longer the strength requisite to produce the croupal sound, or the vocal chords had become too densely coated to vibrate; the child was half-unconscious; and paroxysms of suffocating cough threatened every instant to put an end to its sufferings. I at once proposed tracheotomy; and the parents consenting, I returned to the hospital, and obtained the aid of Mr. A. G. Lawrence, house-surgeon, who undertook the operation in the absence of the surgeons of the hospital. On reaching the house, we again explained the operation, the uncertainty as to the ultimate result, and the possibility even of the child's dying under our hands. The evident and imminent danger rendered any argument on our part unnecessary; the parents consented, and Mr. Lawrence proceeded to operate.

The shortness of the neck, the depth of fat, the necessity of avoiding, as far as possible, the large veins, rendered the operation no easy task; and a further difficulty was caused by the fright and agitation of the old woman, our only assistant, whose duty it was to hold the solitary candle, by the dim light of which the operation had to be conducted. However, the structures being carefully divided, and the veins drawn aside when possible by aneurism needles, used as the most convenient instruments at hand for separating the sides of the wound, the trachea was fairly exposed, and all bleeding having ceased, was seized by a tenaculum, and opened upon it, and the cannula was introduced. The quantity of blood lost was very small, and none entered the trachea. At one period of the operation, impending suffocation rendered a resort to artificial respiration, by pressure on the chest, necessary; when it was over, the child soon resumed its natural appearance, recognised its parents, and took readily a little wine. Before we could complete the arrangements of fixing the cannula, and placing over it, round the child's neck, two or three folds of muslin, the child, as is usual in these cases, had fallen into a sound sleep. The temperature of the room was ordered to be carefully kept up, and the steam from a kettle was directed into the apartment, as far as practicable.

When I saw the child, three hours afterwards, the sleep had been calm and uninterrupted. The mother was allowed to take the child into her arms, and it took the breast eagerly and without any difficulty or regurgitation. Two teaspoonfuls of wine were ordered to be given every two or three hours.

At about 6 A.M., on the following morning (December 21st), word was brought that the child was in convulsions. I instantly went to it, and found that nothing like convulsion had occurred; but the breathing again seemed laboured, and I feared that already the disease had extended below the opening in the trachea. On examination, however, I found the calibre of the tube greatly diminished, the mucus driven to the mouth of the cannula at each expiration, having dried in layers and lined the tube. I removed and cleansed the inner tube, and then, as tenacious mucus still rattled in the lower part of the cannula, I dropped into the opening gradually several drops of warm water, so as to soften this. I then added two or three drops at once, so as to provoke cough, by which the entire accumulation was expelled. After this, the child again breathed freely; and to prevent the mucus again drying at the aperture of the cannula, I moistened the muslin over it, through which the air had to pass: this seemed to have the desired effect.

At 11:30 P.M., the child seemed still to be doing well. The respiration and pulse were, however, rapid. The bowels had been freely moved.

At 5 P.M., it was in much the same condition; but now on suckling, the milk returned to some extent by the nostrils.

At 7 P.M., the hands were jerked about as if affected with chorea, and there were irregular spasmodic efforts, which I soon perceived to be attempts at vomiting; but the diaphragm, not having a body of air confined in the chest by the closed glottis as a support, could not oppose a firm floor against which the abdominal muscles could compress the stomach; and the stomach could not by its own contractions expel its contents. By pressure on the abdomen, consentaneously with the natural efforts, the stomach was emptied, and I left the child tranquil, and apparently as well as when I had last seen it. I should mention that the inner cannula was removed at each visit.*

At midnight, the convulsive movements of the extremities had returned; but the child was perfectly conscious; the opening in the trachea obviating the effects on the brain of the laryngismus and trachelismus, which, according to Dr. Marshall Hall, cause the insensibility in convulsive affections. About 3 A.M. it died, having survived the operation rather more than thirty-three hours.

At the *post mortem* examination, thirty-six hours after death, hypostasis of the blood was observed to have taken place. On

opening the chest, slight emphysema of the cellular tissue in the anterior mediastinum was noticed. The lungs were somewhat congested, but everywhere soft and crepitant to the feel. A little mucous froth issued from some of the bronchial tubes on section. The trachea was free from false membrane below the opening made into it, and contained no accumulation of mucus. The cannula seemed to have caused no irritation to the lining membrane. The larynx was found lined throughout by a dense false membrane—especially thick and adherent upon and about the vocal chords, whence it could be detached in large firm pieces. The fauces and pharynx were also now found coated by diphtheritic exudation, and the tongue was of a clay white colour, due either to similar exudation or thick epithelial layers.

