Thus C D can be lengthened or shortened at will. At the lower end of C D is a branch passing over the front of the thigh to the inner aspect of the knee. At G H are two buckles pointing downwards. To prepare the limb for the splint, a piece of strapping is applied longi-

Fig. 11.

tudinally to the outer side of the thigh, and a like piece to the inner side, and both are fixed with a bandage. The lower free ends have a webbing tongue stitched upon them. The splint is now laid along the outer side of the limb, the perineal band is made secure, and the free webbing ends of the two pieces of strapping are turned up over rollers and fastened to the buckles, and extension and counter-extension are produced by protruding D from the canal of C by means of the cog-wheel at E, and maintained by the catch at F.

Taylor's instrument is shown in fig. 12 (next lecture). Both the outside bar and the strapping extend from the hip to the ankle, and thus the apparatus is altogether longer than that of Sayre. The bar terminates above in a very firm pelvic girdle fitted with two perineal bands strong enough to support the weight of the patient "without yielding in the least". Below, the bar ends in a foot-piece. This consists of a horizontal plate about an inch and a half wide, which turns at right angles beneath the sole. A leather strap passing transversely beneath the sole and through apertures at each side of this plate is fastened to buckles, stitched on the free ends of the strapping running up on either side of the limb. As the foot-piece projects below the level of the sole for nearly two inches, "the sound limb should have the same amount added to its length by means of increasing the thickness of the shoe worn on that foot". The instrument should be so adjusted that there is a little space between the foot and the foot-piece; so that, in walking or standing, the weight may not rest on the limb, but the whole of the weight of the body should rest directly on the instrument.

The time at my disposal does not allow me to do more than thus very briefly to describe the principle of these instruments and the method of their construction; and in so short a notice it is not possible to do them justice. But you may find a full account of them in Professor's Sayre's recently published *Lectures on Orthopaedic Surgery* (Churchill, London), or in Dr. Taylor's essay on the *Treatment of Disease of the Hip-joint* (New York). The object at which they aim is undoubtedly most important, and they are constructed with great mechanical skill; yet I confess I have found it extremely difficult to obtain satisfactory results by their use. I suppose the greatest amount to which the surface of the head of the femur can be separated from that of the acetabulum cannot be more than about the tenth of an inch. And it is very difficult to preserve efficient extension and counter-extension within this range; for the parts cannot be acted upon as if they were parallel metal plates to be adjusted by a screw; they must be controlled through the agency of perineal bands and strapping fixed upon the skin, and all these are apt to give when they are subjected to constant traction; and, if they yield, though it be but slightly, they soon, in the aggregate, lose this tenth of an inch of extension which they should maintain, and then the articular surfaces come again into firm contact. Besides, I may refer to what has seemed another difficulty. Both Dr. Sayre and Dr. Taylor allow their patients to move the thigh upon the trunk by bringing it towards flexion, and it has always appeared to me that, if the perineal band be adjusted, according to their direction, when the limb is extended, it will become loose when the limb is flexed. However, I have not had the good fortune to see Dr. Taylor carry out his treatment (though I once saw Professor Sayre apply his splint to a patient in the hospital); but the results published both by him and Professor Sayre are very striking, and are such as all may envy. Still, I cannot help thinking that, with either instrument, extension and counterextension can only be maintained by such an amount of incessant watching as cannot be secured in the usual course of practice; for, so far as I have observed, the perineal band requires readjustment—when the child is

up and about—several times in an hour, and it always grows loose in the course of the night. Again, perineal bands must always be very troublesome appliances in young children, especially in girls.

REMARKS ON OPHTHALMIC THERAPEUTICS AND THE TREATMENT OF THE COM- MONER DISEASES OF THE EYE.

Being Extracts from the Address delivered at the Annual Meeting of the South Wales and Monmouthshire Branch of the British Medical Association at Brecon, July 11th, 1877.

By TALFOURD JONES, M.B. LOND.,

University Medical Scholar; President of the Branch; Physician to the Breconshire Infirmary; etc.

