EDITORIAL.

CHAULMOOGRA TREATMENT OF LEPROSY.

From time immemorial chaulmoogra (now more often called hydnocarpus) oil has been reputed for its beneficial results in the treatment of leprosy. For hundreds of years the oil has been administered orally in India and the powdered seeds have long been given by the Chinese. Since 1909 the esters of chaulmoogra and other preparations as well as the oil itself have been given by injection. Many forms of treatment for leprosy have come and gone, but leprologists have always returned to chaulmoogra as the one drug which gave definite results.

Is this reputation justifiable? If this is doubtful how can the matter be settled definitely?

G. W. McCoy, formerly Medical Director, United States Public Health Service, writing on this subject in 1942* recalls how 25 years ago he had concluded from the study of 16 cases 'that the oil is helpful in cases—perhaps the majority.'

review of this experience . . . after 25 years have elapsed leaves him with the opinion that not enough consideration was given to the natural evolution of leprosy

to improve spontaneously, and to the extreme meagreness of the data, which were insufficient for even the modest conclusion that was drawn! After a quarter of a century he is left 'with the very definite impression that chaulmoogra oil and its derivatives are of doubtful value in the treatment of leprosy.'

McCoy quotes four leprologists who make the following comments respectively: 'In lieu of anything better to offer we deem it necessary to use it.' 'Chaulmoogra oil and its derivatives have not been shown to be of specific value in the treatment of leprosy . . . patients have shown equal improvement under the administration of other oils and esters.' 'In a small percentage it appears to have been of value.' 'I have never noted any unquestionable evidence that ethyl chaulmoograte is of any value in the treatment of leprosy.'

On the other hand, the resolution adopted at the International Leprosy Congress in 1938 stated: 'Hydnocarpus oil and its esters, administered intramuscularly, subcutaneously and intradermally, remain, so far as our present knowledge goes, the most efficacious drugs for the special treatment of leprosy.'

committal phraseology, for the most efficacious may not be able to effect much.

Still there is no doubt that differences of opinion exist among experienced clinicians working in various countries; can we account for these differences?

It is an accepted fact that the resistance of the majority of people to leprosy is high, while that of a small minority is low. In an endemic country individuals in each of these groups are liable to be exposed to infection. Under such exposure subjects with low resistance are more likely to contract leprosy, and leprosy of a severer type, than those with high resistance. Also, the more promiscuous and unhygienic a community is the greater will be the average exposure to infection of the average individual, and the greater the number of cases of leprosy that will occur among the higher resistance group; but the majority of those affected will suffer from the milder type of leprosy, which progresses slowly, is limited in extent and shows a tendency to self-cure. In such a community the lepromatous type rate would be low in proportion to the total cases and in proportion to the tuberculoid type rate.

A doctor working in such an area would be likely to get good results with treatment, as the high resistance of the majority of his patients would help towards recovery. On the other hand, in an endemic community with a better standard of hygiene and whose individuals were more careful to avoid infection, though the total cases of leprosy would be fewer, the lepromatous type rate would be higher and the recovery rate under similar treatment would therefore presumably be lower.

This explanation would at least partly account for the difference in results obtained with chaulmoogra treatment in various countries.

As far as we are aware no really satisfactory test of the efficacy of chaulmoogra in leprosy has yet been carried out. Where it has been attempted the selection of cases has been on a clinical and bacteriological basis. Lepromatous cases have not been distinguished from those with severe (major) tuberculoid lesions. But we now know that the prognosis in the latter is very much more favourable than in the former, and any confusion between the two is bound to vitiate the results. Also there is the limbo of indeterminate cases which are difficult to type on a clinico-bacteriological basis alone as this may fail to give a clear indication of resistance and therefore of prognosis.

Histological examination is often useful in classifying doubtful cases, but we should not rely too much on cytological appearances in making a prognosis.

The most dependable standard of the patient's resistance yet available is the lepromin test, and it is essential in selecting cases

for a reliable therapeutic experiment to combine this test with the clinical and bacteriological examination in order to assess the chance of spontaneous recovery without treatment.

Cases should be selected in which the lepromin test has been found consistently negative at two monthly intervals over a period of at least six months ,and in which both clinical and bacteriological examination have shown that they are of the lepromatous type. Cases with complications such as septic infection and other debilitating conditions should be excluded, and only fairly early uncomplicated cases retained.

As the trial would have to continue over a period of at least two years much would depend on the intellectual and emotional attitude of the patients, on their intelligence, cheerfulness, determination and persistence. That being so it might be difficult to arrange satisfactory controls, and evaluation of improvement might have to be determined without this means of checking the results.

The estimation of results must depend chiefly on a combination of clinical and bacteriological examinations. Clinical signs alone are deceptive, as the subsidence of a temporary reaction, or the supervention of some weakening condition may cause flattening out of lesions and give a false temporary appearance of improvement not confirmed by bacteriological examination. Even when on such examination the case becomes almost or entirely negative, prolonged observation is necessary to ensure that the improvement is permanent.

The most satisfactory confirmation of improvement is when the lepromin test, at first negative, becomes definitely and permanently positive, but this appears to be a very rare occurrence.

Such a trial if carried out as described above would help to establish or demolish the title of chaulmoogra to a specific effect in leprosy, and the test would be even more satisfactory if closely corresponding control cases could be treated at the same time with a bland preparation such as olive oil having slight irritant properties, similar to those of the chaulmoogra oil or derivative used.

It is well known that the intradermal method of injecting chaulmoogra has a marked effect in clearing up chronic tuberculoid lesions. Leprides, which have persisted for months or years without change, or with only slow growth, often disappear rapidly after one or more intradermal infiltrations. But there is no reason to believe that this is due to anything but a mechanical effect and similar results may be obtained by substituting other oils with equal irritating properties. In carrying out the experiment

described above it would therefore be advisable to inject the drug intramuscularly or subcutaneously, as the intradermal route might vitiate the test by its mechanical local effect on lesions.

The chance of being able to carry on this experiment without interruption for as long a period as two years would largely depend on the results obtained. If these were really favourable the patients would find interest and encouragement to persist. If, on the other hand, they failed to make definite sustained progress, they would be likely to become discouraged and give up before this period had elapsed, and their doing so might fairly be taken as an indication of want of success.

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*Chaulmoogra Oil in the Treatment of Leprosy (1942) Public Health Reports, **57**, 1727.