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EDITORIALS

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THE CLASSIFICATION OF LEPROSY

The question of the classification of leprosy will, in all probability, be brought up for discussion at the conference to be held in Cairo next March; and, in view of the problems involved, it undoubtedly will be one of the most important of the subjects to be dealt with. Proposals will doubtless be made to revise the classification formula adopted by the Leonard Wood Memorial Conference on Leprosy in 1931—often referred to as the Manila classification—and perhaps even to discard it for some other one. Because of the difficulties involved in the consideration of any such matter by a large group in a short time, the whole question should be given careful preliminary study.

Since the classification in question was published[1] a great deal of attention has been given the subject. That formula has been widely adopted and in practice has proved useful for the purpose for which it was devised, and it has also served to focus attention on the problems involved. Criticisms of it have appeared, however, proposals to modify it have been made, and completely different systems have been proposed. The criticisms referred to, which will be examined first, have for the most part been concerned with the

[1]REPORT OF THE LEONARD WOOD MEMORIAL CONFERENCE ON LEPROSY. *Philippine Jour. Sci.* **44** (1931) 449–480; reprinted in THE JOURNAL **2** (1934) 329–356.

basis on which the main division into "types" is made, the names adopted for these types, and the position of the form commonly known as "tuberculoid leprosy."

The first complaint came from S. N. Chatterji,[2] of the Calcutta clinic, who evidenced dissatisfaction because the basis of the classification was not bacteriological, but Muir remarked[3] that the new system was in line with accepted methods used in other diseases. Dubois and Dupont[4] believe that if only one criterion were to be employed it should be the bacteriological one. It seems entirely probable that in the hand of persons incapable of employing more than one criterion, that one would give the least high percentage of error, but sometimes bacteriological findings have to be evaluated with discretion. Replying to the comment[5] that the new classification is based primarily on clinical grounds—as, it may be argued, any practical system must be—Chatterji[6] asserted that were it strictly clinical, it would not take into consideration either bacteriological or pathological features, but Muir[7] pointed out that such features may very properly be taken into account in a clinical classification. Dubois and Dupont,[4] though they adhere to the principle of the Manila classification, have a comparable criticism of it, holding that one of its weaknesses is that it involves the histological nature of the lesions, whereas it is not possible to make that examination in all cases—an idea of the requirements of the system which is certainly not a common one. Discussion of the most recent criticism is deferred for the moment.

With regard to terminology, the names of the types, "neural" and "cutaneous," have been accepted without trouble by many, but have given trouble to others. It has been taken that they carry the implication that lesions of the skin should not occur in the neural type, and vice versa, an idea not discouraged by substitution of the terms "nerve leprosy" and "skin leprosy" for those adopted by the conference. It seems particularly difficult for some workers to accept the idea that there can be neural-type cases without polyneuritic manifestations (to use the very useful term applied by neurologists[8] to the sensory, nutritional and trophic changes dependent upon lesions

[2]Chatterji, S. N. *Lep. in India* **3** (1931) 142–146.
[3][Editorial.] *Lep. in India* **4** (1932) 51.
[4]Dubois, A. and Dupont, A. *Bull. Inst. Roy. Colon. Belge* **7** (1936) 549–572.
[5]Wade, H. W. *Lep. in India* **4** (1932) 55–60.
[6]Chatterji, S. N. *Lep. in India* **4** (1932) 173–177.
[7][Editorial.] *Lep. in India* **4** (1932) 169.
[8]Monrad-Krohn, G. H. The Neurological Aspects of Leprosy. Christiania 1923.

of the peripheral nerve trunk), that the only evident nerve change may be macular anesthesia, which is the other of the two main forms of nerve disturbance. This matter of the names has been discussed repeatedly[9] and need not be gone into here beyond saying, first, that the difficulties result from the application of the literal sense of the terms used, rather than the broader, special ones obviously involved in their use as type names; and, second, that no other terms that have been employed for the purpose are free from similar objections unless "benign" and "malignant," sometimes applied informally, should be adopted for formal use. Consolation may perhaps be found in the remark, made by Stokes and Garner[10] in another connection, that one of the best evidences of flux in a field of knowledge is confusion in terminology and controversy over names.

