We have received the following further comments on Dr. F. G. Rose's article, " The Curability of Leprosy " published in the October issue.

From Dr. H. W. WADE, Pathologist to the Leonard Wood Memorial for the Eradication of Leprosy.

The article on the " Curability of Leprosy," by Dr. Rose, of British Guiana, is in several respects so interesting that I am happy to accept an invitation to comment on it. This is done necessarily as one whose viewpoint is not primarily clinical, and who has had no connection with actual treatment of cases for ten years.

One is inclined to wish that the title of this report might have been in effect " The Efficacy of Chaulmoogra Treatment of Leprosy " instead of the more general one actually used. One happens to know that there is in press an article with much the same title by Dr. Lie, of Norway, a historical study dealing entirely with curability as seen in patients without such special treatment—a large group of whom Rose hardly more than mentions in passing. The feature of Rose's experience that is of special interest is that chaulmoogra treatment has increased greatly the number of arrested and apparently cured cases. This brings out anew the old but still unanswered question of why it is that such treatment obviously does good—often much good—in some regions, while in others it apparently does not, so that in such places it has come to be looked on with more or less complete scepticism. It is well for leprosy work as a whole that the discouraging results reported, for example, from Hawaii and Basutoland, can at least to some extent be counter-balanced by more encouraging experiences, of which these of Rose are peculiarly outstanding.

The author does not discuss the opinion of some, who are doubtful of the value of special treatment, that the improvement of cases under treatment is due to improved living conditions consequent upon hospitalisation. He does not say what percentage of the cases hospitalised before the treatment period (i.e., before eight years ago) is represented by the 180 cases that became arrested spontaneously, but it would be surprising indeed if it were anything like 47 per cent. That, it may be noted, is the proportion represented by the 179 arrested and quiescent cases out of the 381 that were treated long enough to receive 100 c.c.—a low minimum —of drug. Be that as it may, it would be difficult to explain away the data on deformity, which are probably quite unique. No less than 61 per cent. of the cases becoming arrested and quiescent under treatment are reported as free from deformity, and 70 per cent. of the 142 earlier cases that have attained that stage. In contrast, all of the 180 old, spontaneously arrested cases had deformities. All but four of them had been neural in type; the cutaneous type had very little hope in the pre-treatment days. Separate figures by type for the treated cases would be interesting.

One is much inclined to take wholly amiable issue with Rose with regard to his proposal to apply the term, for example, " arrested with recovery " to cases that have become arrested without deformity—i.e., without paralysis or loss of digits. Several years ago Rose introduced, or at least such is our understanding, the practice of distinguishing among apparently cured cases those that were deformed and those that were not. This was taken up by the Leonard Wood Memorial Conference when it proposed " arrested with deformity " for the old term " burnt-out," and it has seemed entirely satisfactory. It has the advantage over " arrested and recovered " but there is no ambiguity; many use " re-

covered " in quite the same sense that " arrested " is used in the present connection. Further, recovered seems to imply the regaining of something once lost, whereas the undeformed state is more often due to the avoidance of a condition than the recovery from one.

By no means the least interesting feature of Rose's report is the data on relapses. In the first place, the follow-up is exceptional. Of the total of 801 cases dealt with, only 36 were lost to sight; even eliminating the 138 deaths and 16 emigrations, leaving 647 cases, the disappearance rate is only 5.6 per cent. This certainly entitles the author to draw more definite conclusions than is possible in most places. One ventures the remark that, even under circumstances as favorable as those described, the disappearance rate will still be inversely proportional to the energy and persistence of those seeking the patients.

The experience with frequence of relapse in British Guiana is, in part at least, in agreement with that here in the Philippines, though conditions here do not permit such conclusive findings or such satisfactory results. Analyses have shown that, as in British Guiana, relapses are most frequent in the first two years after the patient is first put on the " negative list," and there has been analogous experience as regards insufficiency of treatment after that stage has been reached. That there is at least one country where follow-up and after-treatment are reasonably satisfactory, and that in that country the relapse rate is reasonably low, is indeed encouraging to those who believe that people who have once had active leprosy and who have become cleared up as a result of treatment need not necessarily be looked upon as a leper for ever after, but should be considered and dealt with rather as are those who have recovered from clinical tuberculosis, in whom it is expected as a matter of course that bacilli in a quiescent state may persist indefinitely thereafter.

