degree than in the former case, and without the characteristic *scarlet rash*; and, on removing the plaster, she was soon all right."

The same journal (November 24th, 1866) relates from the *London Hospital Reports* two cases of poisoning by the external application of belladonna. "The first was that of a nobleman, for whom a liniment containing two drachms of liquor belladonnae in two ounces of soap liniment had been ordered. After using it, he hastily summoned his physician, who found him with widely dilated pupils, cerebral excitement, and rapid pulse. Another liniment, without the belladonna, was prescribed, and the doctor left. The next day, he was again hastily summoned, and found his patient with a solicitor, three keepers, and a 'mad doctor', who had already signed a certificate of insanity. It turned out that the liniment containing belladonna had, by mistake, been applied a second time; and hence a return of the cerebral excitement, rather exaggerated. Dr. Brown explained that the patient's state was attributable to the belladonna, and that the symptoms would speedily disappear, as indeed they did."

Another case is related by Dr. Fraser, of a servant girl who was taken to the London Hospital by her mistress, "who was afraid the girl was going out of her mind. The girl was extremely restless; would wander about the room; stand first on one foot, and then on the other; but was quiet for a moment when spoken to, and answered a question with an effort, generally breaking off in the middle, as if she had forgotten what she had to say. It was noticed at once that her pupils were widely dilated and fixed. It was subsequently discovered that she had pains in her breasts for some days, and had gone to a chemist, who had given her a lotion composed of half a drachm of extract of belladonna in an ounce of water, with directions to apply it on cotton-wool covered with oiled silk. She applied some in the evening, and again in the morning; and in the afternoon the symptoms appeared which induced her mistress to take her to the hospital. The girl expressly denied having swallowed any of the lotion. She recovered slowly." (*Chemical News*.)

A case somewhat similar, but of a milder kind, occurred in my own practice. A young woman recently confined, being unable to suckle her child, applied to me for some means of removing her milk. I prescribed a small quantity of extract of belladonna dissolved in olive-oil to be applied to the breasts. A day or two afterwards, she complained of dryness and soreness of the throat—of confusion of mind and vision—as well as of an irritable rash which spread itself over the body. I immediately suspected that the belladonna was the occasion of these symptoms, and on its removal they rapidly disappeared.

From the foregoing observations, then, it may be well to remember that even the external application of belladonna is occasionally productive of mischievous effects.

ANÆMIA OF THE OPTIC NERVES TREATED BY GALVANISM.

By R. J. PYE-SMITH,
Late Dresser in the Eye-Wards of Guy's Hospital.

VERY little success has hitherto attended the treatment of amblyopia and amaurosis associated with anæmia of the optic nerve (white optic disc). I have, therefore, drawn up the following account of a few cases treated by galvanism, in the hope that its publication may lead to further experiment on the subject.

Bearing in view the experiments of Professor Helmholtz on the healthy eye,* Mr. Bader suggested the application of galvanism to the optic nerve in cases of white optic disc. And for the purpose of testing its therapeutic value, the following cases have been received into Guy's Hospital.

Before giving a short account of each case, I had better describe the mode in which the galvanism was applied, and the effects it produced on the healthy eye.† A battery of Daniell's elements was used, the electrodes terminating in small sponges soaked in warm water. The negative electrode being placed on the skin behind the ear, the positive electrode was applied to the closed eyelids of the same side, or to the brow. On closing the circuit with ten elements, the healthy eye perceived a round central illumination, generally described as about the size of a sixpence, or of the tip of the finger, irregularly circular, and of a blue tint. The impression lasted about five seconds, and then gradually faded away. On interrupting the circuit, a momentary flash was perceived over the entire field.‡ These effects were produced

when the eyes were open, though more marked when they were shut. The modifications observed in the patients with white optic discs will be mentioned in the account of each case. The number of elements employed was determined by the flashes perceived, the smallest number being used that produced in each case any illumination, and where no flashes were perceived an unbearable amount of burning at the electrodes, or the occurrence of giddiness, served to limit the number.