As practitioners of general medicine, we must feel extremely indebted to ophthalmic surgeons for the precise, methodical, and excellent work which they have done during recent years. A complete and exact knowledge of ophthalmology can only be acquired by one who makes up his mind to devote the greater portion of his lifetime to the special study of diseases of the eye; but a general knowledge of this most important subject can, and should, be mastered by all those who practise general medicine, and who necessarily in the country undertake the treatment of ocular diseases. Yet, it is not simply in order to treat skilfully diseases of the eye that we should all earnestly seek to make ourselves proficient in this interesting though difficult branch of medicine and surgery, but, as practitioners of the healing art, it becomes our duty to familiarise ourselves with the means which ophthalmic surgeons have placed at our disposal for the diagnosis and study of so many general diseases.

But, it is not to ophthalmic surgeons only that we, as physicians and surgeons, are indebted, for we are equally indebted to those physicians whose zeal and love for medicine led them to make early use of the ophthalmoscope for the more complete study and diagnosis of diseases of the nervous system, and who have by their industry and genius placed at our disposal information of surpassing value.

Up to very recent times, it was considered impossible to see into the interior of the eye, nor was it supposed that any instrument could ever be discovered whereby such a view could be obtained, for it was long held that the pigment of the choroid absorbed all the light which entered the eye, and that, therefore, a luminous reflex could not be obtained. We, however, of this generation possess in the ophthalmoscope an instrument which enables those who are skilled in its use to see at a glance to the innermost depths of the eye, to view with ease the veins and arteries of the retina, and to detect all those pathological changes in them which disease induces.

Most of you, it is to be hoped, have read the interesting address which Dr. Hughlings Jackson delivered before the Medical Society of London on Ophthalmology in its Relation to General Medicine, and which has recently been published in our JOURNAL. He shows in vivid words how we all may, by well-directed efforts and patient study of ophthalmology, make ourselves not simply oculists, but abler and wiser physicians.

[Dr. Talfourd Jones here quoted and summarised several paragraphs from Dr. Hughlings Jackson's address, lately published in the JOURNAL; referring also to the labours of Dr. Clifford Allbutt, Mr. Jonathan Hutchinson, Dr. John Ogle, Mr. Brudenell Carter, and others.]

I would urge upon you the advisability of using more generally the ophthalmoscope in the investigation of cerebral, arterial, and renal disease. Without its aid, many important pathological conditions must escape our notice; and it is clearly the duty of those who undertake the treatment of disease to make themselves familiar with the use of so valuable an instrument. Without its aid, what can we know of such diseases as optic neuritis, simple atrophy of the optic nerve, embolism of the retinal arteries, retinal hæmorrhages, and the characteristic retinal changes in Bright's disease, or, indeed, any other disease of the fundus oculi? and yet those pathological conditions are of extreme interest to the general practitioner of medicine.

Now, gentlemen, although I would urge you to make yourselves familiar with the use of the ophthalmoscope for purposes of diagnosis and treatment, special and general, and would advise you to study the means now employed for testing abnormal refraction, for investigating astigmatism, and thus be enabled to advise your patients in the proper selection of glasses, and help them in other matters; yet, the object of my paper is quite apart from all this, for I desire to call your particular attention to the question of ophthalmic therapeutics and the treatment of the most common and most simple diseases of the eye, diseases which can be readily diagnosed without the aid of the ophthalmoscope by anyone who cares to give that proper attention to the subject which I hold it is the duty of every general practitioner to bestow, and a duty which he cannot neglect without incurring the gravest responsibility. I would take this opportunity of recommending those who have not yet given much attention to this subject to peruse Mr. Brudenell Carter's most excellent and charming *Practical Treatise on the Diseases of the Eye*. For the purposes of the general practitioner, no better book exists. It is quite unnecessary that we should all be 'able to operate' for cataract or perform iridectomy; but it is necessary that we should know how to treat the common diseases of the eye; that we should know before it is too late what ought to be done; that we should be able to frame an accurate diagnosis; that we should know where an operation should be done, though unable or unwilling to do it ourselves; that we should be able safely to advise our patients; and that we should know in time the circumstances and conditions which may render a consultation with a specialist advisable.

