APPENDIX C.

Sodium Morrhuate Treatment.—Three per cent. solutions, to which 0.5 per cent. carbolic acid had been added, were used after sterilization in an autoclave. Solutions, which should be clear or become clear on reheating, were made up fresh once or twice a week. In a few children doses were diluted by one-half.

Starting doses for subcutaneous or intramuscular injections were 0.1 c.cm. to 0.2 c.cm., and increased by 0.1 c.cm. (provided no reaction followed, when the dose was either repeated or lessened), to 1 c.cm. or a little more. At intervals of three to five days. The larger dose was usually repeated at intervals of six to seven days.

Intravenous injections up to 3 and 4 c.cm. in a few cases did not seem to give any better results than the repetition of 1 c.cm. doses.

NOTE ON DR. BOELKE'S METHOD OF USING SODIUM MORRHUATE IN TUBERCULOSIS.

BY

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I AM indebted to Dr. P. W. R. Boelke for kindly sending me a copy of her paper, and regard both the method of administration and the results obtained as of great importance for the following reasons. The first trials of sodium morrhuate reported by me in 1919¹ established its specific action on tuberculous disease, as shown by febrile reactions with swelling of tuberculous glands, increased discharge from tuberculous sinuses, and occasionally haemoptysis in lung cases; all effects that may be followed by improvement. Recently I discussed the probable mode of action of the drug.² Dr. Boelke's interesting observation of local reactions at the site of subcutaneous injections of the drug in tuberculous cases confirms its specific action on this disease. General reactions may, however, be excessive, for during the past year cases of spread of the disease in the lung, of fresh patches of tuberculous dermatitis, and in one case of apparent generalized tubercle, have followed the use of intravenous doses; so the drug, like tuberculin, is capable of doing harm, and this necessitates great caution in its use, although the very fact that it exerts such definite influence on tuberculous tissues indicates that it may have a beneficial action, if this can only be kept within safe limits.

It is precisely in this direction that promise is afforded by Dr. Boelke's plan of giving small subcutaneous doses of freshly prepared solutions—a point I believe to be of great importance—such doses as do not produce local reactions at the site of injection, which appears in her hands to have eliminated the dangerous general reactions sometimes following the larger intravenous doses formerly advised by me on the basis of their effectiveness against the much less toxic acid-fast bacillus of leprosy. The new method of administration, if confirmed by trials now being carried out by experts in this and other countries, may furnish a safe, simple, and exceedingly cheap method of treating at least a fair proportion of tuberculous cases, although prolonged observations will be necessary before the precise indications for its use can be worked out.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, 1919, i, 147; *Indian Journ. Med. Research*, 1919, p. 236. ² BRITISH MEDICAL JOURNAL, 1923, ii, 11.

A NOTE ON THE TREATMENT OF LEPROSY.

BY

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THE treatment of leprosy by colloidal antimony has been advocated and oscol stibium (Oppenheimer) has been given a trial in the Isolation Hospital at Baghdad. Our experience may be interesting to others. The trial extended over a period of nine months, but patients were usually treated with this preparation for about three months, and the results are compared with those from the intravenous injection of a mixture of chaulmoogra oil and ether in the same patients. Fifteen cases were treated, in all of whom the diagnosis was confirmed bacteriologically. All the cases were severe and were unable to work. The types were nodular, macular, and anaesthetic,

in combination in varying proportions, with tissue destruction in varying stages. In a few cases leprotic fever was present.

The treatment was by weekly intramuscular injection, starting with 1 c.cm. and increasing in the absence of severe reaction to 5 c.cm., which was the maximum dose used. The total amounts injected varied from 9 c.cm. to 146 c.cm., the average being 51 c.cm. The observations ceased on April 17th, 1923, as for economy these cases had to be discharged from hospital.

The treatment could not be persisted with in cases of leprotic fever owing to severe reaction (fever and focal inflammation). In all other cases no contraindication was found. The usual reaction was 1° or 2° of fever during the twenty-four hours following the injection and slight malaise; in some cases the reaction was more severe, and in these one or two injections were omitted and the treatment continued with lower doses. In most cases focal reaction occurred as inflammation of the nodular masses and itching of the affected skin.

In most cases following the reaction a feeling of increased well-being immediately supervened, so that the injections were popular. The general results were: distinct improvement, sensations returning to anaesthetic patches, hair returning where it had fallen out, thickening of the skin and wrinkling reduced. The nodular masses, however, did not disappear in the majority of cases, and leprosy bacilli did not usually disappear from the nasal mucus. The effect of more prolonged treatment is unknown.

After about three months the cases seemed to come to a standstill, and then treatment by chaulmoogra oil and ether was tried. The mixture used was chaulmoogra oil 75 parts, ether 24 parts, and carbolic acid 1 part. Of this weekly intravenous injections were given, starting with 5 c.cm. and increasing up to 30 c.cm. The immediate reaction is severe, particularly if the larynx is affected. A feeling of suffocation occurs, which, however, passes off quickly. This effect is caused by the ether in the injection. Similar focal reactions and beneficial effects followed this treatment to those with oscol stibium. The intramuscular injection of the latter with its delayed reaction is, however, more suited to out-patient treatment. Also the leprous infiltration of the skin makes intravenous injections difficult in some cases. The amounts of chaulmoogra mixture injected varied from 60 to 630 minims, and averaged 278 minims in 11 cases treated for an average period of two and a half months. After a period of about three months these cases also came to a standstill. Some interesting observations were made. In some cases the return of sensation by treatment was only temporary. One case while under treatment developed a fresh heavy crop of nodules on hands and arms. In another case the disease was apparently aggravated by the antimony injections as fresh eruptions and leprotic fever followed a few injections of only 1 c.cm. weekly, and the drug had to be stopped. Occasional cases, however, do very well, such as the following:

Admitted on June 9th, 1922, with granulomata on various parts of the skin of the chest and scrotum; tongue and pharynx ulcerated. Loss of hair; ulnar nerves thickened; loss of sensation complete in arms and near rash on chest. Smears from nodules and from nasal mucus showed leprosy bacilli present in large numbers. Injections of oscol stibium commenced on July 13th, 1922. On July 16th, nodules still positive to leprosy bacilli, but nose negative. No change in nodules and in hair, but sensation returning and patient feeling stronger and more cheerful. On October 4th, after 61½ c.cm. of oscol stibium, the treatment was changed to chaulmoogra oil, and from November 9th, 1922, to February 3rd, 1923, 630 minims were given. The nodules now began to disappear and hair began to return on eyebrows. From February 3rd to April 17th oscol stibium was resumed, and 85 c.cm. given. On April 17th he was discharged from the wards but engaged in the hospital as a sweeper as he was physically fit for such work. He is continuing oscol stibium treatment as an out-patient. Already the diminution of the nodosities and of the infiltration of the skin is very marked. This was our best case.

It is obvious that in advanced cases with these medications prolonged treatment will be necessary to effect great benefit. We have still to search for a more specific treatment. For the treatment of leprosy we must now look