# REVIEWS

## The South American Classification of Leprosy.

Even before the International Leprosy Congress held at Cairo in 1938, and persistently ever since, the S. American leprologists have been busy trying to work out a more consistent and satisfactory classification which they hope to have ready to put forward at the next International Congress. They have adopted what has come to be known as the South American (S.A. for short) Classification, dividing cases basally into Lepromatous and Tuberculoid which are spoken of as the "polar forms," and an intermediate form commonly known as "Uncharacteristic." This nomenclature has the advantage of being consistent, both the polar forms being named from the histopathological structure of their lesions, while the topographical terms "Cutaneous," "Neural" and "Neurocutaneous" are reserved for sub-classes of each of the basal forms.

The whole matter is very fully discussed in the *Revista Brasileira de Leprologia* (Sept. 1945). Unfortunately few interested in the subject in other parts of the world understand Portuguese, and we have therefore prepared an abstract and condensation of this interesting and valuable discussion.

The debate is initiated by a paper from Dr. de Souza-Lima, who is afterwards referred to as the "Relator."

*Fundamental Forms.* He begins by discussing the Fundamental or Basal Forms which are divided according to three factors, clinical, structural and immuno-biological, the last of these being the whole defence mechanism of the individual. (In later discussion bacterioscopic examination is also mentioned as a fourth principle.)

He expresses the opinion that the Lepromin or Mitsuda Reaction (M.R. for short) has been given too much credit in distinguishing the two basal forms, as he has found it positive in

only 70% of tuberculoid cases even when doubtful and weakly positive reactions were included. He has also found that in some cases the reaction varies from time to time and that the M.R. is of no significance in the uncharacteristic form. The M.R. should not be unconditionally included as a basic principle in dividing the fundamental forms or given a higher place than clinical and histological examination.

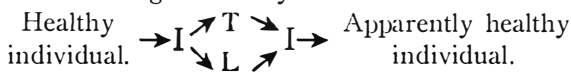
The other doctors taking part, however, took a more favourable view of the M.R. and regarded it as the most useful factor in separating the polar forms. Dr. Rotberg considered that of the four factors used in classification priority should be given to one or other in each form of the disease, such as clinical and histological in the lepromatous form, and immunological where biopsy was not possible, as in the nerves and internal organs. Dr. Fernandez considered that a purified and standard antigen should be used for the M.R., and that the 20 or 30 per cent of negatives and the variations when the test was repeated, were partly due to faulty technique. Dr. Schujman stated that, though in a certain case the M.R. might vary up and down at various times, a definitely positive reaction never became negative. In reacting tuberculoid cases the M.R. tended to become weak. He held that the M.R. should be counted negative only if at the end of 21 days there was no sign of reaction at the point of inoculation, and even the presence of a 5 mm. papule was of importance.

The general opinion was that the M.R. should be retained as an important factor for classification until supplanted by a better immunobiological test, and that it should be further studied and improved. The different forms of leprosy are dependent on the resistance of whatever nature put up by the patient, and therefore a test of resistance is of fundamental value, and the M.R. is the only such test that we have at present.

*Bacterioscopic Index.* The finding or not finding of bacilli in routine bacteriological examination has been regarded as one of the criteria in classifying the tuberculoid form. The Relator finds negative results in only 80% of cases of this form, and not in 95% as formerly calculated. Dr. Campo finds 20% of tuberculoid cases positive and 50% of the uncharacteristic form. The Sao Paulo doctors voted for keeping the present indexes and, to avoid mistakes, to distinguish between reacting and non-reacting tuberculoids, as it is in the former of these that the great majority of bacteriologically positive cases of this form occur. Dr. de Souza found among 1,000 cases with tuberculoid histology, but not reacting, 16% were positive bacteriologically and 84% negative, while of 176 reacting tuberculoids 77% were positive and 23% negative.

In doubtful cases with bacilli found present a positive M.R. should indicate the tuberculoid form.

*The name "Uncharacteristic."* It was debated as to whether this name should be applied to the interpolar form of the disease, or a more suitable nomenclature could be devised. In this form there is present in the lesions as a rule neither the vacuolated cell full of bacilli and characteristic of the lepromatous form, nor yet the follicles with their epithelioid and giant cells characteristic of the tuberculoid form. And yet occasionally one or other or even both of these structural pictures may be present to a slight extent. The reason is that the uncharacteristic form is one of transition. It is found in the initial stage, when the polar form for which it is heading is still in evolution, and in the residual stage when the characteristic lesions are in course of resolution. It is also claimed by the Relator that it sometimes forms a stage in the passage from the one polar form to the other. Indeed it has been suggested that with the exception of definite small tuberculoid lesions appearing in childhood most cases of both forms pass through this uncharacteristic stage. The term "transitional" has accordingly been suggested as an alternative title, and this concept is illustrated diagramatically:




Another suggestion put forward is to use the term "simple inflammatory" because of the round cell infiltration common to many other kinds of chronic inflammation.