Mr. Brudenell Carter says that purulent ophthalmia is supposed to be the cause of nearly half the existing blindness of this country, although, with only ordinary care, the disease ought to terminate in complete recovery in every instance. He says: "I fear that in many cases medical men are greatly to blame." Again, he says: "I cannot too strongly express my conviction that no infant should ever lose its sight from this affection; and that sight cannot be so lost under the observation of a medical man except as a consequence of neglect or want of knowledge of a very flagrant character." Many of the bad cases we meet with are the result of what is called counter-practice. A patient suffering from ulceration of the cornea, or from incipient iritis, sends to the druggist for a lotion. He is given sulphate of zinc, or nitrate of silver, or some other stimulating eye-wash; and, when it is too late, he applies to the doctor. On this point, Brudenell Carter gives sound advice. He says: "It is much to be wished that all persons who may by any possibility be tempted to prescribe for eye-disease without knowing anything about it would at least lay to heart the cardinal truth, that a solution of atropine, although it may fail to do good, will in many cases be very serviceable, and can scarcely ever do harm. Astringents, on the other hand, although highly conducive to the cure of conjunctival affections, may be productive of irreparable mischief when either the cornea or the iris is inflamed."

In speaking to you about ocular therapeutics, I shall chiefly confine myself to what are called neurotic remedies, and shall but briefly refer to others. Thanks to Liebreich, we have now a remedy which, as a neurotic and a simple hypnotic, is invaluable. In many ocular affections, where we find wakefulness or restlessness unassociated with pain, and due perhaps to mental worry or anxiety, chloral hydrate acts like a charm; and in such cases we should not fail to make use of this most valuable drug. It now and then produces some local discomfort; but in no case have I ever known it fail to be of service where its use was clearly indicated. As an anæsthetic, it is of little value. It is probable that croton-chloral, which has been so highly praised by Liebreich for its power of relieving neuralgias and other painful affections of the trigeminus, may, in neuralgia of the ophthalmic division of that nerve and irritability of the eyeball, be of greater use than chloral-hydrate; but in my own practice, I have not yet found it to be deserving of all the praise that has been bestowed upon it.

And now a word or two about the bromides. Bromides act directly upon the nervous tissues; they are depressors of motor power, and lower the reflex excitability of the spinal cord; hence they are useful in nervous excitement, wakefulness from cerebral excitement, and occasionally useful in neuralgia. Bromide of potassium is of use as a hypnotic in many eye-diseases depending upon nerve-irritation.

Next comes iodide of potassium. We know that in certain tertiary syphilitic diseases of the ocular nervous tissues, and in iritis, iodide of potassium is of inestimable value; but it is also useful in other than syphilitic cases, for, by its influence on the blood-supply of the brain, it cures recurrent nocturnal headache and lessens intra-ocular pressure or tension; and in that condition of ophthalmia associated with scrofulosis, in which we have impaired nutrition and more or less anæmia, iodine or iodide of potassium, in combination with iron and cod-liver oil, has long been used as a valuable constitutional remedy.

In Calabar bean, we have a medicine which, when it is better known, will probably be found of considerable value as a remedial agent. It causes myosis, *i. e.*, contraction of the pupil, it also causes contraction of the ciliary muscle and an artificial myopia; and it is consequently employed to counteract the paralyzing effects of belladonna on the accommodation. Therapeutically, I have not myself used it in diseases of the eye, but it has been tried with excellent results in some cases of paralysis and atony of the ciliary muscle.

There are many other remedies, such as strychnia, arsenic, quinine, quinine and iron, quinine in combination with morphia and iron, which we can now only mention; but they are all valuable medicines. With the limited time at our disposal, we must pass on; but a few words must be said about morphia and mercury.

It is our duty in all cases where pain exists to use our best endeavours to relieve it. Brudenell Carter very truly says: "That no eye will get better whilst it is acutely painful, so that acute pain must always be subdued as a condition antecedent to recovery." For the relief of acute pain, we have no remedy comparable to morphia, and it should be freely used where it is clearly indicated.