Ophthalmoscopic examination during the passage of the current showed in all cases the veins of the retina to be congested after the first second (during which they sometimes appeared to be partially emptied), and to remain so till the interruption of the circuit, when they gradually resumed their natural fulness. This effect was observed even when no flash was perceived by the patient.

The patients were galvanised every Tuesday, Thursday, and Saturday. The current was usually passed six times at each sitting, for eight or ten seconds each time, with intermissions of an equal period.

The following cases are all of men, Mr. Kiddle having undertaken the galvanism of the women admitted with the same disease.

CASE I.—J. I., aged 42, a wheelwright, was admitted December 12th, 1871. His general health was good, except for an attack of quotidian ague twelve years ago. He had been in the habit of smoking about two ounces of shag per week. His sight began to fail nearly five years ago. He went to the Ophthalmic Hospital, and attended as an out-patient for three years, taking medicine daily. The sight continued to fail during this period, but the patient was able to keep at work till the end of that time, and till the last few months of it, to read. He frequently had severe occipital headache. He came to Guy's Hospital as out-patient nearly two years ago, when both optic discs were found to be white; he had attended ever since, giving up smoking, and taking one-third of a grain of pilula opii three times a day. His sight had continued to become worse. During the last year he had felt ill and nervous. Since his sight began to fail, he had had about half a dozen attacks of frequent shivering followed by vomiting, lasting for a day or two, and then passing off. On admission, he was very tremulous. He could just distinguish windows with each eye, but could not count the panes. He considered the right his best eye. He stated that he saw best in a dull light, and that he was able occasionally to see the time by a large clock for a minute or two, and then the sight became dim again. The tension of the right eye was (?) slightly above the normal. The pupils were dilated and sluggish. On ophthalmoscopic examination, both eyes were found hypermetropic. The right optic disc was well defined, bluish-white, with very white centre; its vessels were slightly displaced to the nasal side; the arteries were small and few. The left optic disc was well defined, bluish-white; the arteries were very small and few; the veins few and half empty. The retina was rather anæmic. There was small floating opacity in the vitreous body. Both eyes were galvanised twenty-three times—i.e., on twenty-three different days; each day, as before stated, the current was passed about six times through each optic nerve. A battery of twenty elements was used. A flash was usually perceived on closing the circuit, and a "dark flash" on interrupting it. Occasionally slight headache was produced, but the trembling disappeared in a week or so. After the fourth application, the patient was able to see the seats in the grounds; after the seventh, he could count the panes of a window upwards, but not from side to side; after the seventeenth application, he was able to read "Operation Room," painted in letters about three inches high over a door in the ward. He could now always see the time by a large white-faced clock, and could see his way about the grounds much better than at first. On January 18th, he was seized with one of his attacks of vomiting, shivering, and loss of appetite. The sight was a good deal impaired for several days, but the galvanism was continued as he was very anxious for it. His sight was examined again on January 31st. He could now see the paths in the grounds, people as he met them, a white stone sundial out of doors, the time by the clock, and could count the panes of a window in both directions with either eye. Ophthalmoscopic examination showed no marked change.

CASE II.—W. C., aged 30, a soldier, was admitted December 15th, 1871. His general health was good. He had served in India and China. He had been accustomed to smoke about an ounce and a half

side of the field, and was accompanied by a less distinct and somewhat larger illumination in the centre of the field. These may perhaps represent the optic disc (well defined and to the temporal side) and the region of the yellow spot (central). That they are not due to the form of the electrodes, is shown by the fact that small V-shaped electrodes produced the same circular illumination. It may be mentioned that this illumination was not perceived by patients whose eyes had been excised; though one of three such patients experimented upon did perceive the flash over the entire field on interrupting the circuit, and all three of them perceived distinctly the flash over the entire field produced in healthy eyes on interrupting the circuit when passed in the opposite direction (i.e., the negative electrode being on the eyelids). In one of these cases the eye had been completely excised seven years before.

* Helmholtz on *Physiological Optics*.