In the opinion of Dr. Schujman the M.R. is a most valuable guide in the uncharacteristic form in determining toward which of the two polar forms it is moving. He says:

"I consider that the Mitsuda reaction can guide us in the great majority of uncharacteristic cases. For example, the uncharacteristic residual lesions with a weakly positive M.R. can with little difficulty be placed among tuberculoids. The real difficulty is the initial uncharacteristic cases. I think from my long experience that the Mitsuda test makes these clear also. We have, for example, cases which histologically are uncharacteristic, but have a Mitsuda test which is definitely but less than frankly positive. We know perfectly well that the intensity of the response of the organism to infection or experimental inoculation depends on the basic factor of the quantity of the organisms inoculated. Lepromatous cases with practically no resistance to M.leprae show no response to M.leprae in spite of the enormous numbers of organisms injected in 0.1 cc. of Mitsuda antigen. Most tuberculoid cases on the other hand, having high resistance, react to even a small quantity of bacilli and form definite lesions; and with more bacilli, as in the Mitsuda Reaction, produce an ulcerating nodule. The uncharacteristic cases with a medium resistance are clinically and histologically indefinite, are infected locally with a few bacilli and give with Mitsuda's antigen a small papule of 3 to 5 mm., indicating that they have *some* organic defence power.

"To mention other cases, we have seen uncharacteristic forms with a positive Mitsuda reaction where the lesions eventually become tuberculoid, the reaction becoming stronger at this stage, and others with frankly and persistently negative reactions which becomes lepromatous.

"As to the difficulty offered by uncharacteristic nerve cases without skin lesions which would serve as a guide, in these we attribute great value to the guidance of the Mitsuda Reaction. Although there may be many accessible nerves we consider it cruel to do a biopsy of the nerve for the sake of classification. In fact in my own experience an uncharacteristic nerve case with a positive Mitsuda reaction is always tuberculoid (or better an allergic) neural case, and a similar one with a negative reaction is a lepromatous (anergic) neural case. One of my own patients illustrates this point. He presented himself with pure nerve manifestations (anaesthesia, atrophy, thickening of the ulnars) and the M.R. frankly negative on the 21st day on three occasions. A biopsy of the ulnar showed typical leproma of the nerve with abundant bacilli. Thus the Mitsuda reaction had acted as a clear guide.

"I agree with the cycle of evolution described by the Relator. I think that lepromatous forms generally present uncharacteristic forms for a long time to begin with, but the Mitsuda test is definitely and persistently negative. Later they become clinically and histologically lepromatous. Our tuberculoids may have a primary period with uncharacteristic lesions but, given high organic resistance, the organism responds quickly to the infection producing characteristic lesions. Thus the uncharacteristic period is so short that it may not be noticed by the patient or doctor. The period of uncharacteristic residual lesions that precedes apparent cure calls for attention, as the immunobiological reactions are definitely if not frankly positive both in post-tuberculoids and ex-lepromatous cases. However, it is impossible for a change to take place from one polar form into the other—a tuberculoid into a typical lepromatous (the invading form with invasion of the eyes, nose, glands and viscera)—nor in hundreds of cases seen during ten years have we seen this occur. I hold, however, that a small number of lepromatous cases after many years may lose their typical lesions and develop residual, red atrophic lesions of tuberculoid structure, but I question if the Mitsuda reaction is ever changed from negative to frankly positive."

Other doctors taking part in the debate considered that in the primary classification of pure nerve cases, that is to say cases with affected peripheral nerves but no signs of skin lesions, the history of clinical progress as well as the M.R. should be used and, when necessary, histological examination.

*Phenomena of Mutation.* Should these be used in making the classification? Not only do cases differ from one another at the time of classification, but they vary in their direction and speed of transformation, evolution and resolution. Should this form a fifth factor in the classification? There was unanimous agreement that this would require a lengthy period of observation and still further complicate what is already very difficult. The majority of those taking part in the discussion seemed to be of the opinion that they had never seen a definite tuberculoid case become changed into a lepromatous case, though very occasionally a change might take place in the opposite direction.

*Classification of border-line and relapsing cases.* Several doctors considered that these should be placed under reacting tuberculoids, others that two kinds have to be distinguished: the reacting tuberculoid and the "border-line" cases of Wade and Rodriguez, which have also been described as "intermediate" between tuberculoid and lepromatous.