REMARKS. The points of interest about this case are due chiefly to the early age at which the child was attacked with croup, and the operation of tracheotomy performed. This was, as has been seen, attended with great difficulties; but in spite of these was, by the exercise of skill and patience on the part of Mr. Lawrence, most successfully accomplished, confirming the conclusion I had come to from witnessing the operations, and following the teachings of Professor Trousseau, as to the vast superiority of the cautious and patient method of procedure he so strongly advocates, and which has been so successful in his hands. The loss of blood in bold and rapid operations, when the precautions alluded to are not observed, tells fearfully on the result; and it has occurred that, in despair of arresting the bleeding, the trachea has been opened while this was going on, and, blood being drawn into the air-passages, the cannula, when introduced, has been driven out by the violent reflex cough. The still more ready method would have been utterly inapplicable to this case. The practice of dropping water into the cannula is worthy of a remark. It cannot do harm, and I have seen it result in the expulsion by the cannula of false membranes. The effect may be aided by stopping the cannula at the commencement of the forcible expiration, and removing the finger suddenly, so as to imitate the action of coughing. The return of the milk through the nose, which was first noticed on Tuesday afternoon, was no doubt due to the extension of the disease to the pharynx and velum palati, which, unaffected when the child was first seen, were found at death coated with false membrane, while during the night and the morning of Tuesday, the child took the breast at frequent intervals without any difficulty. The exact cause of the fatal issue is not very apparent; probably the child was too young to withstand the disease and operation. Had it been older, I have little doubt that the result would have been favourable.

SALOP INFIRMARY.

PUSTULAR ERUPTION, AN EFFECT OF THE INTERNAL USE OF IODIDES.

By HENRY JOHNSON, M.D., Senior Physician to the Infirmary.

WITHIN the last two years, on at least three occasions, I have observed a pustular eruption on the face and other parts of the body, following the use of the *iodides*.

CASE I. A man, named W. Beech, was admitted into the Salop Infirmary January 1857, with ascites. He was a coachman in a gentleman's family, and had lived well. There were no signs of diseased heart or kidneys; but the urine was very scanty, and highly charged with urerythrine (*purpurine*). The dropsy was therefore attributed to disease of the liver. In March he was tapped, and fourteen quarts of serum were drawn off.

March 19th. He took five grains of iodide of potassium, which was continued till the 24th.

March 31st. He was ordered iodide of mercury every four hours, which he took at intervals through the day till April 28th; it was then omitted, because he had a disagreeable eruption over the face and arms, and his mouth was sore. These effects of the medicine were soon relieved; the man got quite well, went out, and married.

CASE II. In July of last year (1858), W. Hoggins, aged 25, was admitted under my care. He had diseased heart, oedema of the feet, and his urine was coagulable. He took iodide of potassium in three-grain doses from July 13th to August 4th, when the dose was increased to four grains; and, on August 13th, it was given with tincture of sesquichloride of iron, which he took till August 17th. He was then much better in all respects, but he had a large crop of pimples or small pustules

all over his face. The *iodides* were omitted; and he went out much better in all respects, but not cured.

CASE III. R. Foulkes, aged 48, a miner, came into the Infirmary on August 21st, having for six months laboured under bronchitis, diseased heart, œdema of the legs, etc. The urine was very red, from the quantity of blood which it contained. It was, of course, coagulable by heat and nitric acid; specific gravity 1015. Blood-corpuscles and epithelial casts of the uriniferous tubes were seen under the microscope. The expectation was very peculiar and very profuse. In October, I thought I detected urea in it.

When the disease had become chronic (November 19th), I ordered iodide of potassium twice a day, which he took till November 30th. His eyes were at this time much inflamed, and his face was broken out all over. The pustules on his face and upper parts of his body were so large and numerous, that I believe more than one passer-by fancied we had small-pox in the ward. He died December 7th.

Iodine was easily discovered in the urine of this man at the time the eruption was out, but, I thought, in much less quantity (judging from the amount of blue colour with starch) than in the urine of another man, S. Shakeshaft, who took five grains of iodide of potassium twenty days without any eruptive effect; his kidneys and liver being at the time in a state of activity.

REMARKS. I do not recollect ever to have seen it stated that a pustular eruption is one of the effects of iodine taken internally. I have, therefore, thought it worth while to place these three cases on record. My friend Mr. Arrowsmith, to whom I mentioned the circumstance, said he had seen such an effect, and even where there was no dropsy. No doubt, this might occur. Professor Lehmann "found that, when several persons had each taken a dose of ten grains of iodide of potassium, some would immediately begin to excrete it in their urine, which, after the lapse of twenty-four hours, no longer contained any trace of the iodide." (*Treatise on the Pathology of the Urine*, etc., by J. L. W. Thudichum, M.D., p. 401.) But if the dose were so frequently repeated that the kidneys could not get rid of it as fast as it was introduced into the blood, or if the kidneys were in a diseased or in an inactive state, as in the three cases above recited, then irregular or injurious effects would be produced.

I have repeatedly given the iodides of potassium and mercury, without any such effects, where the kidneys were in a state of integrity. What I have related confirms the observation of Dr. Thudichum, that "one of the principal reasons why iodine and its preparations are borne very well by some, and have injurious effects in others, is the varying length of time required for its removal from the body." (*Opus supra cit.*, p. 401.)