† Both the method of application and the effects on the healthy eye were substantially those described by Professor Helmholtz.

‡ In my own case, the defined illumination was placed somewhat to the temporal

of Cavendish per week. His sight began to get dim three years ago whilst in Bombay. Nine months later, his sight having become much impaired, he was sent to England and discharged from the army. He had since gone to several hospitals in London without improvement in his sight, though it had not become much worse since he left India. He came to Guy's as an out-patient five months ago, when both optic discs were white. He had since given up smoking, and been taking a third of a grain of pilula opii three times a day, but without improvement. On admission, he could barely distinguish windows with his right eye; he could do so more easily with the left. He stated that he could see best in a dull light. The tension of each eye was normal. Ophthalmoscopic examination showed both eyes to be slightly hypermetropic. The right optic disc was whitish throughout; its veins and arteries were thin and few. The left optic disc was white; its vessels were normal. Both eyes were galvanised eighteen times; fifteen elements were used. A flash was almost always observed on interrupting the circuit, most distinctly in the left eye. Slight headache and nausea were produced two or three times. After the third application, he stated that the sight of the left eye seemed improved, and since then it was always improved for a short time immediately after the galvanism. His sight was re-examined on January 31st. No difference was observed, but the patient's impression was that it was really improved. Ophthalmoscopic examination detected no change.

CASE III.—T. A., aged 50, a floor-cloth printer, was admitted December 15th, 1871. His general health was not very good. He had several times had painter's colic. He had never smoked more than an ounce of shag per week. Three years ago, he was in Guy's Hospital with albuminuria, when his sight began to fail; and sketches of both retinae were made, showing much choroid atrophy in both eyes, and anæmia of the left optic disc. His sight continued misty for about a year, and then became worse, coloured zones appearing around lights: impairment of vision gradually increased. Three months ago, he was obliged to give up work from inability to match colours. On admission, no albumen was found in the urine. He considered the right eye his best. With each eye he recognised type XL at twelve feet. The tension of each eye was normal. On ophthalmoscopic examination, both eyes were found to be hypermetropic. The right optic disc was ill-defined and whitish; its arteries were small; the choroid was atrophic and pigmented; the fundus turbid. The left optic disc was irregular, white, and ill-defined; the arteries were barely visible; the veins few and congested; there were atrophic spots in the choroid, with much pigmentation; the upper part of the retina was paralysed. The left eye only was galvanised eleven times; ten elements being used. The central illumination and the flash were perceived as by the healthy eye. Severe headache, with vomiting and restlessness, followed the first application. Two days later, the left eye could recognise type L only, at twelve feet. Galvanism was not applied again for a fortnight. Sickness again followed the sixth application. After the eleventh application, on January 23rd, there was lacrymation and slight intolerance of light in the left eye, and only type C could be recognised at twelve feet. The right eye still recognised type XL at the same distance. Ophthalmoscopic examination detected no change. He was advised not to be further galvanised.

CASE IV.—C. S., aged 43, a waiter, was admitted December 15th, 1871. His general health was pretty good. He had taken spirits, etc., irregularly, sometimes to excess. He had smoked about an ounce of shag per week. Nine years ago, he had a fall on his head from a height of thirteen feet. Two and a half years ago, he began to suffer from diplopia, during the summer. He attended at the Ophthalmic Hospital, and got relief by the winter. Next summer the diplopia returned, and was soon followed by dimness of sight and frequent giddiness. He gave up smoking; and sight improved again during the winter, but became worse the following summer, when he quite lost the use of the left eye. On admission, he had a nervous manner. He stated that he saw best in a dull light. With the right eye he readily distinguished type XL at fifteen feet. The left eye had merely perception of light. The tension of each eye was normal. On ophthalmoscopic examination, the right optic disc was seen to be white, and its arteries small; the margin of the sclerotic aperture was visible below the optic disc. The left optic disc was greyish white, with a white crescent round the lower part; the arteries and veins were small and few. Both eyes were galvanised twenty times, fifteen elements being used. The normal central illumination was perceived by the right eye on closing the circuit, but not the flash on its interruption. No flash of any sort was ever perceived by the left eye. After a few applications, the patient stated that the sight seemed improved, and it was always better for a short time immediately after the galvanism. On January 31st, the sight of the right eye was perhaps slightly improved; but it could not clearly distinguish type XXX at fifteen feet. There was still mere per-

ception of light in the left eye. Ophthalmoscopic examination revealed no change.

