

## BOOK REVIEW

**Etudes et recherches sur les mycobacteries. XV. Le *Mycobacterium marianum*** (Penso, 1953). Etude microbiologique, pathogénétique et immunologique. By G. PENSO, N. NOEL, M. BLANC and SR. MARIE SUZANNE. Reprinted from the Rendiconti dell Accademia Nazionale del XL, Series IV, Vol. VIII. Rome, 1957. Paper, 76 pp., with 66 figs. on 37 plates, 23 in color. (Translated from the Italian.)

In the introductory paragraph of this large-paged monograph, it is stated that in 1953, after having studied the morphologic, biologic, pathogenic and immunologic characteristics of the "souche Chauviré," the senior author had determined its specific individuality and had named it *Mycobacterium marianum* in honor of Sister Marie-Suzanne who had cultivated it (which is a different story from the original one from official sources that it was named in honor of the Order of Marist Sisters). The work here dealt with was done in Lyon, Rome, and Cameroun.

There follows a condensed but comprehensive review of the numerous reports of cultivations, from 1887 to 1956, and then a general discussion in which it is pointed out that in spite of all differences a thread runs through the whole thing, leading to the conclusion that in the leprosy tissue there live mycobacteria which can be cultivated. What do they signify? It has been a fundamental error to claim that they were the true bacillus of Hansen. We are very ignorant of that microorganism, except what we can see of it, and proposals which have been made for the identification of its culture, when obtained, are without sound basis.<sup>1</sup> No present culture, therefore, can be called *M. leprae*.

But, from the Philippines to Louisiana, from Italy to Brazil, acid-fast cultures have been obtained many times by many workers. Is their so-frequent presence absolutely without meaning? It would seem that the conditions in the leprosy are favorable for the coexistence of other, cultivable mycobacteria besides the noncultivable Hansen bacillus, and that these other mycobacteria may serve as a concomitant cause of the morbid syndrome observed. "The significance of these germs, their systematic position, their pathogenic power, their nature, are not known, or are incompletely known, or are confused." It was on this basis, not with the idea that it was the leprosy bacillus, that the study of this particular mycobacterium was made.

The bulk of the monograph is devoted to three studies—one microbiologic, one of the pathogenic capacity, and one immunologic. Without attempting to go into details, it may be said that a considerable part of the chapter on immunology is devoted to results of tests with "marinine," a product similar to old tuberculin which is said to have given weaker results in tuberculosis than tuberculin did, but stronger than tuberculin in leprosy (15 cases). In discussing the preventive effect of the marianum vaccine against leprosy infection it is shown that among 2,866 unvaccinated schoolchildren in Cameroun there had been 196 leprosy cases (7.2%), whereas among the 3,331 vaccinated children there had been only 39 cases (1.1%). The curative effect of the vaccine in leprosy is discussed at length, almost entirely on the basis of the work of Blanc, without definite conclusions but with the expressed conviction that it was successful in hundreds of cases—admitting however, that chemotherapy should not be abandoned. The vaccine therapy, by creating immunity, will reinforce chemotherapy.

<sup>1</sup>Nothing is said of Hayashi's suggestion that a culture of the true leprosy bacillus should give the same specifically negative results on intradermal injection in lepromatous patients as lepromin does.

In the final discussion it is asserted that *M. marianum* has specific individuality and is different from any other known species (although there is no evidence of comparison with any of the many other chromogenic acid-fast bacilli that have been isolated from leprosy and other conditions). It should not be placed, as some authors do, in the ill-defined "paratuberculosis" group. That term was introduced more than fifty years ago for the group including the butter, milk, grass (etc.) bacilli which in some respects resembled tubercle bacilli but were not pathogenic; but today it has no significance. There are no "groups" of mycobacteria, only species; but if *M. marianum* had to be assigned to a group it would be the group of pathogenic, parasitic mycobacteria.

One arresting statement is that this species is not a saprophyte because it was isolated from human leprosy tissues. Its cytochemical reactions and virulence also differentiate it from pure saprophytes. As for its relationship to leprosy, with which it has a *rapport* of descent, it was at least a parasite of the tissue from which it was obtained. The question of whether or not it had some responsibility for the disease cannot be answered; nor can it be said that there is a direct relationship with *M. leprae*, although the idea is not dismissed definitely. However, it must have some significance in the pathogenesis of leprosy, "otherwise how can one explain the strong local and general reactions which are obtained on inoculating the marianum antigen into patients with active leprosy?" Earlier, in discussing pathogenicity, it is said that the findings justify the supposition of "a cultivable mycobacterium living in symbiosis with the Hansen bacillus, to which it may even be related genetically, and to which one may attribute at least a part of the leprosy lesions." The discussion ends inconclusively, with alternative possibilities suggested, the last being that the homologous antigen is present in the true Hansen bacillus.

The illustrations, with the numerous and excellently-done color plates, are lavish. The color pictures are of colonies, cultures, and—mostly—bacilli in smears or sections of tissues of the rat, showing conditions which are interpreted as infection—and sometimes seem so, although there are no control specimens from animals similarly inoculated with killed bacilli. Some of the legends are inadequate.

In examining this document and admiring the plates, especially those in color, one cannot but be impressed with the seriousness with which this culture named *Mycobacterium marianum* has been studied, and the labor and money expended. None of the many other acid-fast microorganisms, chromogenic or not, that have been isolated from leprosy lesions has ever received anything like as much attention; which presumably resulted from the unusual circumstances and conditions in which it was cultivated. One can but wonder what other leprosy-derived acid-fast bacilli would have shown, especially with respect to pathogenicity and immunology, had they been studied with similar devotion and expectation.

—H. W. W.