looking into the larynx from above. Generally, the naked-eye evidences were those of epithelioma.

Microscopical Appearances.—The portion removed was placed in spirit, immediately after the operation, and, a few days later, a shaving was cut by hand with a razor from a portion of the growth projecting from the ventricle. (Fig. 3, A.) The structure of this superficial unstained shaving is shown in Fig. 4; it presents the appearance of a typical squamous epithelioma, the nests being remarkably abundant. After the specimen had remained in spirit twenty-five days, a pyramidal portion (base, a quarter of an inch square; depth, one-third of an inch) was removed from the spot whence the shaving had been taken. (Fig. 3, A.) This was sectioned and stained in hæmatoxylin, and was seen, under the microscope, to consist of a dense connective tissue stroma, with great increase of nuclei and cellular infiltration, and of a large number of solid cylinders of an epitheliomatous character, the outermost layer of cells being composed of the columnar variety, enclosing a core of polygonal cells. This condition is shown in Fig. 5. Only one or two distinctly squamous nests were observed near the

FIG. 5.

Microscopic appearance of growth from deeper section.

surface. The bulk of the growth was, therefore, an epithelioma of the columnar-celled variety, with squamous characters predominating near the surface. Taking into account the fact that the ventricle of the larynx is lined with columnar epithelium, it is not to be wondered that the growth exhibited these characters. In shavings taken from the extreme edge of the portion of the larynx removed, neither nests nor cylinders could be detected; and the same satisfactory negative evidence was afforded by repeated microscopic examination of two fragments removed for that purpose at the time of operation, from the margin of the structures left behind.

REMARKS BY MR. LENNOX BROWNE.—When, eight years ago, the late Dr. Foulis, of Glasgow, showed at the Medical Society the patient from whom he had successfully extirpated the whole larynx four months previously, for "papilloma and spindle-celled sarcoma," I ventured to express a doubt whether that operation would ever yield beneficial results commensurate with the immediate danger of its performance, the very short extension of life, and the discomfort of an artificial larynx to those who survived long enough to wear one; and I drew attention to the superiority of the statistics of tracheotomy to those of the radical operation. Dr. Foulis's was the eighteenth complete extirpation, and the second which survived more than nine months, for his patient lived a year and a half, and death ultimately resulted from phthisis. Since that time, complete extirpation has been frequently performed, and there are now fully one hundred recorded cases. The results, however, have not improved, and the operation has been abandoned by many who formerly performed and advocated it.

The operation of partial laryngectomy stands so far on a much more favourable footing, and the brilliant results of Eugene Hahn and other German surgeons have established it as one of far less immediate fatality than complete extirpation, and affording average periods of immunity from recurrence even of the more serious forms of malignant disease, which promise to be almost, if not quite, equal to those provided by tracheotomy. The success of Hahn's operation recently performed in London on an English patient has naturally attracted much attention. Mr. Butlin very shortly afterwards had a similar operation; and he was the first English surgeon to adopt the procedure; the result of his case was quite successful so far as immediate recovery was concerned, though with but partial restoration of voice on account

of the necessity for removal of a portion of the cords in the retained half of the larynx.

The case now recorded is at present satisfactory in the two-fold aspect of immediate recovery and of restoration of voice. I am, however, very far from forgetting the warning which I gave a few weeks ago at the Clinical Society, that this operation cannot be considered as established until a period of life has been attained equal to the average of two and a half years to be procured by simple tracheotomy in epithelioma.

Recurrence must, in the nature of things, be always anticipated; and we have yet to see what sort of history our cases will have in this respect. It is earnestly to be hoped that care will be taken in the selection of subjects for this operation, as otherwise discouragement will be given to its performance where other circumstances would be favourable. It is indicated in unilateral and intra-laryngeal epithelioma, and in recent non-infiltrating sarcoma. It is useless in pharyngo-laryngeal epithelioma, in which the larynx is invaded from the pharynx, and whenever there is implication of the cervical glands and structures adjoining the larynx. It is always possible, in our division of the thyroid cartilage the disease is seen to have extended beyond the limits suspected by prior examination, for the surgeon to desist from removal and to be content with having performed tracheotomy.

A REMARKABLE CASE OF PRIMARY SYPHILIS.

