times a day on January 26th, and this was increased to six minims on March 31st.

The accompanying woodcuts are from photographs taken before and after operation. It must be noted that some tubercles had been already removed from above the eyebrows, and from the alae nasi before the first photograph was taken, but this does not materially affect the comparison.

CASE II.—R. G., aged 12, negro, born in Venezuela, was admitted to the Leper Asylum on September 16th, 1881, with a three

years' history. Large tuberculated masses involved the trunk and extremities, but these were especially exuberant on the face and ears, producing a degree of disfigurement which I have never yet seen equalled in tubercular leprosy. On April 11th, 1885, he was given chloroform, which he took remarkably well. A large mass of tubercles, about 3 by 2 inches, was excised from the forehead. There was a good deal of hæmorrhage. The raw surface was treated as above described, with carbolic acid and tannin. This method was adopted in all subsequent operations. The cicatrix was complete by April 25th.

On April 18th numerous tubercles were excised from the left cheek, over an area of about four square inches.

On April 25th more tubercles were removed from the left cheek, over an area of about two square inches, also from the left side of the chin.

On May 5th, about one ounce of tubercles was removed from the right ear and alae nasi.

On May 12th tubercles were removed with scissors from the left ear, also from the right side of the chin and lips, also a few from the bridge of the nose.

On May 28th nearly all the scabs had fallen, and his appearance was so much changed that he was not recognisable.

The areas of cicatricial tissue were roughly calculated as follows: Forehead: $3 \times 1\frac{1}{2}$ in. Each cheek: $4 \times 3\frac{1}{2}$ in. Chin: $2\frac{1}{2} \times 2\frac{1}{2}$ in. Each ear: $2 \times \frac{1}{2}$ in. Total area about 27 square inches.

Most of the tubercles were preserved in spirit and weighed, and their total weight was calculated at about four ounces.

On June 20th he was found to have an attack of yaws, which, however, had passed by September 22nd.

On December 4th it was noted that there was practically no return of tubercles in the ears. There were firm, smooth cicatrices on the face. Those pieces of tubercle which had escaped removal by knife or scissors had grown a little, but not more than $\frac{1}{4}$ to $\frac{1}{2}$ inch; where the knife or scissors had gone more deeply there was no return. On the alae of the nose the tubercles had grown rather more—about $\frac{1}{2}$ inch—but here it was not practicable to remove them without more or less destroying the nose. Over the forehead and eyebrows the tubercles were stationary.

In this case, also, magenta showed swarms of bacilli in the excised tubercles. On April 21st he was ordered four minims of liquor arsenicalis three times a day, but there was some difficulty in getting him to take the medicine regularly.

The accompanying illustrations, showing the face before and after operation, will serve to give some idea of the relief afforded.

I have at present in the asylum two milder cases which are undergoing similar treatment. Though the result can be at the best but palliative, it seems worthy of consideration in such a disfiguring disease as tubercular leprosy. It may be objected that this treatment is practically the same as that pursued by the late Dr. Beauprethuy. An all-important distinction lies in the use of the knife or scissors—a detail which I believe was not adopted by him. Free excision combined with caustics gives a more rapid, clean, and effectual cicatrix than the use of caustics alone. Assuming, as a working hypothesis, that leprosy is a parasitic disease, it is hoped that the use of two powerful germicides—one, arsenic, internally; the other, strong carbolic acid, externally—may kill, at any rate, some of the bacilli, and thus hinder if not prevent recurrence. In point of fact, on examining tubercles after the use of arsenic, I found in some cases fewer bacilli, but this may have been a mere error of experiment, and of course a large number of comparative observations will be necessary. The tannin powder is used with the idea of forming crusts to protect the granulating surfaces and so prolonging the local action of the carbolic acid.

Another important effect of this treatment is to lessen the amount of ulceration. Tuberculated tissue ulcerates much more readily than sound skin, and thus often works its own cure to a certain extent. This was very marked in the second case. Before operation the large masses on the ears were constantly raw and ulcerated. After operation a small firm cicatrix formed, and one could scarcely recognise the site of the former tubercles.

A SECOND SUCCESSFUL CASE OF EXTRACTION OF GLASS FROM AN EYE,

AFTER A LODGMENT OF SEVEN YEARS AND A DAY

By T. H. BICKERTON, M.R.C.S.,
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IN the JOURNAL for April 28th I recorded the case of a gentleman, from whose left eye a piece of glass, which had lodged there for a little more than ten years, was successfully extracted, and it is curious that, within a few weeks, another similar case should have come under my care. The history given to me by the patient is as follows.

