No. 2 1-3.

various other foodstuffs, including fish, were even scarcer, and many things, including sugar, were non-existent.

The patients began to abscond, precariously in small boats, and because of the desperate uncertainty of the future, that was tolerated; in fact, emergency passes were given the evacuees to regularize their status. Evacuation was stoppd temporarily by peremptory orders from the USAFFE authorities in the Visayas (the Central Philippines), but it was resumed after the Japanese got full control. A full thousand of the most active and enterprising left that way—some hundreds of them to show up later at other leprosaria, rejected by their people.

A small shipment of rice having been obtained by sailboat from Antique, Panay, three of us went over there in February to arrange for more. That trip was made interesting by, among other things, the chance of meeting up with Japanese planes or American submarines, and the mission was made difficult by problems of finance. However, the authorities in control of Iloilo and Cebu, cordially helpful, dispatched two small ships with supplies. Neither of them got here because of action of Japanese planes. One of them was attacked and scuttled by its crew only 12 miles away, and largely by diving a material part of its cargo—mainly fuel oil for the power plant—was salvaged; the rest was looted. The bulk of the foodstuffs arranged for was to come by sailboat, but because of non-cooperation between local officials in Panay none of that had been sent when the Japanese occupied that region in the middle of April.

In the meantime, at the end of February, a destroyer had visited Culion, and we Americans—Leonard Wood Memorial personnel, guest workers here—had prepared to be taken away; they only took, from the post-office, the equipment upon which communication with the outside depended. Actual occupation of our region, the Calamianes group on the China Sea, occurred in May, when a small military detachment with some 300 Filipino laborers was landed at Coron, about 15 miles away on Busuanga Island, to re-open the manganese mines there. An order was promptly sent to Culion that all firearms and any Americans or British here should be delivered at Coron on a certain day. The acting chief wangled paroles for us Americans, and we were allowed to stay essentially unmolested to the end, though our position was so precarious that the whole period was distinctly trying. No interest was taken in the foreign ecclesiastics at first, but they were taken away during a general round-up of missionaries in 1944.

A second period of tension began in September 1942 when the miners on Busuanga revolted, killed all the Japanese they could reach, and became "guerrillas." They caused some apprehension here, because of danger of reprisals, by repeated visits and demands for blankets, guns, ammunitions, and dynamite to use on bridges. The Japanese sent a real military force to Busuanga to clean up, and a few of the revolters were killed—and some 200 innocent Busuanga people, men, women and children. When this clean-up contingent first visited Culion, most of the Balala people decamped, but were not harmed. They were strictly ordered not to run on such occasions, for running was held to indicate guilt of some sort, and they were advised that the houses of friendly people should be marked by white flags—which, naturally, all houses showed thereafter. Even in the colony proper though the Japanese, deathly afraid of leprosy, never molested the patients. Soon the general policy of conciliation was applied in this region, and Culion settled down to a period of peaceful relations with the Japanese at Coron.

Culion itself was never "occupied," only visited from time to time, and no food was ever taken and little of other supplies.

As for food, in June 1942 the acting chief went to Manila and returned with a shipment of rice and some other things. Later he went there to stay, and continued to send such supplies as he could procure as long as shipping continued. Though one Culion-bound ship was torpedoed by an American submarine, enough rice came to maintain the emergency ration until early in 1944. Of other foodstuffs there was relatively little, and of medical supplies very little except for some quinine, Japanese booty from Java. An institution like this, the cases mostly advanced, with almost no soap or materials for dressings—and of course no replenishment of clothing—is better imagined than experienced.

The main preoccupation of nearly everyone was to get food to eke out the ration. As many patients as could, and almost all of the sanos, cultivated upland rice on hillside slashes; and in the periods of special shortage between crops the latter gathered from the jungles a wild tuber that can be eaten after the poison is soaked out; the patients eschewed it because they found it to induce reaction. Through the whole period many patients went abroad, to Busuanga and to northern Palawan, begging and bartering (mostly with clothing, not disinfected), creating a contact situation that was deplorable but unpreventable—though it was effectively stopped for Busuanga in 1944 when a Japanese patrol summarily executed three of our patients on the beach where they had found them.

