A NOTE ON THE NUMBERS OF LEPROSY BACILLI WHICH MAY OCCUR IN LEPROUS NODULES

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The preceding paper describes methods for counting leprosy bacilli and presents data on the bacterial content of suspensions prepared from six leprous nodules. The present calculations of the numbers of bacilli in the nodules are based on the usual factors: the area of the microscopic field, the average area covered by the spreads on the slides, the average volume of suspension transferred by the standard loop, the average size of the tissue cubes employed, and on the degree to which the tissues were diluted. The results are expressed as millions of bacilli per cubic centimeter of nodule. Since nodules tend to be more or less rounded, the counts are also calculated as millions of bacilli in nodules of one centimeter diameter. Due to losses of bacilli from slides during staining and to the low tendency of two control counts (Experiments 1 and 2) the estimates in the following table are probably conservative:

Experiment number	Average bacilli per field	Millions of bacilli per cubic centimeter of nodule	Millions of bacilli in a nodule of 1 cm. diameter	Relative numbers of bacilli
4	14.6	646	339	1.0
6	17.8	787	412	1.2
1	28.7	1,269	665	2.0
2	30.3	1,340	702	2.1
5	93.4	4,130	2,164	6.4
3	158.3	7,000	3,668	10.8
Average:		2,529	1,325	

Due to the great range of the counts, the nodules have been arranged in the order of increasing bacterial content and the relative numbers of bacilli indicated. Such figures suggest that lepromins prepared routinely as 5 per cent tissue emulsions may contain widely differing numbers of bacilli and that even approximate standardization in terms of numbers of bacilli would be desirable.

Neither before nor since have bacilli been observed in such enormous numbers as in the nodule of Experiment 3. The patient

who provided this nodule had been hospitalized for five years because of intermittent fever and profuse sweating, headache, and abdominal pain. Aside from a deep ulcer on one foot at the time of admission, he had spent the entire period without a diagnosis of any disease other than leprosy. He showed a diffusely erythematous, leonine face, and suffered from repeated crops of nodules which appeared over almost the entire body. He died three years later of leprous cachexia without complication by lepra reaction or other disease.*

From the results presented, it is apparent that nodules may frequently contain more than a billion bacilli per cubic centimeter and that the total number in a lepromatous individual would require representation in astronomical terms.

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