Mercury, by many, is supposed to have gone out of fashion; but ophthalmologists know better than to discard so valuable a remedial agent. The late Dr. Anstie believed mercury to have some special elective affinity or special action upon the parts which are supplied by the fifth nerve. It probably does exert a more marked action upon the ocular tissues than upon any others. It must ever be one of our most potent and useful remedies.

There are three very active medicines which are now classed together under the head of mydriatics. These are belladonna, stramonium, and hyoscyamus; and they are called mydriatics because, when applied to the eye or when given by the mouth, they cause mydriasis, *i. e.*, dilatation of the pupil. The active principles of these three mydriatics are almost identical in their action; but the one which is of the most use, and which is best known, is atropia or atropine. Atropia was discovered forty-six years ago, and most of its chief physiological actions have been long known. It is a matter for surprise, therefore, that a remedy which has been proved to possess a very remarkable therapeutic value, which is so clean, so handy, so certain, and so rapid in its action, is still by many practitioners never used at all.

It will not be necessary for my present purpose to enter into the general physiological action of atropine, but it is important that we should briefly consider its peculiar action on the eye. We now know that the movements of the iris are due solely to the action of its muscular fibres; and we also know that the dilatation of the pupil, caused by atropia, is not due to the local action of the alkaloid on the muscular tissue of the iris, but to its paralyzing action on the nerve-filaments, or nerve-endings in the iris. The ocular motor fibres of the third nerve supplying the circular, *i. e.*, the contractor or sphincter muscles of the pupil, are paralysed by a local application of atropine; and the filaments of the sympathetic ending in the radiating fibres, *i. e.*, the dilator pupillæ, are stimulated. We know that division or injury of the cervical sympathetic produces contraction of the pupil and passive congestion of the eye; whence it is inferred that the sympathetic supplies the dilator pupillæ and the vaso-motor branches; hence atropine, by stimulating the sympathetic, causes dilatation of the pupil in a way distinct from its paralyzing effects upon the filaments of the third nerve. It also causes contraction of the muscles, and so relieves congestion.

Atropine, when administered internally, acts probably on the eye in precisely the same way, though perhaps not to the same degree; that is, it acts on the nerve-filaments of the iris as if locally applied. Atropine also gives rise to increased arterial tension, and this rise in the blood-pressure is probably due to its action on the muscular tissue of the arterioles, whereby a contraction of the vessels ensues. As for myself, I have no doubt on this point; and, therefore, believe that it does lessen the blood-supply when applied to the eye. Atropine also acts as a local sedative to the muscular and nervous tissues of the eye; for it produces a local anæsthetic effect on the ocular filaments of the fifth nerve, and so we may fairly call it an anodyne.

It is now almost universally believed that atropine causes lessened intraocular pressure or tension, and this no doubt happens as a consequence of the lessened blood-supply. Not the least important action of atropine I have purposely left to the last. When freely applied, it causes paralysis of accommodation. Next to its mydriatic action, this is by far the most important one. In order to understand clearly the action of atropine on the accommodation, let me remind you of the action of the ciliary muscle. This muscle, muscle of accommodation, or tensor of the choroid, is known to effect those alterations in the curvature of the lens, by which the eye is adjusted or "accommodated" for vision at different distances. The nearer the object the more convex does the lens become, and *vice versa*. And since we are more or less incessantly

adapting or accommodating, by the action of this muscle, our eyes for objects at different distances, it is apparent that, for purposes of healthy vision, this muscle should be in a sound and healthy state; that it should not be overtaxed; also that, in many diseased conditions, it is essentially necessary that this muscle should have absolute rest. By the free use of atropine, we can insure this rest, and at the same time give rest to the iris, and so obtain that rest for the eye which we would wish to secure for a broken leg by putting it up in splints.

