the minute; at 10, p.m., he sank from exhaustion, and without a struggle.

Post mortem examination six hours after death.—Body much wasted. Heart small and comparatively bloodless, valves healthy. Liver of average size and of dark olive tint. Spleen in all respects normal. Kidneys of average size and apparently healthy on section. Both supra-renal capsules very much enlarged, hard, and nodulated; the left much larger than the right; the former presented on section the appearance of pale cheese, and in the centre was found about a teaspoonful of thick white puriform matter; right supra-renal capsule not divided. The pale yellow deposit in left capsule examined microscopically was found to consist of small, granular, ill-defined cells, and the granular *debris* of similar cells, amongst which were dispersed molecules of a highly refractile, and apparently fatty character.

Whilst this patient was under treatment in hospital his urine was repeatedly examined, and always found normal in quantity, specific gravity, and reaction, devoid of albumen, and free from deposit of any kind, with the exception of a little mucus.

The treatment consisted mainly in various preparations of iron, sedatives, counter-irritants; and towards the close of the case, when the stomach had become intolerant of food of any kind, of nutritive and stimulant enemata.

ART. VIII.—*On Trichiasis*. By E. PERCEVAL WRIGHT, M.D.,
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IN trichiasis the eyelashes are inverted, and so become turned in upon the eyeball, without the eyelid itself necessarily undergoing any change. It seldom, however, happens that all the eyelashes become inverted, unless when the trichiasis is merely one of the symptoms of entropion—an abnormality very constantly confounded by general surgical writers with trichiasis. My present intention not being to write a treatise on this subject, but only to call the attention of the profession to an operation for the removal of this defect, I shall but very briefly, indeed, allude to the signs of this abnormality, to its etiology, and then to its cure.

The symptoms vary according to the number of inverted cilia,

and to the duration of the irritation caused thereby. In ordinary cases the patient generally complains of the sensation of some foreign body rubbing against the front of the eye; upon the smallest increase of light there is great lachrymation; there is some effusion of the conjunctiva, and some slight opacity of the cornea; in very bad cases, such as one sees so constantly in this country, the appearances presented are thus graphically described by Sir W. Wilde:—"There is pain; nictitation; the sensation of a foreign body in the eye; incessant winking; epiphora; chronic inflammation of the conjunctiva; vascularity of the cornea; photophobia; spasmodic action of the orbicularis palpebrarum, and corrugator supercilii muscles; the head is inclined downwards, and generally to one side; to these succeed redness of the tarsal margin, opacity of the cornea, and finally, total loss of vision."^a

In cases like these there will be no difficulty in finding a number of eyelashes inverted and rubbing against the surface of the globe of the eye. In milder cases it is not so easy to find them, and then it is well to follow the advice of Mackenzie,^b and to apply the edge of the lid to the eyeball, while raising it up over its surface, in such a way that the iris or pupil forms a contrasting back-ground to the cilia. Trichiasis affects the upper very much oftener than the lower eyelid.

On the etiology of trichiasis much has been written. Passing by such causes as that the cilia in question owe their origin to bulbs, which, though existing during fetal life, did not develop themselves until the age of puberty, and others equally fanciful, it appears now pretty well proven that trichiasis is almost always the result of some prolonged irritation of the ciliary border, such as occurs during neglected catarrhal ophthalmia, and more especially during ophthalmia tarsi (psorophthalmia, or blepharite ciliare). Such exciting causes produce, as pointed out by Wilde,^c an unhealthy deposit in the interspaces between the roots of the cilia, along with a contracted state of the conjunctiva.

The cure of trichiasis consists in altering the direction of the eyelashes. The simplest palliative treatment consists in removing, one after the other, all the inverted eyelashes. This, however, seldom, if ever, effects a radical cure; besides, as the operation,

^a On the Causes and Cure of Entropium and Trichiasis, *Dub. Jour. of Med. Science*. Vol. xxv. 1844. P. 98.

^b Practical Treatise on the Diseases of the Eye. 4th Edit. 1854 P. 215.