From Dr. JAMES L. MAXWELL, Medical Adviser to The Mission to Lepers in East Asia.

Our present knowledge on the results of the treatment of leprosy is most satisfactory. Reports which I receive from a number of centres, which include both those where systematic and very haphazard treatment are carried out, are strangely discordant as to results, some enthusiastic, some pessimistic, even from places where the same methods of treatment seem to be employed. This is true as to both of the two main problems.

1. The number of " arrested " cases with complete restoration of function.
2. The percentage of relapses after discharge of such cases.

To deal with these separately :—

(1) The value of chaulmoogra and its derivatives is freely acknowledged from all the places from which I get reports, but there is no general consent as to the form of drug preferred. Some of the most successful workers are entirely satisfied that the whole oil is most effective, but equally confident reports come from others that use the ethyl esters and from some of those who employ the sodium salts. Extraordinarily good results are being secured by some workers by out-patient treatment. I speak of this from personal observation, but best results doubtless come from established colonies. I could mention, however, at least one of these where the results are of the poorest.

Of the value of the drug, there is, in my judgment, no possible doubt, but only if it is combined with other factors of which I should place in order of their importance, the treatment of concomitant diseases, the psychological factor of a belief in the patient's mind of the curability of

his disease, and the acquisition of hygienic habits in relation to food and exercise. The last I regard as of great value, the first two as almost essentials, without which the drug treatment is of comparatively little use. With these three, combined with the drug treatment, there are few cases indeed which will not improve, and there are large settlements in the Far East where, over a period of years, the death-rate has been reduced to two per cent. per annum, though no selection is made in the admission of cases, most of which are advanced.

(2) The problem of relapses is a very serious one, but frankly the number that relapse is smaller than might be expected in view of the very adverse conditions that these people have to meet when they are sent home from a leprosy settlement. They are suspect to their neighbours, they find it difficult to get employment ; their economic position is therefore very bad, food even may be scanty and morale is lost. In the kindred disease of tuberculosis such conditions would make relapse even more frequent than in leprosy.

From Dr. LORNE WHITAKER, Medical Officer, Purulia Leprosy Home and Hospital, India.

Dr. Rose's paper deals with an aspect of the subject of leprosy that is of great interest to everyone treating patients suffering from this disease. We regret that we must state that we are not in a position to compare the figures given in this paper with the results we have obtained in the past years in this district. There are various reasons why we cannot do so.

Purulia is situated in a district where leprosy is quite common. Patients come to the Home for admission from many miles distance. The patients who have been admitted come from numerous districts and consequently when they are discharged as Disease Arrested and do not return we conclude that they remain in that condition since, in spite of repeated requests we often do not hear from them again. In the second place a great number of the patients who attend the out-patient clinics and numerous in-patients, leave before the course of treatment is completed and are lost sight of. Thus any estimate of percentages would be entirely fallacious.

The policy of the institution in the past has been to put a bacteriologically negative case on parole for six months and then to discharge him with instructions to return for periodic examination. We have not been able to carry on with out-patients after treatment because of the great distances from which patients come. We are convinced from our experience that such follow-up treatment would be of value in preventing relapses.

Finally, there are numerous patients, who are sometimes termed " burnt-out," who have no homes to which they may go. These are kept within the Home till they die. Hence these should be classed as Disease Arrested in any estimate of results obtained since active signs of the disease have disappeared.

In view of the above we do not feel justified in doing more than stating that during the past six years 55 patients have been discharged as symptom free. This corresponds to the Arrested and Recovered Class of Dr. Rose. Of these, nine have relapsed. Of the Disease Arrested cases which correspond to Dr. Rose's arrested but not recovered—one has returned as a relapse, with six returning on account of trophic ulcers and other surgical conditions, but no signs of activity. On the basis of these figures, 12.2 per cent. of the cases discharged have relapsed, although

the introductory comments should be kept in mind when this is read.