For therapeutical purposes, the sulphate of atropia is the most convenient form in which to use atropine. This salt is very soluble in water, requiring no addition of rectified spirit. If the usual four-grain solution of the *Pharmacopœia* be dropped into the eye, it will in most cases produce in half an hour complete dilatation of the pupil. It is then that the power of accommodation becomes impaired, and near objects cannot be distinctly seen. In about an hour later, *i.e.*, an hour and a half from the instillation, there is more or less complete paralysis of accommodation, and no objects within twenty feet can be distinctly seen. When complete paralysis of accommodation is once produced, it often happens that normal accommodation does not return for a week or a fortnight. By using a weak solution of atropine, it is very easy to cause mydriasis without paralysing the accommodation; hence, for purposes of ophthalmic examinations, it is wise to use a minimum quantity of atropine; though, for therapeutic purposes, it is usually of extreme importance that the accommodation should be paralysed.

Dr. H. C. Wood of Philadelphia, in his able work on *Therapeutics*, quotes a short paper by Norris, the dentist of New York, which is well worth your perusal. Speaking of its anodyne action, he says: "In phlyctenular keratitis, by its local anæsthetic action on the branches of the trigeminus it diminishes the photophobia and blepharospasm, and seems to mitigate the intensity of the inflammation by its influence in contracting the ciliary vessels, thus diminishing the supply of nutritive materials carried to the cornea."

Let me now sum up in five sentences the wonderful effects of atropine upon the eye: it causes mydriasis; it lessens the blood-supply; it lessens intraocular pressure; it paralyses the accommodation; it causes local anæsthesia. Strammium and hyoscyamus are almost identical in their action with belladonna; hyoscyamus is, however, believed to act more distinctly as a hypnotic; and most of us would use hyoscyamus for this purpose when we would not think of prescribing belladonna.

In the October number of the *Practitioner* for the year 1872, a very interesting and instructive paper was published by Mr. Henry Power on the internal administration of belladonna in strumous ophthalmia. In addition to the local instillation of atropine in the varied forms of strumous or scrofulous ophthalmia which are met with and called phlyctenular, pustular, and so on, he recommends that belladonna should be given internally; and he has found the most troublesome cases yield to this treatment. This plan of treatment, he acknowledged, was not a new one. I had long myself been acquainted with the value of the internal administration of belladonna in similar cases. Of late, however, I have come to the conclusion that, where the patient can be daily seen by the medical man, and a proper instillation of atropine insured, the internal administration of belladonna is almost unnecessary. Where, however, we cannot insure a careful and efficient instillation of atropine, it is a most excellent plan to give belladonna internally, and also to apply it in the shape of paste to the orbit or forehead, care, of course, being taken to warn the child's parents of the special symptoms which would necessitate a discontinuance of the drug. In nearly all the cases of phlyctenular ophthalmia that come under my observation, I find that the local application of atropine and Cremer's pomade,* together with a general attention to the constitutional state of the child, will readily effect a cure. In fact, the results of this plan of treatment are so good that I am always pleased when such a case is brought to me.

With your permission I will narrate very briefly a few typical cases illustrating the treatment which I wish to advocate.

CASE I.—About two years ago, I went into an adjoining county to see a married lady who was said to be getting blind, and who was suffering so much from intense pain that her life was almost despaired of. The history of the case was this. A month before my visit, she was taken ill with neuralgic pains about the left forehead and temple. In a week, the pain became almost limited to the eyeball. Then the eye became reddened; she was unable to sleep; and exposure to light intensified the pain. She sought medical advice: she was ordered to remain in a darkened room; astringent remedies were applied to the eye, then fomentations and poultices; but the patient got worse: her