By far the most serious difficulty with the Memorial Conference classification, but one very easy of solution, has been with regard to the placing of the "tuberculoid" form of the disease. That form was not discussed by the conference, though it is common in both India and Japan, where the question concerning it arose immediately. Unfortunately the definition of the word "leprotic," intended to replace the awkward term "lepromatous," was in the process of adoption made so broad that, strictly applied, it also covers the granulomatous leprides. It is for that reason that the classification has not been adopted in Japan, where tuberculoid cases are classed as "macular leprosy" which, however, is recognized to be of the neural type.[11] Shortly after the conference the writer, defending the new classification, argued, against Mitsuda's insistent objection, that under its terms such cases would have to be classed as cutaneous. Somewhat later Cochrane[12] argued similarly, referring to the "thickened erythematous patch" seen commonly in India, though he stated that doubt had been thrown on the point because of observations by Wade in South Africa which, by that time, had led the latter to accept the view of the Japanese workers.[13] Recognizing the difficulty that had arisen, Muir[7] also arrived at the same conclusion, at least provisionally.

This view has steadily gained ground though as yet many men are uncertain or disagree, as shown by a recent symposium[14] in which

[9][EDITORIAL.] THE JOURNAL **4** (1936) 97 and 364.

[10]STOKES, J. H. AND GARNER, V. C. *American Jour. Med. Sci.* **191** (1936) 566.

[11]HAYASHI, F. THE JOURNAL **3** (1935) 165–180; also 361.

[12]COCHRANE, R. G. *Lep. in India* **4** (1932) 61 (correspondence).

[13]WADE, H. W. *Proc. Roy. Soc. Med.* **25** (1932), Sect. of Dermatol. 47–51; THE JOURNAL **2** (1934) 7–38.

[14][SYMPOSIUM.] THE JOURNAL **4** (1936) 364–375; **5** (1937) 96–99.

only three out of fourteen contributors agreed to the assignment of tuberculoid cases to the neural type, though two others were inclined to do so. But the tendency among those who have specially studied the matter is to accept this view, realizing that the tuberculoid cases, as ordinarily recognized, constitute one extreme of the wide range of clinical varieties that that type comprises. Furthermore, a few writers[15] have reported observations which show that the histological tuberculoid changes are not confined to the condition that is ordinarily so diagnosed clinically, but are found in the whole range of the leprides.

This fault of the Manila classification, however unfortunate, by no means invalidates it. As a matter of fact it is only necessary to consider its spirit rather than the formal letter of it to class the tuberculoid cases properly under it.[16, 17] It is clearly desirable, however, that its terms be modified so as to make the matter clear and unmistakable.

In connection with proposals to revise the classification, such as those of Dubois and Dupont,[4] and of the writer in a forthcoming article,[18] two things are to be understood. One is that it only attempts (*a*) to define the two main types of the disease, and (*b*) to make a general subdivision of them, on the basis of the degree of advancement of the disease. The other point is that under that classification—or, probably, any other systematic one—there is unavoidably a small minority of cases that are either too early and undetermined to be classified definitely, or that are in a borderline or transitional stage between the neural and cutaneous types. Recognizing these facts, the important question is whether the Manila classification should be abandoned for some other one, or whether it can be modified and extended to bring it into conformity with present knowledge of the disease and to meet further needs.

To consider first the matter of subclassification it seems undeniable that the general basis used, though it obviously subgroups the cases in a crude manner, has proved useful in spite of unavoidable differences in judgment of individual workers. It has appealed

[15]MANALANG, C. *Month. Bull. Philippine Health Serv.* **11** (1931) Dec., also *Rev. Filipina Med. y Farm.* **23** (1932) 43. OTA, M. and SATO, S. *La Lepro* **6** (1935) 37 (abstract section), reprinted in THE JOURNAL **5** (1937) 199–202. WADE, H. W. THE JOURNAL **4** (1936) 409–430. WADE, H. W. and RODRIGUEZ, J. N. Idem, **5** (1937) 1–30. WADE, H. W. AND FRASER, N. D. Idem, **5** (1937) 285-308. LOWE, J. (l.c., reference No. 10).

