A NOTE ON THE MORPHOLOGICAL CHANGES IN THE MYCOBACTERIUM LEPRAE UNDER SULPHONE THERAPY.

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During repeated examinations of skin smears from patients treated with sulphetrone for one to one and a half years, the change in the morphology of the M. leprae, reported by other workers has been observed. (COCHRANE et al, LOWE and SMITH, 1949).

Two features have been noted, however, which have not received comment, and which, it is submitted, deserve further investigation by more experienced workers.

1. A marked tendency for globi and group masses of bacilli to disintegrate. Smears from the nodules of untreated cases have invariably shown large numbers of globi and smaller groups of

tightly packed bacilli. After periods of six to nine months under sulphetrone therapy, these masses appear less circumscribed, less tightly packed—the contained bacilli showing irregular staining—and less numerous. Such group-masses as are found are on the average smaller. On the other hand, single bacilli, all showing the typical polar staining and granularity, are scattered throughout all fields in very large numbers, so that it is apparent from their arrangement and distribution that some, if not the majority, were formerly members of globi or conglomerate masses of bacilli.

It is generally believed that globi are contained within the cell wall of an effete macrophage, and it is easy to understand that this cell wall will be no barrier to the direct action of sulphone on the bacillus. On the other hand, the dissolution of smaller masses of bacilli seems to point to an interference with the natural tendency to clump, an effect which, if proved, may lead to more definite evidence of the mode of action of sulphones

2. Concomitant with this finding is an apparent increase in the numbers of introcellular bacilli. Assuming that this is not an artefact, a possible explanation is that sulphone in some way modifies the organism so that it can be ingested by macrophages, which are not thereby destroyed but retain their nuclear and cytoplasmic structure, even when they contain large numbers of bacilli. It is not yet known whether such organisms are living or dead.

Nagley and Logg (1949) have reported morphological changes of a similar type in the M. tuberculosis as the result of the exhibition of P.A.S. They found that "battered bacilli" were not viable on culture.

It is suggested that further research will show that a certain change in morphology corresponds to a certain degree of morbidity and the microscopic diagnosis of a dead M. leprae can become possible.

REFERENCES.

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