asylum in the patient's own district (say, in an annexe to the provincial hospitals) might be much more successful.

There is a wide field for simple surgical measures, especially in the septic infections that are so troublesome. Perforating ulcers, often situated superficial to very chronic adventitious bursae, are best treated by excision with the bursae. Rhinitis, iritis, and neuritis are, after sepsis, perhaps the commonest symptoms calling for treatment. Often the intractable neuritis is enormously improved by cutting down on the nerve in the whole length of the enlarged portion and peeling the epineurium from the inflamed nerve. The wound is closed and the relief is immediate. The rhinitis, especially if very fetid, is much improved by irrigation twice daily and packing with sterilized gauze. Leprous iritis must be treated in the same way as iritis from other causes. Septic ulcers heal with remarkable rapidity if they are carefully tended, as is the case at Makogai, where our sisters and dressers perform an average of one hundred and fifty dressings daily.

Specific Treatment.

I have tried, amongst others, the following specific treatments:

(1) By the intravenous injection of tartar emetic. Although two cases were given 43 grains in thirty-five injections and 46 grains in thirty-seven injections respectively, there was no improvement which could be attributed to the tartar emetic. Therefore I regard this treatment as useless for leprosy.

(2) By the intramuscular injection of ethyl esters of chaulmoogra oil. This method is expensive and very painful, and is not as effective as methods 3 and 5 detailed below. I am now trying this drug intravenously. It is well borne, but I have not yet experience enough to give an opinion as to its value.

(3) By intravenous and oral administration of sodium hydnocarpate. This is also an expensive method. It is not as effective as method 5 detailed below, but if one misses the vein and gives the drug subcutaneously the resulting swelling is not so painful as in the case of the oil and is more rapidly absorbed.

(4) By the intramuscular injection of chaulmoogra oil in various mixtures, chiefly according to Heiser's formula. This is painful, and the injections cause a fibrous degeneration of the muscles. Further, there is no knowing how much is absorbed, for months after the injection the oil may be aspirated unchanged from the injection site. Nevertheless, this treatment is valuable and the patients do well on it.

(5) By the intravenous injection of crude chaulmoogra oil. A good average specimen of chaulmoogra oil at room temperature in Fiji consists of about equal parts of solid and liquid constituents. This is sterilized by heat. From 5 to 15 minims of the oil at body temperature are injected once, twice, or three times daily. My present plan is to give a fortnight's rest at the end of each four weeks' injections. The treatment is maintained until a "treatment reaction" occurs, when it is stopped until the reaction is over. I used to give the oil intravenously in a mixture with ether and iodine, or carbolic, but find the crude oil as above to be more satisfactory. During the last two years 35,000 intravenous injections of chaulmoogra oil have been given at Makogai. Syphilis, compensated heart diseases, tuberculosis, and the filarial diseases are not necessarily contraindications. Cases of albuminuria without casts have lost their albuminuria during treatment with this method. Chaulmoogra oil was first given intravenously by Varham, Stevenel, and Noc. They gave it in fine emulsion; but their doses were very small, being about one-hundredth to one-fortieth of the doses given by me. Nevertheless they obtained good results.

Chaulmoogra oil is so unpleasant to take by the mouth or subcutaneously that for years efforts have been made to find an unirritating active principle. One of the earliest of these was "antileprol," rediscovered recently and much praised as the ethyl esters or "Dean derivatives" by the Hawaiian leprologists. Another rediscovery is Sir Leonard Rogers's sodium hydnocarpate and gynocardate, the sodium salts of hydnocarpic and gynocarpic acids, which were used twenty years ago by Roux.

These derivatives of chaulmoogra oil seem to act in the same way as the oil itself, over which they have no real advantage. Their action is not, I think, due to the purely antiseptic action of the oil, which is stated to be selective for the acid-fast group. Injections of chaulmoogra oil cause a transient leucocytosis which might repay investigation. Whatever the mode of action may be, there is no doubt that

chaulmoogra oil taken over long periods does ameliorate most cases of leprosy and cure some. After weeks or months of treatment a stationary case will have a "treatment reaction," evidenced by fever, eruption, and neuritis, hardly if at all to be distinguished during the fastigium from true leprotic fever. After the subsidence of the symptoms, however, a definite change for the better takes place. Treatment must be carried on for years.

Prognosis.

In early and mild cases there is a fair hope of cure or arrest of the disease. In pure nerve leprosy arrest of the disease has already taken place in a large number of the cases admitted to Makogai. I can see no justification for the segregation of these patients, many of whom are not capable of transmitting the infection at the time they are signed up. Yet if such a patient is admitted to the asylum the law requires that he remain segregated for a minimum of two years.

Advanced nodular cases or cases with marked nerve deformity are comparable to cases of generalized tuberculosis and cases of fibrous phthisis respectively, for in the one set of cases the body is little more than a culture medium for the bacilli, whilst in the other the disease, although it may have ceased to be active and infective, has caused immense loss of tissue and deformity. Such cases are, to use the layman's language, incurable.