[16]WADE, H. W. THE JOURNAL **3** (1935) 121–136.

[17]LOWE, J. *Lep. in India* **8** (1936) 97–112; reprinted in THE JOURNAL **5** (1937) 181–198.

[18]WADE, H. W. *American Jour. Trop. Med.* **17** (1937) No. 6 (in press).

chiefly to those who are responsible for the care of large numbers of cases, and it seems highly questionable whether any other system that has been proposed would prove as useful from their viewpoint or in the hands of so many workers. It also seems doubtful whether there will be much support from them of Rabello's argument[19] that to divide cases on that basis is "superfluous and unnecessary."

It is readily understandable that the general subclassification may be of less interest to specialists who are chiefly concerned with the precise, scientific study of the disease. They have need of a system whereby to distinguish the varieties, and several attempts have been made to set up such a division. It was in line with that that Lie[20] offered proposals for a combined system in which the neural type is divided to distinguish between cases that have macules (leprides) and those that do not, and subdivided by degrees of advancement of the different elements. The details of his proposal illustrate the complexity that unavoidably results from such a combination.

For practical purposes it is necessary to consider separately the viewpoints of the general worker and of the specialist. For the former, it seems desirable to retain the Memorial Conference system, though perhaps in somewhat more precise form. For those who are studying the disease in detail there can be established another, separate subclassification of clinical varieties within the types. Such workers can, of course, combine the two methods undeterred by the resultant complexity. But at the present time there is a great divergence of views as regards the identification of varieties. If our knowledge is as yet sufficiently precise to permit establishing a generally acceptable subclassification of this sort, it certainly can only be done by an international conference.

To return to the question of the fundamental basis of classification, some writers have rejected entirely that accepted by the Memorial Conference, though it is the classical one that has been in use for nearly a century. The other systems which they have proposed will be considered briefly, but first it seems well to recall that the basis of the Manila classification is that, though leprosy is a general disease and consequently all cases are in a sense mixed (the concept of "pure nerve" and "pure skin" leprosy as types was clearly disavowed), the clinical manifestations, the course of the disease, and the nature of the lesions involved justi-

[19]Rabello, Jr. *Rev. Brasileira Leprol.* **4** (1936) Special No., 375–410; reprinted in The Journal **5** (1937) 343–356.

[20]Lie, H. P. The Journal **4** (1936) 35–44.

fy the distinction of two main types. The differences between the types are pointed out, but no attempt is made to explain them, which would have been beyond the scope of the presentation. The changes due to progression of the disease within a type are dealt with in the subclassification. Changes from one type to another are recognized in the introductory discussion, and the change of a "mixed" case upon clearing up of the cutaneous-type element is dealt with in the definition of "secondary neural" cases.

No less than four other systems of classification have been proposed, in all of which the idea of progression of the disease predominates. Tisseul[21] in a "biological" classification divides leprosy into four periods, they being those of the first external manifestations, of accentuation of the infiltration of lesions, of appearance of subcutaneous nodules, and of sclerosis of cutaneous tissues with nervous or trophic sequelae (nervous period). This division would seem to involve an order of progression in individual cases that very frequently does not occur, and it groups together cases of both of the standard types that are essentially different. Montel[22] would also have (three) progressive stages, theoretically based on considerations of allergy but apparently in application on bacteriological grounds. The first stage is that in which bacilli are hard to find, the second is that in which they are greatly increased and generalized, the third is that of retrogression, with granular and fragmented bacilli. Kuznetzow,[23] characterizing the Manila classification as "morphological and spatial," uses a "dynamic" one in which there are four periods, those of latency, florescence, stability and healing. A division into benign (neural) and malignant (cutaneous) leprosy is made, but only secondarily. This classification is supposed to be based primarily on determinations of the state of the oxidative processes and of the functional condition of the reticulo-endothelial system; apparently its application would require facilities that are not available to most persons dealing with leprosy.