By A. MARMADUKE SHEILD, M.B., F.R.C.S.,
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A RESPECTABLE single woman, aged 32, came to me on December 1st. She was well nourished. On the right cheek, just above the angle of the mouth, was a round prominent sessile growth about the size of a florin. It was livid in colour, quite devoid of pigmentary change, and irregularly excavated in the centre by superficial ulceration. A thin non-purulent discharge exuded from the ulcerated surface. The growth infiltrated the tissues of the cheek, but not with the hardness of cancer. The submaxillary lymphatic glands were greatly enlarged, forming a series of manifest almond-shaped swellings, which reached from the angle of the jaw to the symphysis. They were not painful or inflamed, and, though firm in consistence, lacked hardness and fixation. There was no sore throat, or any sign of eruption on the skin.

Towards the end of September, 1886, she observed a small pimple on the cheek, like a "gnat-bite." She picked it frequently, causing it to bleed. About the middle of October, her mistress remarked on its appearance, so she concealed it with sticking-plaster. By the end

of October, the sore was as large as her "finger-nail." She now sought the advice of a chemist, who twice applied "strong caustics." After this treatment it became very painful, and increased greatly in size. The opinion of medical men was now sought. Some said the growth was "lupus," others pronounced it to be cancer, and nitric acid was freely applied; but the growth continued to increase. Taking all the circumstances of the case into consideration, the woman was at once placed upon full doses of mercury, and a very dilute mercurial ointment was applied to the sore.

On December 8th, exuberant granulations had spread round superficially, causing the mushroom-like appearance familiar in malignant growths.

On December 15th, the sore was better, and there was a decided syphilitic eruption over the body and neck, which the patient noticed first on December 10th. The rash consisted mainly of papules and tubercles of a dark "coppery" hue, covered by slight scaly desquamation. The gums were affected by mercury.

The accompanying photograph, kindly taken at this time by my friend Mr. Fitzgerald, of Folkestone, shows the site and condition of the growth.

The improvement continued, and on December 31st, the sore had nearly healed, its former site being represented by a red and depressed scar, covered in the centre by a dark scab. The eruption on the skin was nearly gone. There were some white mucous plaques on the under surface of the tongue. The throat was congested.

This case is of interest and importance to practitioners, on account of its rarity and the difficulties which surrounded the early diagnosis. The dark colour of the woman's complexion suggested the possibility of melanosis. Resemblance to epithelioma was also close, but the condition of the glands was a great aid to differential diagnosis. They lacked hardness and fixity, yet exhibited markedly the multiple indolent enlargement of syphilis. It is unusual to find primary sores on the skin of the face. Probably, in instances like the present, some abrasion of surface, as a scratched pimple, becomes accidentally inoculated in various ways, as by kissing, or conveyance of the virus on the finger. No doubt the application of caustics to this sore greatly increased its size, modified its appearance, and enhanced the difficulty of diagnosis. The vascularity of the parts involved, and the loose connective tissue of the cheek allowing of luxuriant cellular exudation, are other explanations of the uncommon size and appearance of the chancre in the case under consideration. When primary sores occur in curious positions, the history of contagion is wanting or unreliable. The diagnosis from malignant disease is often so doubtful that a positive opinion is impossible. A careful examination and consideration of the condition of the neighbouring lymph glands is, I believe, the surgeon's principal aid in arriving at an early and correct conclusion.

EXPERIMENTAL INVESTIGATIONS ON LEPROSY:

By BEAVER RAKE, M.D. LOND.,
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ITS NON-COMMUNICABILITY TO ANIMALS.

THIS paper forms part of a Government report on leprosy in Trinidad. It is a digest of experiments performed on animals during the past two years. Though the results are practically *nil*, they may, perhaps, be not entirely without interest, seeing that the question of the contagion of leprosy appears not yet to have died out.

The methods employed have been four in number: 1. Scarification of the skin and application of material scraped from leprosy ulcers; 2. The introduction of portions of leprosy tubercles beneath the skin; 3. Vaccination with lymph taken from lepers; 4. Feeding the animal on tubercles and enlarged glands, and viscera obtained *post mortem*.

It will be found that all these methods have been equally ineffectual. The second method, by introduction of tubercles beneath the skin, appears to be the most crucial. The most characteristic product of leprosy is here chosen: a cutaneous tubercle, notably one in which the microscope shows quantities of bacilli. As soon as possible after removal from the living body, a portion of this tubercle is introduced beneath the skin of the animal selected, and the skin fastened over it by sutures. The leprosy material is thus brought into close relation with the tissues of the animal in such a way as to encourage, if possible, multiplication of the bacilli. To favour this still more, the subcutaneous tissues are lightly scarified before introduction of the tubercle. I can, perhaps, better illustrate this by selecting from the list two illustrative animals, a cat and a fowl.