CASE V.—E. S. L., aged 49, a clerk, was admitted December 20th, 1871. His general health was good. He had never smoked. The left eye began to fail more than three years ago. He was treated with iron and strychnia internally; but his sight continued to fail, and six months later the sight of the right eye also became dim. He could see to read for six months longer. He came as an out-patient to Guy's Hospital a year ago, and had since taken one-third of a grain of pilula opii three times a day. The sight had continued to decrease, and the left eye lost perception of light six or eight months ago. His memory had failed somewhat lately; but the patient had had no headache or other nervous symptoms. On admission, the right eye recognised the approximate size, but not the shape, of windows. There was no perception of light in the left eye. The tension of each eye was normal. On ophthalmoscopic examination, the right optic disc was grey-white throughout; its arteries were thin; the veins few; the left optic disc was grey-white; its vessels thin and few. Both eyes were galvanised five times, with a battery of fifteen elements; no flashes were perceived. On January 3rd, the patient left in the same condition as on entry. He returned on the 25th, saying he had increasing difficulty in finding his way about. The ophthalmoscopic signs were as on his admission. Galvanism was recommenced.

CASE VI.—J. S., aged 36, a tailor, was admitted December 22nd, 1871. His general health was good. He had smoked about an ounce and a half of shag per week. Eighteen months ago, the sight of the right eye became misty. He attended at the Ophthalmic Hospital. In three or four months the left eye also began to fail, and his sight steadily diminished till admission. He was obliged to leave off work entirely five months ago. He had felt nervous the last few months. On admission, the perception of light with the right eye was doubtful. With the left eye he could just discern the window from the wall; he could not see the gaslights at a few yards' distance. The tension of each eye was normal. On ophthalmoscopic examination, both eyes were found slightly hypermetropic. In the right eye, the pupil was irregular, and there were posterior synechiae. The optic disc was grey-white, its outer margin pink; the vessels were few and displaced towards the nasal side of the optic disc; the fundus was dirty looking. The left optic disc was grey-white; the arteries were very thin; the veins few and somewhat varicose; the vessels were slightly displaced towards the nasal side of the optic disc; there was a dirty looking fundus. Both eyes were galvanised seventeen times; fifteen elements were used. A momentary flash was occasionally perceived on closing the circuit, and almost always on interrupting it. After the third application, the patient thought that his sight was improved, as he was able to see the fire in the grate. The sight afterwards continued to improve somewhat, and the patient felt better. On January 30th, the sight was tested; he could see gas-lamps at many yards' distance; he could tell the shape of the fireplace and the size of different windows with either eye. Ophthalmoscopic examination showed no marked change.

The following table may serve as a convenient analysis of the cases.

Case.	Duration of amblyopia.	Eye galvanised.	No. of elements employed.	Description of flashes perceived.	No. of days galvanised.	Result.	Remarks.
1.	2 to 5 yrs.	Both.	20	Momentary flashes on closing and on interrupting.	23	Considerable improvement.	
2.	2 to 3 yrs.	Both.	15	Momentary flash on interrupting.	18	Doubtful improvement.	
3.	2 to 3 yrs. (still slight.)	Left.	10	Normal illumination and flash.	11	Sight impaired.	Case complicated by results of syphilitic inflammation, and (?) of Bright's disease.
4.	$\frac{1}{2}$ to 2 $\frac{1}{2}$ yrs. (still slight in right eye).	Both.	15	Right, normal illumination. Left, none.	20	Doubtful improvement.	
5.	2 to 3 yrs.	Both.	15	None.	5	None.	Treatment not continued long enough to obtain any result.
6.	$\frac{1}{2}$ to 1 $\frac{1}{2}$ yrs.	Both.	15	Momentary flashes on interrupting, & sometimes on closing.	17	Slight, but decided improvement.	Case complicated by results of syphilitic inflammation.