The most recent, detailed and vigorous discussion of the subject is that of Rabello.[19] After tracing the classical type-division historically, he proceeds to attack its "dualistic" basis and with that the Manila classification, which "endeavored to impose a scientifically unacceptable concept." He insists that there is no clear differ-

[21]Tisseul, J. *Bull. Soc. Path. exot.* **26** (1933) 10.

[22]Montel, L. R. *Rev. colon. Méd. et Chirg.* (1933) 1.

[23]Kuznetzow, V. N. *Sovietskiy Vest. Derm.* **9** (1931) 355; The Journal **5** (1937) No. 4 (in press).

entiation between the forms of leprosy and that it is illogical to divide it into "fixed types," and asserts that there is no essential difference between the leprides and the lepromata, between which stand the tuberculoid lesions. His complete disapproval of subclassification on the basis of extent of involvement has been mentioned. As a result of an endeavor to attain a "unitarian clinico-epidemiological" basis of classification he defines four forms: trophoanesthetic (A), tuberculoid (T), macular (M) and lepromatous (L). The first three of these are equivalent to subdivisions of the neural type, the fourth being the great cutaneous class reduced to parity with the others—a division, it appears, which is the same as that used in São Paulo, plus the tuberculoid form.

Because of the importance in present-day leprosy work of the group that presumably he represents, Rabello's contentions and proposals may be expected to receive considerable attention. They must, however, be considered critically, for several questions arise from them. One is whether or not he has an exaggerated idea of the "fixity of types" that is involved in what he calls the "dualistic" concept of leprosy classification. Related to this is the question of whether the two classical types are, in the mass, actually so lacking in clearly distinctive features that their recognition is not justified both scientifically and practically. Is that division invalidated by the universally recognized fact of the mutability of leprosy—the fact that some proportion of cases may change from one variety to another within a type (as one with simple flat macules to the frank tuberculoid condition in the neural type), or from one type to another (referring especially to change from the resistant neural to the relatively non-resistant cutaneous type)? Is it more practical or scientific to discard the primary division into two types and to establish *four* forms, by whatever name, three of which are obviously much more closely related to each other than to the other, which are actually connected by intermediate forms, and which can be distinguished adequately and scientifically as subforms or varieties of one type?

It is hardly possible that anyone really familiar with leprosy can think of it as other than a single, progressive disease that in individual cases presents very marked differences not only in degree of advancement but also in form. Or that they can consider the leprosy universe as other than an unstable one, with a certain proportion of cases too little advanced for the form of the disease to have become determined, and other proportions of cases undergoing change from one form to another. Or that, because of these facts,

they can expect the classification of a case to signify more than its status at a given time, or to carry any obligatory implication regarding its future course. On the other hand it is quite possible under some circumstances for the mutability of the disease to assume an exaggerated importance in one's mind, and for the minority of the cases to obscure the picture of the whole group.

When the matter is viewed broadly, on the basis of large numbers of cases observed over long periods of time, in inpatient institutions as well as in outpatient clinics, and when due weight is given to the proportion of cases in which the disease does not undergo essential change of form, it seems inescapable that recognition must be given to two great groups, or "types," which differ fundamentally in their clinical, bacteriological, pathological and immunological features and as regards prognosis—hence biologically and epidemiologically—however widely the subordinate forms within those types may differ. From this point of view the minority of atypical cases serve merely to blur the edges of the type pictures, but not to throw them entirely out of focus.

The subject of leprosy has become decidedly more complex than it used to seem, and there is much yet to be learned about it, but it seems very doubtful that progress will be served by abandoning at this time the basis of classification that has served well in the past and that has not been proven to be erroneous or misleading. Certainly it is to be expected that as knowledge of the disease as a whole and of the different varieties that it presents becomes precise and accurate, the place of those varieties in its picture will become clear beyond controversy.

H. W. WADE.