No rice could be spared by the Manila authorities after 1943, and in 1944 they sent only some whole corn, and a lot of moldy dried native sweet potatoes. Nothing whatever could have been sent after American planes first attacked the shipping in Manila Bay in September. That was the bad year, during which practically one-third of the remaining patients died, malnutrition having aggravated the primary disease and secondary affections. Then, too, malaria had become rampant among all elements of the community.

The war came actively, and most excitingly, to this region four days after the first attack at Manila, when some 50 carrier-borne planes destroyed over twenty of the ships that had taken refuge in these waters. Shortly after the Leyte landing in October the Japanese crippled the power plant—which had been run 1½ hours each evening until then—because they knew we were getting news from a radio receiver operated clandestinely by a couple of the patients; after that we had only rumors. One of the physicians indiscreetly wrote a friend in Manila about our air raid, and in January 1945 the letter fell into the hands of the Japanese, who by that time were desperate. He was taken to Coron and executed without formality.

That startling event, followed by the decamping of the other doctors, except the then acting chief, together with dangerous antics of certain ill-balanced individuals who had no responsibility for the welfare of the place and the carrying of tales by a certain traitorous element, gave rise to a state of tension beyond description. The situation was so desperate that a member of our Memorial staff took the risk of making contact with a sailboat bound for Cuyo Island, where an American force was building an air strip, to appeal for relief.

That effort resulted in the coming of PBV amphibian planes of the

Fifth Air Forces early in February to evacuate us Americans. At Leyte, thanks to the chance that ex-Vice Governor Hayden was there in an influential position, steps were taken that led, first, to relief from the Japanese menace, by P-T boats of the Navy, and finally to the sending of supplies by the Eighth Army. The first lot was dropped by parachute late in March, just in time to prevent actual starvation of the helpless hospitalized patients. After that, ample relief was supplied by the Army until the Commonwealth Government took over the responsibility in September. The parachutes—only 150 of them—were used for clothing. Some Red Cross clothing was sent from Leyte, and more of it from Manila.

Culion, once the largest colony in the world, with nearly 5,000 in 1941, had less than 2,000 on liberation—less now, a year later—and the plant was—and is—seriously deteriorated. Much the same happened in the other leprosaria. The total patient population, including Culion, was reduced from 8,500 to about 2,500. Since liberation very many who had gone out, and not a few others, have presented themselves at the provincial stations, so that in May, 1946, the total was up to over 4,600, with more coming constantly. Since the cost of food now averages five times or more what it was before the war, the expense of taking care of even that many, with ration issues still far below the pre-war level, is causing the authorities much concern.

H. W. Wade.

ATLAS OF LEPROSY

By D. C. DANIELSEN and C. W. BOECK.

This atlas was first published along with their treatise on leprosy by the authors in 1847. The original was in Norwegian, but a French edition was published the next year. The original atlas was in color; the present is in black and white, there being twenty-four beautifully reproduced large plates with clinical and pathological illustrations.

Every physician interested in leprosy should have a copy of this famous atlas, and it should certainly be on the shelves of all medical libraries.

Dr. H. C. Souza-Araujo, of the Instituto Oswaldo Cruz, Rio de Janeiro, has celebrated the Centenary of this famous work by re-editing the French edition in honor of authors who were the founders of modern leprosy. He has generously asked that the profits from the sale be devoted to the International Leprosy Association and the re-organization of the International Journal of Leprosy, published for many years in Manila. He asks that the price of copies ordered from him in Brazil be forwarded to the Secretary-Treasury of the International Leprosy Association, 167 Victoria Street, London, S. W. 1. The atlas is inexpensive: \$4.00 or £1.