In many cases leprosy actually prolongs life, for if a man contracts the disease he orders his life sanely with the idea of combating not merely his leprosy but also the possibility of other diseases and vices. I can give no figures for the length of life after infection, but from modern researches, especially those of Sir Leonard Rogers, it appears that in the vast majority of cases infection takes place during the first few years of life. Yet the majority of our cases die at an advanced age.

Lepers do not as a rule die of leprosy. The causes of death in the first 157 deaths at Makogai are as follows:

Tuberculosis 42, septic infection 31, nephritis 18, leprosy 14, exhaustion 5, undetermined 5, tetanus 4, senility 3, pneumonia 3, dysentery 3, suicide 3, amyloid disease 2, malignant disease 2, filariasis 2, peritonitis 2, influenza 2, mitral disease 1, angina pectoris 1, pulmonary embolus 1, cerebral tumour 1, duodenal ulcer 1, intestinal ulceration 1, bronchitis 1, renal abscess 1, general paralysis of the insane 1, epilepsy 1, hemiplegia 1, pharyngeal ulceration 1, diabetes 1, syphilis 1, anaesthesia 1, fatty heart 1.

From the above it is seen that tuberculosis and sepsis are the chief causes of death. The prognosis in civilized races is far and away better than in lower races. Osler, for instance, records the case of a clergyman performing his duties for thirty years whilst a leper, though none of his flock knew of his disease. Similar cases of lepers, unsuspected by the general public, living active beneficent lives, occur in most of the countries in which the disease is endemic, including Fiji.

A SIMPLE PORTABLE APPARATUS FOR CONTINUOUS OXYGEN ADMINISTRATION.

BY

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For many years oxygen has been largely used in the treatment of pneumonia, but generally it is given sporadically and rather with the idea of meeting some crisis in the patient's condition. Its use as a continuous therapeutic agent came under the writer's especial consideration in the treatment of severe cases of bronchopneumonia, complicating pertussis and measles, in the wards of the infectious block of the East London Hospital for Children. Dyspnoea and cyanosis were of course predominant symptoms in many cases, and the lack of proper oxygenation of the blood appeared to be a serious, often a fatal, handicap to recovery. Physiological, pathological, and chemical work upon the oxygenation of the blood also point in the direction hinted at by these clinical signs. Pneumonia is certainly a condition in which there is often anoxaemia; the place of oxygen in its treatment should therefore be one rather of regular use than of spasmodic effort. The same is true of other conditions complicated by lack of oxygen, such as chronic bronchitis and emphysema, asthma, and many types of heart

disease. In the cases of bronchopneumonia above referred to oxygen was given at first by the usual funnel method. This, however, suffers from many disadvantages: the presence of a nurse is necessary; much oxygen is wasted owing to rapid diffusibility; it is doubtful whether the inspired air has a much raised oxygen tension; and the presence of a large funnel in close proximity to the face is often resented by a restless patient. These are all difficulties which it is essential to overcome in the production of an apparatus which will usefully administer oxygen. An oxygen chamber is, of course, ideal, for the oxygen tension can be exactly regulated. It is a luxury, however, which is restricted to a few institutions of sufficient wealth, and even in them it can only be used in a small proportion of cases, so that the lesser hospitals and the private practitioner must look elsewhere.

Description of Apparatus.

The diagram is nearly sufficiently explanatory of the apparatus which forms the subject of the present communication.

A webbing or elastic circlet, whose size can be regulated by a buckle, grips the head firmly but not tightly. On the front of this is an aluminium plate, A, which acts as a firm base for the brass pin B. Through a vertical hole in this passes an aluminium rod, C, which can be fixed at any level by a screw. Loops at the extremities of this hold a rubber catheter (size 6), D; they grip it but allow it to be pulled through to any desired length. Oxygen passes from the cylinder through a Wolff's bottle containing fluid (water or brandy) and standing in a bowl holding warm water. From this it passes to the patient, who receives it intranasally through the rubber catheter.

Method of Use.

Attention to a few details is necessary when fitting the apparatus to a patient. The catheter must first be lubricated, and the best ointment for this has been found to be novocain 2 per cent. in vaseline; it should be inserted to the level of the posterior nares, or a little beyond, but must not touch the posterior pharyngeal wall. If a thread be tied round the catheter to mark the depth to which it is desired to introduce this, a nurse can easily see whether any slipping has occurred and can quickly and accurately readjust it. The lower loop in the aluminium wire should be as near the nostril as possible. The rubber tube to which the catheter is attached can be suspended, in which case the movements of the patient's head are quite unrestricted. The rate of flow of oxygen can be seen by the rapidity of the bubbles through the brandy or the water in the Wolff's bottle, and the speed need be no faster than about 70 to 80 bubbles a minute. Oxygenation is efficient at a much slower rate of flow than with an open funnel.