OBSERVATION XVII. January 1st, 1885.—Tubercles were excised from the face of J. J., aged 16, and shown microscopically to contain bacilli. The hair having been cut short, a small incision was made over the nape of a cat's neck, and the skin being lifted up, two small pieces of tubercle were introduced. The incision was closed with two silk sutures.

January 3rd. There was some swelling at the site of incision, and the two sutures were removed. Laudable pus escaped, which showed some bacilli on staining.

January 4th. There is no further escape of pus. At the site of incision there is thickening about the size of a marble.

January 8th. There is still considerable thickening. The cat has managed to rub the neck, and there is a discharge of serum. Staining showed no bacilli in this.

January 11th. There is a firm cicatrix. The thickening beneath the skin is less.

January 22nd. A subcutaneous thickening, about the size of a millet-seed, is to be felt.

February 5th. A lump, about the size of a pea, is to be felt beneath the skin of the back near the haunch.

February 16th. No lump is to be felt in either situation, and the hair has grown again at the site of incision.

OBSERVATION XXVI. March 12th.—The cat was again vaccinated with pus from the vaccine pustule of L. C., aged 10 (tub.), and pure lymph from J. M., aged 19 (anæsth.). A scab had formed by the 23rd.

April 13th. The cat was accidentally poisoned. Dissection showed the subcutaneous tissue at the sites of the inoculations and vaccinations perfectly normal. There was no trace of thickening. The lungs were healthy, and all the other viscera normal. Magenta showed no bacilli in the heart muscle, or in blood from the heart.

OBSERVATION XXIII. February 7th, 1885.—More tubercles were removed from the face of J. J., and again shown to contain bacilli. Incisions about three-quarters of an inch long were made about two inches behind each wing and under the left wing of a fowl, and pieces of tubercle about half an inch square and one-eighth of an inch deep were introduced beneath the skin, the subcutaneous tissue being lightly scarified. In consequence of the thin parchment character of the skin, it could be easily raised from the subjacent tissues, and the edges of the incisions sewed together with silk sutures, with little or no hæmorrhage. The skin was left on the pieces of tubercle, and the raw surface was placed downwards in order to favour, as much as possible, adhesion to the tissues of the fowl. The tubercle could be easily slipped about beneath the skin, and its dark colour made it readily recognizable.

February 8th. The incisions are dry, and there is no redness.

February 10th. The incisions are uniting well. Through the translucent skin there appears to be a little white deposit on the tubercles.

March 5th. The sutures are still in, but the edges of the incisions are quite united, and the cicatrices are inappreciable. The tubercles are about the same in size and position, except that the one behind the right wing is attached to the skin and superficially ulcerated. Another tubercle about three-quarters of an inch square and one-eighth of an inch deep (in which again bacilli were found) was introduced beneath the right wing, and three silk sutures were put in. The incision again healed by primary union.

March 18th. Small pink desquamating nodules, about one-eighth of an inch in diameter, were found on the eyelids. These had, however, disappeared by April 10th.

April 10th. The tubercles beneath the wings are in about the same state. The other tubercles behind the wings were not found. From this date till the end of the year, the fowl was fed at frequent intervals with tubercles from living subjects, and portions of viscera and enlarged glands obtained *post mortem*.

OBSERVATION XXXIV. April 21st.—The fowl was vaccinated beneath the left wing with lymph from A. A., aged 7 (anæsth.). The lymph did not take.

May 11th. The tubercles beneath the wings are about the same size, and freely movable.

October 9th. The fowl laid an egg. Magenta showed no bacilli in the area of examination.

December 28th. Beneath each wing is a small black nodule about a quarter of an inch in diameter, the skin being freely movable above them. The fowl is plump and in good plumage.

The nodule beneath the left wing was excised, and found to consist of a capsule of false membrane surrounding a mass composed of caseous material and much pigment. Magenta showed a few bacilli scattered amongst the caseous *débris*, rather more in the membranous capsule, but none in the blood or serum from the neighbourhood of the inoculated tubercle, or in the blood from the breast. This fowl is still under observation.

A considerable difference is here noticeable between the results in a mammal and a bird. In the former, the tubercle appears first to have disintegrated. It was then probably partly thrown off, as shown by the bacilli found in the pus two days after inoculation, and partly absorbed, as shown by the gradually decreasing subcutaneous nodule. *Post mortem* examination, three and a half months later, showed no remains of it. In the latter, on the other hand, no absorption appears to have taken place. The tubercles remained quietly beneath the skin, the incisions healed by primary union, and one of these tubercles, when removed eleven months later, was found to have undergone caseous degeneration and to be surrounded by a capsule of false membrane, beyond which no bacilli were found.

It must be noted, with reference to these two animals, that they