I do not consider these few cases sufficient to furnish general conclusions; but I think the results are sufficiently encouraging to warrant further experiment with regard to galvanism as a curative agent in the treatment of anæmia of the optic nerves. All the cases, except No. III, are still under the treatment, somewhat modified, so that I hope in course of time to ascertain the permanent results.

Since writing the above account, I have had the opportunity of watching four of the cases under the continued treatment by galvanism; but, I regret to say, that there has been no further marked improvement. In order to try the effect of reversing the current, I applied the galvanism for six weeks longer in the same way to the right eye of each patient, and in the reversed direction to the left eye. The flashes thus occasioned varied as previously stated, but no further effect seemed to be produced. No. I has been very ill with an attack of severe vomiting and shivering, during which his sight became much impaired; but it has since recovered slowly, and is now much better than when galvanism was first commenced. Nos. II and VI have made no perceptible advance; and a short time before the discontinuance of the treatment, No. IV's sight began rapidly to fail. The patients are now trying the strychnia treatment. The following note gives the result of Mr. Kidde's experience with galvanism.

"The result of galvanism for anæmia of the optic nerve on female patients referred to in the above letter, has been on the whole entirely unsatisfactory. Five patients were selected, whose ages varied from 21 to 36 years. At times there appeared to be some improvement of sight, but this was soon followed by a relapse; and I attribute it more to the general health of the patient than to any benefit derived from galvanism. I have also treated six males in a similar manner (aged between 43 and 50), in addition to those reported by Mr. Pye-Smith, and no improvement of sight has been obtained in any case."

KEROSENE OIL IN CHRONIC RHEUMATISM.

By W. G. KEMP, L.R.C.P.Lond., M.R.C.S.Eng., Wellington, New Zealand.

SEVERAL cases have lately come under my notice in which the internal administration of kerosene has had the most decided and marked effect in chronic rheumatism. I am at a loss how to explain its action; but the fact that it has completely cured several cases will be seen from the following extracts.

CASE I.—J. H., aged 46, sailor, had suffered from chronic rheumatism for twenty years. He never had an acute attack. He used to have agonising twinges in his feet and legs; he compared the pain to that which would be produced by the skin being seized with a pair of tweezers and forcibly pulled. The attacks would come on about every ten minutes, and often last for three or four days and nights. He had been under medical treatment many times, but had never had more than temporary relief. He began to feel the interval between the attacks lengthen in six weeks after commencing kerosene; and in less than three months the pains had entirely left him. After discontinuing it for some time, the pain returned slightly, but was always cured by taking two or three doses. A teaspoonful was taken in a wineglassful of water every other night. The kerosene produced no unpleasant symptoms, no loss of appetite, no effect upon the bowels or kidneys.

CASE II.—D. W., aged 50, a gardener, had suffered from chronic rheumatism for twenty years, being affected in different parts of his body at different times. About two years ago, he had a severe attack in his back and limbs. He received no benefit from medical treatment. After taking kerosene for ten days, he began to feel great relief, and in less than a month was sufficiently cured to resume his occupation. He has never had any attack since. No unpleasant symptoms arose from taking it; there was no effect upon the bowels or kidneys. The odour of the kerosene was perceptible in the urine.

CASE III.—P. A. D., aged 50, a sailor, had suffered from chronic rheumatism for four years, being affected chiefly in the legs, arms, and back. He had great difficulty in rising up and sitting down. He received no relief or benefit from medical treatment; the symptoms always returned after leaving it off. He began to feel great relief after taking kerosene for about a month, and was sufficiently well in three months to leave it off. He was obliged to commence taking it again a few months afterwards, as he found the pains returning. No unpleasant symptoms arose from taking it. The odour was perceptible in the perspiration. The good effects were not so apparent in this case, owing to the patient being of a thoroughly broken-down constitution and in reduced circumstances, so that he was unable to take as much care of himself as was necessary. He, however, found more re-

lief from the kerosene than from anything else, and does so up to the present time.