appetite failed and the mischief progressed. At the end of a month, twelve leeches were applied to the left temple, and for a few hours she was easier; but the next day she was even worse than before. It was then that I was requested to see her. She was lying on a sofa in a room from which every ray of light was carefully excluded: she was very weak, had a worn-out and haggard look, and kept the left eye tightly closed. The photophobia was so extreme that I failed to obtain a view of the cornea; I therefore injected, by means of a blunt hypodermic needle, a few drops of a four-grain solution of atropine between the lids, and applied a compressive bandage, and gave her a draught containing 30 grains of bromide and 10 grains of iodide of potassium, with 10 grains of chloral-hydrate. In half an hour, I was able to examine the eye, and found ulceration of the lower and inner quadrant of the left cornea, with some turbidity and much vascularity. The ulcer was marked with white-lead streaks. The conjunctiva was hyperæmic; there was troublesome lachrymation; and the eyeball was somewhat tense. I instilled more atropine, and re-applied the compressive bandage. At the end of a second half-hour, the pupil was widely dilated, and the photophobia marvellously lessened, so much so that I was able to hold a Weiss's benzoline lamp in front of the eye. She was ordered to take three times a day 15 grains of bromide with 10 grains of iodide of potassium, and at bedtime a similar draught together with 20 grains of chloral-hydrate; to take brandy and eggs, and plenty of food; and atropine was directed to be instilled three times a day. At my next visit, on the third day, there was a marked and most satisfactory improvement. She had slept well each night, and was absolutely free from pain. Cremer's pomade was now prescribed in addition to the former remedies. She continued daily to improve, and by the seventh day the ulcer had almost healed; and in less than a week she was as well as ever. Unluckily, in this case an acetate of lead lotion had been used, and opaque specks and streaks of white lead remained imbedded in the new corneal tissue.

This is a good example of what we may expect to meet with in a case of long continued and neglected neuralgia affecting the ophthalmic division of the fifth nerve. The fifth nerve is a nerve of sensation, and it also ministers to trophic functions; and it must be borne in mind that the nutrition of the eyeball is liable to suffer greatly when the fifth nerve is diseased. Had the neuralgia in this case been properly treated at the onset, all the subsequent mischief to the eye would have been prevented. Had proper neurotic medicines been given, such as those which were ultimately prescribed, the disease would have been stopped. Instead of this, the pain and loss of sleep were not properly combated, and free local abstraction of blood was ventured upon, when, to my mind, a transfusion of additional blood would have been infinitely better.

This case shows also the evil that results from applying lead-lotions to an abraded or ulcerated corneal surface.

CASE II.—As an example of specific disease not diagnosed, and consequently not properly treated, the following brief case is worth recording. A young girl was brought to me in 1865. She had been under medical treatment for some time; blisters had been applied behind her ears; various pain-producing lotions had been used. She gradually got worse; at last, became nearly blind. When brought to me, she could not distinguish any object, and she was obliged to be led into the room. There was in this case chronic iritis, with some lymph in the anterior chamber; and the corneæ were blurred. Suspecting specific disease, I inquired, and was soon satisfied that syphilis was at the bottom of it. Atropine was freely instilled; and iodide of potassium with perchloride of mercury, and belladonna, were given internally. In a month, the girl was well. She was recommended to go on with the iodide of mercury for some months.

CASE III.—The next is a case of mild catarrhal ophthalmia accompanied with ulceration of the cornea. On November 9th, 1876, a baby three months old was brought to me with a bad eye. The mother said it began three weeks before with "a cold in the eye", and she did not think much of it until she saw a white speck some six or seven days ago. I noted that there was photophobia; the lid was slightly swollen, with a little sticky muco-purulent discharge. On the cornea, there was a circular ulcer about a line in diameter, containing a white opaque slough. There was haziness of the cornea for some little distance around it. Cremer's ointment was applied, and a weak atropine solution instilled; a compressive bandage was applied; and the baby was given bromide of potassium and belladonna internally. Next day, I determined, in consequence of the great difficulty met with in applying local remedies, that chloroform should be given. It acted admirably: the child left me fast asleep in its mother's arms, and remained easy the whole of the day. Whilst under the influence of chloroform, it was easy to examine the upper lid, which could not be inspected before. It was swollen, red, with some discharge. A weak

* Cremer's pomade: an ointment composed, like Pagenstecher's, of precipitated yellow oxide of mercury, and preserved for use in compressible tin tubes furnished with cannulæ, through which the ointment can be readily squeezed between the lids.

solution of nitrate of silver was dropped in, and atropine again applied. Belladonna paste was applied externally. Henceforth chloroform was regularly administered morning and evening. Cremer's ointment was substituted for the nitrate of silver. By the sixth day, there was no swelling of the lid; no discharge. The pupil looked bright, and the ulcer was healing. On this day, a belladonna rash broke out on the head, neck, and back. The belladonna was withheld, and next day the rash was gone. By the twelfth day, the child was well.