W. C., aged 33, received at midnight on January 12th, 1881, a severe wound of the right eye, owing to the bursting of the glass water gauge of a boiler, and was, in consequence, admitted into hospital. About three months later the eye was "needled," and the patient eventually returned home, with fair vision (C+ 3" $\frac{3}{8}$, C+ 2 $\frac{1}{2}$ J 8), and with all inflammation gone. In 1883 the eye was hit with a piece of rope; it inflamed, was very irritable, and watered much, and opinions were divided as to the necessity of its removal. Eventually sedative treatment was selected, and after some months the eye again settled down. In May, 1885, inflammation recurred, this time without apparent cause, and it disappeared in about a fortnight. In the autumn of 1885 the eye again received a trifling knock, the inflammation being again allayed by hospital treatment, and after a short time he was able to return to work. In the beginning of July, 1887, the eye was slightly flicked with a piece of bagging. A fortnight later, the irritation not subsiding, an adhesion between the iris and the cornea was successfully divided (September 17th, 1887), and after

nine days he left hospital. On October 3rd, 1887, he started work, and whilst bending down to lift a sack, he was struck by a lightning shock of pain, which, starting at the supra-orbital notch, passed along the right side of the head as far as the occiput, and this acute pain occurred almost every time he bent his head down, and often on moving it from side to side. He therefore did his work holding the head in the erect posture, but in spite of this the pain now and again attacked him, and the eye becoming greatly irritable, he was again compelled to seek hospital treatment. This time a large iridectomy was performed upwards (October 15th, 1887), but the redness and irritability not subsiding, and the pain continuing, the removal of the eye was determined on. In this decision the patient acquiesced, but his employer objecting, he now came under my notice, November 8th, 1887. The right eye was very red, irritable, and watering much on exposure to light; V C + 12 D $\frac{1}{2}$; C + 14 D a few words of Ja 4. Just below the centre of the cornea there was a small cicatrix, and it was easy to see that an adhesion to the iris had existed here. A large upward iridectomy pupillary space was occupied by capsular remains. The iris was attached firmly to these remains below and on the outer side, but it was free on the inner side. By means of careful oblique

Line of Incision | Glass, actual Size. | Glass in Situ.

illumination, and when the eye was turned in certain directions, there could be seen lying in the anterior chamber, in the sinus between the cornea and iris, and not imbedded in the latter, a piece of glass, which appeared to be quite a quarter of an inch long, and was of considerable breadth. The position of the glass was not quite horizontal, its inner end being slightly tilted upwards. The treatment adopted was rest, in the hope that the eye might again settle down, and allow the extraction to be performed under the best possible conditions.

The redness and irritability did slowly subside until January 11th, 1888, but on that morning the patient awoke with much pain in the eye, and, as an examination of it showed that the glass had moved, its inner end being still more tilted up, and that the vascularity of the eye had greatly increased, further delay was considered inadvisable. Therefore, on January 13th, 1888, the eye having been put thoroughly under the influence of cocaine, the method of operation which had been practised in the former case was again resorted to. An oblique corneal incision was made by puncture and counter-puncture with a Graefe's knife across the front of the cornea, at the junction of the lower third with the upper two thirds. A curette was introduced between the lips of the wound, and passed on in front of the iris, to a position behind the glass, in order to fix it, and a fine pair of forceps being now put in, the glass was seized at the fourth attempt, and removed entire.

By the next day the anterior chamber had re-formed, there was no iritic adhesion, and the eye was absolutely free from pain. Recovery was uninterrupted, and on February 10th the patient was able to return to his work with the eye in a perfectly quiet condition, and up to the present day (May 18th) the eye has remained absolutely free from all pain and irritation. The weight of the glass, kindly taken by Mr. Rawson, Professor Campbell Brown's assistant, was .01331 grammes; its dimensions, taken by Mr. Chattock, Professor Oliver Lodge's assistant, were, greatest length 6.4 millimètres; greatest breadth, 2.7 millimètres, and it may be mentioned that the actual breadth was much greater than had been expected from the appearance which the glass presented when in the eye.

THOMAS'S OPERATION FOR REMOVAL OF BENIGN TUMOUR OF THE FEMALE BREAST.

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THE recognised risk of adenomata of the female breast developing into recurrent fibro-cystomata has always prompted me to urge early extirpation of these tumours, and most surgeons follow, I imagine, the same practice. A seriously deformed breast is, how-

ever, in the estimation of the majority of young women, a disproportionate price to pay for the avoidance of a danger which at worst is only probable. Therefore when in 1882 Dr. Gaillard Thomas, of New York, brought forward an operation for the removal of benign mammary tumours without visible mutilation, I felt confident that the new method would be extensively tried. Whether this has been the case or not I cannot say. It is at least certain that few cases, if any, have been reported in European journals. The ratio of benign tumours of the breast to malignant is everywhere small; and in semi-civilised countries it is smaller than in Europe and America, for the simple reason that in such countries a tumour in any locality and in either sex is invariably disregarded until by its size, by the pain it excites, or by its factor, it renders life intolerable to the patient or his neighbours. Accordingly, putting together four cases operated on by me since the publication of Dr. Thomas's paper, and one by Dr. Boone, my colleague at St. Luke's Hospital for Chinese, out of the five two were European women, one an American, one a half-caste living under foreign conditions, and only one was pure Chinese.

The operation is begun by an incision exactly following the fold between the skin of the thorax and that covering the breast in its lower semi-circumference. The length and precise position of the incision depend on the size and situation of the growth, but at all events when the breast is allowed to fall, the line followed by the knife must be invisible, except perhaps at one or other extremity. On reaching the muscles the gland is dissected from the chest sufficiently to enable it to be turned upwards, exposing its posterior surface. This is incised along a radial line over the tumour, and the latter removed. The gland is then replaced, its cutaneous surface remaining completely uninjured. In all the five cases to which I have referred, healing was immediate under antiseptic dressing.

The accompanying woodcut from a photograph taken two months after operation well represents what, so far, has been the invariable result. In this instance the patient was an American,