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THE INOCULABILITY OF LEPROSY.

BY A. H. OHMANN-DUMESNIL.

The question of the manner in which leprosy is transmitted and acquired has always been replete with interest. The discussion on this subject has been an animated one, and many interesting facts have been brought forward in support of the various views advanced. The most ingenious theories have been formulated and altogether a mass of literature produced which seems to have brought us no nearer to the final solution of this complicated question. It is for this reason that I have felt some hesitation in approaching it, yet there is so much that is alluring in connection with the subject that one is unconsciously attracted to it and tempted to give views upon it, albeit they may be anything but convincing in their nature. In fact, all that I have to offer is merely a hint on the subject, with a possible explanation of the view I have taken that leprosy is a true infectious disease and not contagious as that word is known in its ordinary acceptation. In other words, an inoculation of a specific character must take place in order that the disease may be transmitted.

Before doing this, however, I desire to make a general review of the prominent theories which have been advanced, in order that a clearer view may be arrived at in reference to the particular point I desire to lay stress upon. To begin with, we have the two great opposing schools respectively contending for contagion and infection. Among the former are those who bring as their most convincing proof the spread of leprosy in the Sandwich Islands, where it was an unknown malady before the advent of a Chinese leper, who is looked upon as the fons et origo of the terrible scourge which has affected the unfortunate inhabitants of these isles. We are also given the history of the spread of leprosy in ancient times among the Hebrews, and later among the Crusaders, which was so great that lazarettos existed throughout Europe and the strictest isolation which was enforced served to stamp out the dread malady. We are also shown the modern spread of the disease from various foci, the whole mass of evidence being certainly very plausible in support

Presented by the author.

of the theory of transmission by contagion. The claim that children born of lepers will become leprous if they remain with their parents, but will not suffer from the disease if removed early from their progenitors has been apparently demonstrated in numerous instances and still further lends an air of probability to the contagion theory. In fact, the points brought forward in support of this view are certainly strong and would almost prove convincing were they not opposed by others of an equally conclusive character, in favor of infection.

The upholders of the view that leprosy is acquired by infection bring arguments in support of their theory which are chiefly based upon modern bacteriological researches. First of all, however, the contagiousness seems to be refuted by the fact that the superintendents of leper asylums, who have officiated in that capacity for y ears and who have operated time and again upon lepers have not presented any symptoms of the disease. We also know from the travels of Zambaco Pasha that in the Orient the lepers have free intercourse with the non-lepers, and yet the disease does not seem to spread with any degree of rapidity among the latter. In fact, the cases observed seem to be very small in number. In Brittany, France, a number of lepers have been found and no one suspected that such a colony existed. Yet no evidence exists that it ever spread from this focus, a circumstance which should certainly have occurred were the disease contagious, as the affected individuals had free intercourse with those in no wise affected with the disease. We also have the well-observed cases on record wherein the children of lepers have remained with their parents and reached adult life, betraying at no time any of the symptoms of the trouble. They were exposed to all the conditions demanded by contagion and yet the results were negative. We have also a matter of observation at this present day of the free intercourse of lepers with non-lepers in certain hospitals in Europe, as well as in this country, and there is not yet recorded a case wherein the affected individual transmitted his disease to any one of those with whom he came in contact. Finally, there are numerous instances in which a leper and a healthy individual have married and the disease was not acquired by the latter. Were the disease contagious it certainly stands to reason that the latter would acquire it and show some symptoms indicative of its existence. As Buret very pertinently points out, in his forthcoming work

on "Syphilis in the Middle Ages," all the published accounts of the great epidemic of leprosy which reigned at that time go to show that the majority of the afflicted were really suffering from syphilis.

In my opinion, the theory of infection is that which is the more reasonable. Mere contact will not reproduce the disease in an unaffected individual. It requires something more. There must be the introduction of something specific which will lead to the development of the disease. So far as modern research enables us to determine, this something is the lepra bacillus. It is a micro-organism which is sui generis and always found in leprous tissues. It is cultivated with difficulty, it is true, and not being followed by any positive results when inoculated in animals—they being probably immune—we cannot do anything more than speculate upon what the results might be in human beings. For, so far, the very few experimental inoculations made on man have not been sufficiently crucial to permit us to draw any legitimate conclusions. Reasoning from analogy, we would be lead to look upon the inoculation of leprosy as similar to that which occurs in tuberculosis, although by no means as easy a matter. It is this very difficulty of acquiring the trouble by accidental inoculation and the apparently facile manner in which leprosy has spread in some localities which has tended to somewhat confuse the ideas held and has led to the diversity of opinion which has resulted therefrom. I do not presume to say that I am capable of solving this intricate problem, but some of the ideas advanced have led me to the formulation of a few possibilities which might, hypothetically, account for some of the observed facts. Thus, Mr. Jonathan Hutchinson contends that it is in fish-eaters that we find leprosy most prevalent, and he concludes that an exclusive diet of fish is probably the cause. On the other hand, an intermediary host function has been invoked to explain the inoculation by means of the lepra bacillus. That is, the organism must first pass into a host before it can become an active propagator in man. By combining the two it will be seen that a better theory can be formulated. The bacillus first obtains a host, be this a fish, a vegetable, the soil or what not, and then suffers certain morphological changes which render it capable of entering the tissues of man and of multiplying there. After having attained full maturity, the question again suggests itself as to whether it

must not again suffer certain changes before it once more becomes infective.

There is one point upon which we can reasonably be certain, viz., that inoculation will not take place unless the soil be receptive. In other words, there must exist that intangible condition which is known as susceptibility. The best scientific modern accounts will show this in a manner so clear and convincing as to leave no room for reasonable doubt. Some races are peculiarly prone and others seem to be immune. Moreover, certain communities which are practically isolated and living under the same conditions, moral as well as physical and social, seem to retain a susceptibility which dates back as far as the memory of man runneth. But that the inoculation is by any means an easy matter, or that contagion spreads leprosy, I much doubt. I have had occasion to see spontaneous cases in St. Louis and the number has not increased. The cases in France reported by Zambaco do not seem to have created epidemics.

In view of all these circumstances, which I have but hastily sketched, I would conclude as follows:

1. Leprosy is not contagious.
2. It is inoculable in the same manner that tuberculosis is.
3. To effect inoculation an intermediary host function is requisite.
4. In addition, the threatened individual must possess a susceptibility to the disease.
5. There exists no reason for fearing epidemics or pandemics of the disease among the Caucasians outside of the few sporadic cases which will occur now and then, frequently without any adequate cause being apparent.