^c Loc. cit., p. 109.

though slight in itself, often requires to be repeated every ten days, the cure becomes almost as bad as the disease. It was not, therefore, to be wondered at that other means were thought of, in the hope of effecting a more permanent cure. It is not my present intention, as I have stated, to write the history of trichiasis, and so I shall not allude to the many plans for a radical cure that have been suggested during the last century and a-half, many interesting details of which will be found in Sir W. Wilde's memoir on trichiasis; but all these operations may be arranged under the following heads:—

1. The removal of the offending cilia, and the extirpation of their bulbs.
2. The extirpation of the whole row of cilia.
3. The excision of a fold of the eyelids, so as to remove the cilia from the surface of the eyeball; grooving the tarsal cartilage, &c.
4. The dividing the row of cilia, with their bulbs, from the tarsal cartilage, and removing it higher up on the eyelid.

The first three are well known to British surgeons; and modifications of them have been from time to time proposed. Thus the extirpation of the whole row of cilia was suggested, as long ago as 1722, by Heister;^a approved of, some years later, by Cortum;^b was modified by F. Jæger^c in 1818; and, lastly, the operation was improved, in 1844,^d by Sir W. Wilde, who was among the first to introduce a knowledge of this operation into Britain. The excision of a fold of the eyelids, for the purpose of removing the cilia from the surface of the eyeball, will be found recommended in the works of Celsus, Aetius, Paulus von Aegina; and from the days of these fathers of medicine down to the present time, some one modification or other of this operation has been in vogue; of these that of Gaillard^e appears to me the best.

The last method on the list—that of directly displacing the cilia, and implanting them elsewhere—was first suggested, in 1844, by Dr. Jæsche,^f and was, almost immediately afterwards, modified by Arlt,^g at that time assistant to Fischer at the School in Prague, now

^a L. Heister de *Trichiasi Oculorum*. 1722.

^b Cortum de *Trichiasi*. 1724.

^c F. Jæger—*Dissertatio sistens diagnosin et curam radicalem Trichiasis*. 1818.

^d Loc. cit. 1844.

^e *Bulletin de la Société de Poitiers*. 1844.

^f *Medic. Zeitung Russlands*. 1844. No. 9.

^g *Prager Med. Vierteljahrsschrift*. B. vii. 1845.

successor to F. Jæger in the Allgemeine Krankenhaus, Vienna; and it is this method—which Professor Arlt himself was the first to call my attention to—that I now wish to recommend very strongly to the profession. The details of this operation are very shortly these:—1. The formation of an intermarginal excision. It was chiefly in this particular that Arlt modified Jæsche's operation. Jæsche made his first incision in the conjunctiva; Arlt, on the contrary, adopted Flarer's ^a plan of making the incision between the tarsal cartilage and the cilia bulbs, and thus leaving the tarsal edge to a great extent untouched. Flarer originally proposed this plan for the purpose of extirpating the eyelashes—first making the intermarginal incision, then gently raising up the flap containing all the cilia and their bulbs, and then cutting this off with a sharp scissors; and, though I have seen most excellent results from the plan of Sir W. Wilde, above alluded to, yet had I to perform the operation of extirpating the eyelashes, I would be inclined to adopt the method of Flarer, as by it the bulbs of the cilia cannot fail to be eradicated. In making this incision it will be found of great advantage to insert under the lid a horn spatula (Jæger's or Saunders'); this will help to make the lid somewhat firmer, as well as put it on the stretch. An assistant should now slightly raise the lid upwards until the tarsal margin becomes exposed.

Fig. 1.^b

The skin and the cilia are dissected from the tarsal cartilage (*vide* Fig. 1), by means of a sharp scalpel, the incision commencing at the inner angle, cautiously avoiding the lachrymal puncture. Care should be taken to glide the edge of the knife along the surface of the cartilage, so as to avoid wounding the bulbs of the cilia. 2. The next step is to disengage an elliptical flap from the upper surface of the eyelid. The first incision is to be made about two lines from the tarsal edge of the lid; the

^a Riflessioni sulla Trichiasi. Milano. 1828.