We do heartily concur in the opinion of Dr. Rose so far as the treatment of children is concerned. Having a Nursery, Healthy Girls' and Healthy Boys' Homes, as well as Observation and Tainted Boys' and Girls' Homes, we have opportunity to watch the progress of treatment. In such patients the response is most heartening.

We feel that Dr. Rose has a much more ideal place in which to work from the point of view of following up his patients. Such work would only be possible here were there a much larger staff and a greatly enlarged medical budget. It does represent an ideal and we appreciate the assurance which his report brings of the results of which we cannot be sure here.

From Dr. L. E. S. SHARP, Medical Officer in Charge of the Leprosy Colony at Bunyoni, Uganda.

You kindly ask me to comment on Dr. Rose's figures and conclusions. The point which strikes me most forcibly is that the article as a whole further tends to confirm the growing volume of opinion, that we have not yet at our disposal the drug we need for treating leprosy.

To select points from his article :—

(1) " Of 647 known cases, 180 are cases which have been spontaneously arrested with deformity, and have not received treatment during the last eight years."

That is to say that 28% of advanced nerve cases became arrested spontaneously.

(2) As regards early cases, it is generally claimed that about 40% will become spontaneously arrested. And in Dr. Rose's cases about 39% became arrested when treated. One is tempted to ask in what way has treatment caused improvement, judging from the figures alone ? In confirmation of which argument, Dr. Rodriguez in his article concludes that chaulmoogra treatment in early cases is " perhaps useless," a conclusion which I have found it impossible to avoid from a study of my own statistics for recent years.

(3) I have had little experience of relapse incidence, as the Bunyonyi Colony has been functioning for only four years, but one notes that Dr. Rose states, " It was not until 1929 that it became apparent that the percentage of relapses was so high as to cause grave doubts as to the permanence of the results achieved."

He now advocates six years' treatment after arrest, to ensure a cure. One would suggest that after six years' arrest a spontaneously arrested case might also be regarded as cured.

(4) In Table 2, Dr. Rose shews 10% of recovered cases among advanced cases.

Unless I have misinterpreted his figures, this 10% does not appear to be an improvement on his 28% spontaneously arrested (quoted above).

(5) On the other hand, Dr. Rose's photographs of C3 cases improved under treatment are very convincing, and shew that when chaulmoogra products can be brought in actual contact with M. lepræ, the latter is eliminated.

The interesting article by Dr. Rodriguez, claiming that chaulmoogra derivatives only attack the acid-fast forms of M. lepræ explains a great

deal which before appeared so contradictory in the results published.

For instance, it has been claimed that other bactericides, such as brilliant green, produces at least as good results as chaulmoogra—my own figures seem to support this. Is it possible that the action of chaulmoogra is most effective when brought in chemical contact with the bacillus, apart from which it has little effect, if any? If so, we may confidently look forward to the day when research will place in our hands a better remedy than chaulmoogra, which would at least deal rapidly and effectively with M. lepræ when it reaches the skin.

From Dr. N. E. WAYSON, Surgeon in Charge of the Leprosy Investigation Station, Honolulu, Hawaii.

The article is misleading, and is evidently written by someone who is imbued with the idea that "It is important, therefore, that this atmosphere of doubt should be cleared as far as possible." The writer is labouring under the impression that prophylactic measures are to be accomplished by curing a disease after it has become sufficiently disseminated and advanced in an individual to be recognised by our present criteria of diagnosis. Furthermore, his figures are distinctly misleading, as are likewise the photographs which he has included. The latter are not taken at the same range of focus, some are distinctly blurred. You will note that of his 647 cases, 27.8% have spontaneously become arrested (this in itself is highly significant); of his group of 467 receiving some treatment, 20.9% have become arrested; and of his 381, which have received what he considers adequate treatment, 25.7% have become arrested. In other words, the treated cases have, on the face of his returns, shown a lower rate of arrested cases than those which were let alone. There are several other manifestly gross errors or fallacies in his figures.