CASE IV.—J. W., aged 35, a grocer, had suffered from constant pains in his back and legs for twelve months, frequently being obliged to stay from work for several days together. For the last two months he had not been able to stoop down to tie his shoes. He received no permanent benefit from medical treatment. After taking three doses of kerosene, he felt considerable relief, and is now, after taking it for a fortnight, able to walk with very little pain, and can stoop with ease. The kerosene caused slight diaphoresis, and acted as a stimulant and tonic. He says that he felt exhilarated after each time of taking it, and had more desire for food.

CASE V.—Mrs. B., aged 56, suffered from rheumatism in the arms and hands for a number of years. She had been under medical treatment several times, but never was cured. She took kerosene for less than a month, and was materially benefited, and in about three months was perfectly well. She occasionally feels some return of pain; and, after one or two doses of the oil, it again leaves. She speaks of a decided tonic effect upon the system, becoming stronger and better after taking it.

CASE VI.—Mrs. C., aged 32, had suffered from rheumatism for about six years, chiefly in her hands, being often obliged to do no work for days together. She had generally been obliged to go to the north of New Zealand during the winter. Medical treatment was of no avail. She took kerosene for about six weeks, and, being decidedly better, left it off. The pains returned after a few months; and, after taking a few doses of kerosene, she "turned against it so," that she refused to take any more. She became worse, however, and took it again. After a short time, she felt decidedly relieved, though she is at times liable to a return of the pains.

There is another case, the particulars of which I am unable to get, owing to the patient having left for another province.

Although kerosene cannot be called a specific for rheumatism, I think that the cases here cited are quite sufficient to induce medical men to give it a fair trial. I am unable to find any unpleasant symptom caused by taking kerosene. The great objections with many people to taking it, are the unpleasant taste and smell. Some have taken it in water or milk; but I have lately heard a patient say he could take it best with salt; a pinch of salt being put into the mouth and allowed to dissolve, and the oil then swallowed, mixed with about its bulk of water. I am not aware of the remedy having ever been used internally; but I trust some medical men will be found who will give it a trial and record the results of their cases. Externally, it is of great use in cases of burns, whether severe or slight; it seems to relieve pain more than any other application, especially if resorted to as soon as the injury is received. I have known cases of severe burn to heal up rapidly under its use alone.

A NEW USE OF BARNES'S DILATORS.

By HERBERT M. MORGAN, L.R.C.P., etc., Lichfield.

As I have on two occasions lately found Barnes's dilating bags of great service in what I believe to be a new way of using them, I shall be glad if publicity can be given to the following narratives, as it may be the means of helping others in similar cases.

CASE I.—A woman, who had had a tedious labour as a primipara, was taken in labour with her second child, and the "waters broke" very early. I found the pains moderately good, but the os small and unyielding. The natural and elastic dilator of the os—viz., the bag of waters—had gone; and here was a case which in the ordinary way would be very tedious to the patient and her attendants. I thought that, if I could make an artificial bag of waters, so as to imitate nature, I should materially assist the labour; so, with great difficulty, I managed to introduce Barnes's largest bag within the os by the help of an uterine sound. When once it was there, it was easy to pump in nearly a pint of warm water; and I was much gratified to find that the labour then progressed very well, each pain dilating the os by means of the artificial bag quite in a natural way. I am sure that by this means I gained some hours, which would have been lost in useless pain but for the bag.

CASE II.—A farmer's wife had a miscarriage at about the eighth month of her fourth pregnancy. This was followed by a discharge of more or less blood for about a week, when suddenly she had such a copious loss as to make her quite faint. She then first sent for me, and I found her with a blanched face and constant sickness. The os was dilated to the size of a florin, and not yielding; the membranes were entire; and I could detect that it was a case of placenta prævia, with