I quote this case more particularly to show the value of chloroform in such cases. Chloroform or ether should be employed in all cases where, in consequence of photophobia and muscular spasm, a proper examination cannot otherwise be made. Chloroform acts readily on the pupil. At first, it causes contraction; later on, dilatation, by its paralyzing effects on the motor oculi. It has appeared to me that chloroform is not only useful in enabling one to carefully and easily examine the eye and to apply local remedies in a way that would in many cases be impossible without it, but that its sedative or anodyne action continues for some time, often many hours, after the general effects pass away. Ringer states that Sir James Simpson had observed that a few drops of chloroform put on the palm of the hand and held near a photophobic eye, so that the vapour entered the eye, would enable it to bear the light without pain.

CASE IV.—In December 1874, a young lady came to me from the neighbourhood of Swansea, suffering from phlyctenular ophthalmia. Her eyes had been bad off and on for three years. She was obliged to leave school, and has to wear blue glasses. There was extreme photophobia; several small ulcers were to be seen on the margin of the cornea, numerous vessels, and the conjunctival papillæ were red and prominent. There was a total absence of anything like scrofulosis. Atropine was fully applied; one-eighth of a grain of belladonna extract was ordered to be taken three times a day, and Cremer's pomade was applied night and morning. In a fortnight, the eyes were nearly well. Atropine was now used but once a day, though the belladonna was increased to half a grain. In February, she returned home, and was instructed to use weak atropine solution and Cremer's ointment, and to take quarter-grain doses of belladonna. Wishing to prevent a recurrence of the disease, I advised her to use the remedies for some months. In June, the belladonna was reduced to one-eighth of a grain. The biniodide of mercury ointment was regularly applied until the end of June. The eyes were then quite well, and the conjunctival papillæ were no longer visible. From that day to this, now two years, she has had no further trouble.

CASE V.—The next case is a good example of the so-called scrofulous ophthalmia. The girl, ten years old, presented the general aspect of scrofulosis. She had been suffering from bad eyes for more than a year. The mother told me that she had consulted several doctors in this county and in Glamorganshire; that all sorts of remedies had been tried; that so many painful things had been done to the child that she quite dreaded coming to me. On inquiry, I found that nearly all the local applications that had been used had given her pain; also that she had been freely and repeatedly leeches and blistered. The large scars behind the ears, extending down the neck, showed how severely she had been treated. In fact, she was permanently disfigured.

I noted that there were extreme photophobia, a little muco-purulent discharge, ulcers on the cornea, and granular lids. Atropine was instilled; belladonna paste was ordered to be applied around the orbit, and belladonna and iodide of potassium were given internally. The lids were touched with lapis divinus, which is a handy and useful remedy composed of equal parts of sulphate of copper, nitrate of potash, and alum, moulded into sticks. Cod-liver oil and syrup of iodide of iron were also prescribed. This was on November 15th; on the 17th, *i.e.*, in two days, there was a marked improvement, and in six weeks, under this treatment, she perfectly recovered.

CASE VI.—Some time ago, a young man consulted me who, for some months, had been suffering from phlyctenular ophthalmia. He was getting no better, worse in fact, under medical treatment, and he was informed by his doctor that nothing further could be done. He inquired if it would be any use consulting an oculist; he was told that no oculist could do him any further good. A friend of mine happened to see him and sent him to me. On examination, several minute ulcers and small pustules were seen on the cornea, with a cloudy and dull pupil. There was photophobia and ciliary neuralgia. I told him that, if he would but promise to come and see me regularly, and would do exactly all that he was ordered, he would probably be well in three weeks; but that he must expect to have some corneal opacity left.