Dr. de Souza, a histo-pathologist, gave a form of sub-classification without the aid of the M.S., but which he has found of much practical value:

| *Clinical Form.* | *Histopathology.* | *Bacterioscopy.* |
|---|---|---|
| Lepromatous. | 1. Leproma. | ++++ |
| | 2. Lepromatous infiltration. | ++ to ++++ |
| | 3. Resolving lepromatous. | — to ++++ |
| | 4. Lepromatous with reaction. | ++ to ++++ |
| Uncharacteristic. | 5. Chronic inflammatory infiltration with vacuolated cells containing bacilli. | + |
| | 6. Chronic inflammatory infiltration without characteristic histology. | + |
| | 7. Ditto. | — |
| | 8. Atrophy of the skin. | + |
| | 9. Ditto. | — |
| | 10. Follicular structure (Wade's pre-giant-cell stage). | + |
| Tuberculoid. | 11. Ditto. | — |
| | 12. Granuloma with tuberculoid structure. | + |
| | 13. Ditto. | — |
| | 14. Reacting tuberculoid. | + to +++ |
| | 15. Ditto. | — |

This well-organised symposium should, where possible, be studied in the original. It has behind it a vast amount of hard work and careful thought and should be of great value in advancing our knowledge of this very obscure subject.

**Leprosy in India,** Vol. XVIII, No. 1, Jan. 1946.

An editorial deals with the question of superinfection and whether a neural case is likely to get fresh lesions from contact with a lepromatous case, also whether such contact is likely to change a neural into a lepromatous case. Reference is made to experiments by de Langen, Rao and Tisseuil all of whom inoculated with lepra bacilli people with existing leprosy. The conclusion arrived at is that:

"We can therefore say that although the question of super-infection in neural cases by close contact with lepromatous cases cannot be ruled out, it is not of much practical importance, since it is not a common occurrence. Moreover, even in cases where such a thing takes place, it is not likely to result in the change of the disease from the neural to the lepromatous type. However, from other points of view, it may be desirable to keep highly infectious lepromatous cases separate from the neural cases."

[We agree with this verdict in the particular case quoted, but the question of superinfection of a child by living in close contact with,

say, an infectious mother is a very different one. In such circumstances the possibility of resistance may be pierced or overcome before it has time to develop. Also great care should be taken in institutions to prevent close and frequent contact between severe infectious cases and young children with slight lesions.]

The question of revised legislation for leprosy in India is discussed. Confidential notification of infectious cases was recommended by a committee of the Central Advisory Board of Health, and power to isolate infectious cases which are a danger to the community. The following objections to this were, however, taken: the enormous number of cases, the difficulty of an ordinary medical man differentiating an infectious from a non-infectious case. In Madras the Public Health Act has the following provision "that a rural area could be declared 'an area under segregation'; in such declared areas facilities will be provided for the isolation of open cases, and they will be asked to isolate themselves. In these areas open cases who persistently refuse to isolate themselves would be forced to do so in the centres provided for the purpose. Such provisions exist for towns also. The underlying principle for compulsion in this Act is that whereas compulsion unrelated to the availability of provision for isolation is not to be advocated in areas where leprosy is an important endemic disease, places for isolation should be maintained by local authorities, and open cases of leprosy, persistently refusing to isolate themselves in these centres, should be isolated there under compulsion, in the interest of the general population of that area."

*Leprosy of the Upper Respiratory Passage,* by M. N. Prabhu.

"All patients who attend the Silver Jubilee Leprosy Clinic are first examined and classified by the medical officer in charge, and such of those who have lesions in the upper respiratory tract are examined, and all the routine examinations of an otolaryngological service are carried out and findings recorded.

"The scope of the work has now been extended to contacts and suspicious cases also. It is also proposed to carry out such operations as tonsillectomy in properly indicated cases of contacts, and examine these tonsils for evidence of Hansen's bacillus or lepromatous infiltration by appropriate methods.

P. J. Chandy writes on *The Problem of the Discharged Patient.*

"The solution which I propose for this problem is to start and maintain near each institution an industrial and agricultural settlement which will ultimately become self-supporting. While we cannot expect a group of leper patients to maintain an institution for themselves, on a completely self-supporting basis, it is not too much to expect a group of able-bodied discharged patients to be able to do so. If suitable land is acquired, and the initial outlay on site development, erection of houses, digging of wells, purchase of bullocks, agricultural and industrial machinery, be raised by the government and the public, the settlement may be made to support itself."