Original Communications.

ON DISEASES OF THE EYE, THEIR MODIFICATIONS FROM CLIMATE, etc., AS OBSERVED IN INDIA.

By WILLIAM MARTIN, Esq., F.R.C.S., late Superintendent, Calcutta Eye Infirmary, and Professor of Ophthalmic Surgery, Calcutta Medical College.

[Concluded from page 42.]

IV. AFFECTIONS OF THE HUMOURS OF THE EYE. 1. *CrySTALLINE LENS*. Cataract has been found very frequently in the practice of the hospital—certainly out of proportion to other classes of disease, but it is difficult to say to what extent this disproportion exists; for certainly patients will come from much longer distances to a metropolitan institution to be cured of cataract, than for any other disease. It is not one which materially affects the health, and incapacitates the patient from undertaking a long journey, and even in remote regions the idea is prevalent among the natives, that cataract may be removed by operation. Still, as I have found a large number come for relief, who are quite unaware of the peculiar and curable nature of the complaint, and as there are many native practitioners of the class, which from time immemorial have professed to operate for cataract, flocking to a large town, I think when we find that each year, out of about 2,500 patients, those who apply for relief having cataracts may be counted by

hundreds, we may fairly conclude that cataract is a remarkably common disease among the natives. In the course of four years, I find that I operated upon nearly six hundred cases; but the number of patients affected by the disease upon whom I did not operate, whether that I preferred a palliative treatment, or they showed a disinclination to undergo an operation, was very much greater.

It has been suggested that the cause of the disease, which we thus conclude to be so frequent among the natives of India, and, I presume, of other tropical climates, is to be found in an effort of nature to protect the sensitive retina from the destructive effects of a blazing sun and intense heat. The objections which most naturally occur to this view, are, that after all, a very small part of the population are the subjects of cataract, even of those who arrive at an advanced period of life; the remainder, then, must be unprotected, and there is no evidence to show that the subjects of cataract have retinae more sensitive or delicate than others; then, I have no reason for thinking that nature steps in to protect the European by producing cataract. The adoption of this view would necessitate our concluding that opacity of the lens was the normal state in a tropical climate; whereas all experience and analogy teach us that it is of the utmost consequence that it, like the other refractive media of the eye, should be transparent. This supposition, therefore, may be dismissed as one which will not bear application of the test of common sense.

I have in a few cases among natives been able to trace cataract to an action which was, if not actually inflammation, very like it; but in by far the great majority of cases its mode of origin is as little to be traced, and its progress as gradual as in the European. We seldom see, even in the aged, cataracts as hard and highly coloured. They are often quite soft, occasionally fluid, but most are of a mixed consistence; that is, have the appearance and consistence of a rather solid gelatinous substance. They are more soluble than the cataracts in the European. This is, I think, the deduction fairly made from an examination of the success of the operations for solution and depression in India as compared with Europe. By far the great majority of cataracts have always been operated upon by these methods in the Calcutta Eye Infirmary, as well as by the native operators from time immemorial, and I think the result will show that the disadvantages which have been considered applicable to these operations in Europe, viz., the danger arising from our leaving the lens to act as a foreign body, and to cause irritation and lead frequently to destructive inflammation of the eye, do not apply to these operations, when practised among the natives. The statistics of the Eye Infirmary, as given in my *Report for Four Years of Operations*, show an amount of success, which will scarcely be surpassed in European institutions.

The amount of success which has resulted from operations which have for their object the carrying the lens out of the axis of vision, and, if possible, causing its absorption, has rendered it unnecessary to have recourse, except in comparatively few cases, to operations for removal by extraction; and this is fortunate, for this method is not in general suitable to the native. In the first place, it is an operation difficult to carry out, in consequence of the peculiar physical conformation of the globe and parts surrounding it. The eye is small, deep set, the brow is generally very prominent, and the lens is large in proportion to the cornea and other parts of the eye. In the second place, a large section of the cornea is apt not to undergo the favourable process of union; the cause seems to be a certain defect in the vital power, from which wounds of parts, which are not highly endowed with vascularity, do not readily heal; and on this point we find a remarkable distinction between the European and native constitution. Wounds of what I may call by comparison non-vascular parts, heal well with the former—badly with the latter; on the other hand, wounds of the vascular and sensitive parts do not heal well with the European, but are remarkably apt to heal with the native. There is as often a deficiency of reparative action in the native, as an excess of action with the European; and on this point depends the want of success with the healing of large wounds of the cornea. Having tried the effect of avoiding all depletion and giving unusually good nourishment, and even stimulating after operation for extraction, I have found that the success has been somewhat greater than formerly, when the patient was kept rather low, but when everything apparently was in the highest degree favourable for healing of the section; viz., a clean section large enough to allow a solid lens to pass easily, but not too large, its edges lying smoothly together; a good state of constitution; no amount of restlessness or