^b Figures 1 and 4 are copied from the excellent manual of Professor von Carion (Lehrbuch der praktischen Augenheilkunde von Dr. C. Stellwag von Carion. Zweite aufgabe. Wien. 1864.) Figures 2 and 3 from Dr. Josef Piltz's Lehrbuch der Augenheilkunde. Prag. 1859.

second incision is made two or three lines from the middle of the first incision, and slopes down at either side to join it (*vide* Fig.

Fig. 2.

2); this flap is then neatly dissected up, and cut off. 3. The flap containing the cilia, attached at either end to the body of the eyelid, is then freed by passing the scalpel in through the space between the tarsal cartilage and the flap with the cilia, until it makes its appearance in the upper wound; it should be then carried along from the puncture to the outer

margin, disengaging in its way any attachments, but not cutting out at either end. 4. The scalpel being withdrawn, the flap is approximated to the upper part of the eyelid by four or five stitches

Fig. 3.

(*vide* Fig. 3); a compress of charpie, with a bandage, is applied, and in three or four days the stitches may be removed; union will be found to have taken place by first intention, and after the lapse of a few weeks not only will all annoyance from the inverted eyelashes have been removed, but there will not be the slightest trace of deformity.

In very bad cases of trichiasis the shape of the elliptical flap dissected up, as described in the second stage of the operation, may be somewhat altered, and the second incision be commenced at one

Fig. 4.

end of the first incision in the eyelid, and then carried upwards as high as five lines above it, and down again to join the other extremity of the same incision—thus making a flap which will have the outline of the moon in its first quarter. The place of this incision is marked with dotted lines in the annexed figure (*vide* Fig. 4). In

all cases the depth of the excised flap must depend on the amount of the trichiasis.

The operation is most successful when performed on the upper eyelid; but this is the lid most often affected. When trichiasis occurs on the lower lid relief will be obtained by adopting some

of the many methods for removing a fold of the skin, such, for example, as Gaillard's.

From the Winter of 1860, when I first performed this operation, I have had many opportunities of judging of its success, and I have never yet known it fail. One drawback it certainly has, and that is, the destruction of almost all the Meibomian glands; but then this is true of all the operations for the removal of the cilia, and practically I do not find this objection one of very great importance. Another objection is, that the flap may mortify before having formed a fresh attachment; but this has never happened to myself, and depends, I think in a great measure on the care with which the operation is performed. The use of cold water fomentations are much more likely to lead to mortification of the flap than when it is dressed with charpie. [Since writing the above I have seen Dr. Waldhauer's paper in the *St. Petersburg Medi. Zeitschrift*, Bde. II., 301, in which he gives the results of 200 cases operated on in this manner; and in the great majority of these cases the results were most satisfactory.] Von Græfe's bandages here, as in all other operations about the eye, are of the greatest possible convenience, and it may not be amiss to mention that the charpie to be used is nothing but finely shredded Irish linen. On one occasion I recollect that a small slough formed on the centre of the flap, but it did not proceed very far, and on cicatrization the defect was scarcely noticeable. As a rule the eyelids are not subject to sloughing; and if this operation be performed with a sharp scalpel, and the parts cleanly dissected, it is not much to be dreaded.

I believe that this operation of Jæschke's, modified by Arlt, has been successfully performed in this city, by Drs. Smyly and Stokes, at the Meath Hospital, and Drs. Hamilton and Symes, at Steevens' Hospital, and probably by many others; but it has been a constant source of surprise to me that so excellent a method should be so little known of in this country.

Having thus briefly called attention to this operation, I do not feel it right to take up more space by giving a list of cases; of all those operated on in Dublin I have not heard of one unsuccessful case. However pleasant and comfortable it may be to an eye sorely tormented by trichiasis to be deprived of all its eyelashes, everted and inverted alike, yet I think an intelligent patient will have no hesitation in selecting an operation which gives an equal amount of relief, and yet preserves the eyelashes, which latter, in addition to being of great service to the eye, also add so much to the general appearance.