He promised, and he was most exact in performance. I applied my usual remedies, *i.e.*, atropine, Cremer's pomade, and a compressive

bandage, and gave him iron. At the end of a fortnight, he was almost well, and, before the end of the three weeks, was quite free from trouble. He was then told to discontinue all the remedies except the ointment, and this he was advised to use occasionally for some months. A faint cloudy opacity of the cornea remained, as was prognosticated.

In the treatment of most of the commoner forms of disease of the conjunctiva, cornea, and iris, the most successful practitioner will be he who, in addition to making a wise use of the neurotic and constitutional remedies of which we have spoken, also knows best how to apply local remedies. Let me briefly say that, where the conjunctiva is inflamed, metallic astringents are indicated, and that the best are nitrate of silver and acetate of lead.

When the cornea is inflamed or ulcerated, there is no local remedy equal to atropine; and metallic astringents must be avoided, though, in certain stages and under certain conditions, a weak red precipitate ointment is often of service; and, when this is indicated, there is no preparation, to my mind, so convenient, so useful, and so handy as Cremer's pomade.

When the iris is inflamed, atropine must be freely instilled, and, for this disease, it is the local remedy. When both conjunctiva and cornea are inflamed, the practitioner must learn how best to apply astringents to the mucous membrane and yet avoid irritating the cornea.

In conclusion, gentlemen, let me say that I shall have gained my object if the observations which have been addressed to you will induce the members of this Association to pay more attention to the diagnosis and proper local treatment of the commoner diseases of the eye; if it will but induce you to give up blisters, setons, leeches, and painful astringent lotions in but one disease, *viz.*, phlyctenular ophthalmia, and make you trust more to atropine, I shall be indeed amply repaid.

THE PATHOLOGY OF URÆMIA AND THE SO-CALLED URÆMIC CONVULSIONS.

By T. J. MACLAGAN, M.D., Dundee.

DR. MAHOMED'S interesting communication on the above subject is a notable addition to the literature of a vexed question. While recognising the agency to which he ascribes them as a possible cause of convulsions, it may be well to note one or two objections, besides those which he has indicated, which militate against his opinion that these convulsions are caused by minute capillary hæmorrhages. These objections are general and special.

General.—The general objections are these.

1. To separate convulsions associated with renal disease from convulsions not so associated, and to study their pathology apart from that of convulsions in general, is a mode of treating the subject which is calculated to exclude much valuable information regarding the general question, and to lead to narrow, and therefore probably erroneous, generalisations regarding the special subject of uræmic convulsions.

2. To separate convulsions from all the other nervous symptoms associated with uræmia, and to regard them as pathologically distinct, is a mode of treating the question which can scarcely commend itself to physicians or pathologists, unless a better reason be advanced for so doing than any which Dr. Mahomed has given us.

In connection with this point, I would note, what Dr. Mahomed does not seem to be aware of, that Traube years ago advanced the theory that the nervous symptoms of Bright's disease (convulsions among the rest) were indirectly caused by cerebral oedema. His idea was, that the impoverished state of the blood, and the coincident occurrence of cardiac hypertrophy, led to the exudation of water through the coats of the minute vessels; that there was thus produced anæmia of the cerebral substance; that the capillaries and veins were pressed upon by this effusion; and that this pressure gave rise to anæmia of the brain. To this anæmic condition of the brain he ascribed the nervous symptoms. To Dr. Mahomed's, even more than to Traube's, view of the part played by oedema in the production of the nervous symptoms of Bright's disease, there is the very grave objection that such symptoms are most common in that form of renal disease in which oedema is least apt to occur—the contracting granular kidney. In attributing the nervous symptoms only indirectly to oedema, and directly to anæmia, Traube greatly strengthened his theory; for, of all the causes of nervous symptoms, anæmia of the brain, or, to be more accurate, malnutrition of the nervous centres, is the most potent.

On this part of the general question, space forbids me to enter. I would, therefore, simply refer Dr. Mahomed and those interested in the question to Chapter XIV of my work on the *Germ-Theory of Dis-*