Mechanical Advantages.

The apparatus is a stable one. Since it moves with each movement of the head the patient is not worried, and soon becomes reconciled to it, eventually forgetting its presence. It is very light and portable. Oxygen is conducted to a position whence much of it is inspired; there is thus actually a very considerable saving in the amount of oxygen used. It is inexpensive.

Clinical Advantages.

It has been used in twenty-three cases of severe bronchopneumonia in children. Cyanosis is not seen in cases using it. Sleep is not interfered with. There is no increase in the number of paroxysms in cases of bronchopneumonia in pertussis; there is thus no local irritation from its presence. Other signs of irritation or resentment are not seen, as a rule, although occasionally it has been found necessary to tie the hands down. Oxygen can be given continuously and indefinitely in an effective and economical manner.

There appears to be no reason why its use should be restricted to children; they provide the more searching test, and success with them should promise at least an equal success in adult cases. It should prove of use in any pulmonary or cardiac condition complicated by anoxaemia and cyanosis. The instrument is made by Messrs. Maw, Son and Sons, of Aldersgate Street, who have agreed that all profits from its sale should go to the East London Hospital for Children.

TREATMENT OF PSORIASIS BY MANGANESE.

BY

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THE only specific treatment of psoriasis, up to the present, is the external use of chrysophanic ointment. Arsenic is useful in anaemic cases, sodium salicylate in cases with a rheumatic history, and thyroid extract in the obese or those with symptoms of hypothyroidism. These improve the disease by improving the patient's general health, but have no specific action.

In the autumn of 1920 I had under treatment two cases of chronic staphylococcal infection, who at the same time suffered from well-marked psoriasis. After six injections of gradually increasing doses of staphylococcal vaccine, my patients informed me that the skin was better than it had been for years. I continued the vaccine for another six injections, but with no appreciable improvement in the psoriasis.

The well-known benefit derived from the use of intramuscular injections of collosol manganese in staphylococcal infections, also the fact that collosol manganese, like staphylococcus vaccine, will bring about an acute recrudescence of streptococcal eczema, suggested its use to me in these two cases. The results were very satisfactory: one was cleared up completely after four injections, and the other after eight.

I have treated in all 35 cases of psoriasis in the past twenty months, of which the following is typical of the procedure adopted.

C., a strong healthy man, aged 43. Sixteen years ago a spot of psoriasis, the size of a sixpence, appeared on left leg, two inches above the external malleolus. In six months the disease had spread to the knee, and entirely surrounded the leg. After three years the other (right) leg was attacked in a similar manner. Six years ago the disease appeared in the lumbar region, and extended on the back as high as the scapula. At the same time both elbows became affected, and it extended on both arms almost to the wrist-joint on the extensor surfaces. About six months before consulting me a patch about four inches square appeared in the right inguinal region.

Such was his condition when he consulted me on January 6th, 1922. With the usual antiseptic precautions, I injected into the deltoid muscle (left arm) 1/2 c.cm. collosol manganese (1/4 c.cm. No. 1 sol., 1/4 c.cm. No. 2 sol. (Crookes), mixed in syringe) and ordered him to use vaseline to assist in removal of the scales, and allay the irritation. On January 10th 1/2 c.cm. collosol manganese was injected into the right deltoid; on the 17th 1 c.cm. into the left deltoid; on the 24th 1 c.cm. into the right deltoid; and on the 31st 1 c.cm. into the left deltoid. On this last date the inguinal patch had almost disappeared, and on the back and elbows islets of healthy skin were showing in the centre of patches.

On February 7th 1 c.cm. collosol manganese was again injected; the improvement continued. On February 14th a further 1 c.cm. was injected. On this date, with the exception of a small patch about two inches square, the disease had entirely vanished. I continued the weekly injections of 1 c.cm. collosol manganese up to the end of March, when the patient was completely cleared. In all the patient received thirteen injections. Vaseline was the external treatment.

From my study of psoriasis and its treatment by collosol manganese I have arrived at the following conclusions:

1. The clinical appearance and behaviour of psoriasis suggest a spirochaetal origin, but neither salvarsan, its congeners, nor mercury have any beneficial effect on the disease.
2. Mixed staphylococcal vaccine will improve the lesions, but will not bring about their complete disappearance, without the use of chrysophanic ointment.
3. Collosol manganese will clear up the disease in from six to sixteen intramuscular injections without the assistance of any external treatment. I prescribe vaseline where there is much irritation.
4. From the action of staphylococcal vaccine, and especially collosol manganese, I would suggest that psoriasis is probably due to a special staphylococcus, or at least bears an intimate relationship to chronic staphylococcal infection.
5. The disease is, in my opinion, auto-inoculable.
6. A number of cases in the same family can be accounted for by living under the same conditions, and subject to the same infection, rather than by heredity.