is not given by a long railway journey. The attachments of the healing surfaces are shaken asunder, so that conical stumps and protruding bones were by no means unfrequent in the hospitals where the primary amputations had been received.

In face of the enormous pressure, the preparations fell far short of the requirements of the occasion and of the utmost efforts of the surgeons, who were rarely able to carry out the most approved practice of modern surgery. The application of the plaster of Paris splints to compound fractures, though generally approved, was, where I went, the exception, not the rule, simply because the means were not at hand for employing them. Of Lister's method of treating wounds by carbolic acid I did not see a single instance. Carbolic acid is much used, it is true, but as a wash, or as an oily solution spread on a handful of charpie secured by a bandage. Doubtless, the carefully considered instructions published by Professor Lister for the use of military surgeons will be followed in several of the hospitals in Germany itself; but the colossal scale of the war, and the enormous difficulties that over-taxed the energies and resources of the surgeons at the seat of war, have prevented anything like a general application of the best surgery of the present day, though here and there, no doubt, the perseverance of our comrades has enabled them to put the best methods of treatment in operation.

This lecture has already taxed your patience most severely; I had intended to include an outline of the means this country should adopt in preparations for the medical treatment of our soldiers in war, should that unhappily be forced upon us. It has, however, been abundantly manifest to all who have watched the progress of the present war in the public prints, that no Government can adequately meet the exigencies of actual warfare; that, while enlarging the medical staff and supplying it with every appliance for the collection and treatment of the sick and wounded, it must enlist the services of a staff of volunteer assistants, by encouraging the establishment of societies in time of peace, by assisting them with its advice and experience, and by promoting the drill and equipment of those who undertake at the outset of war to put themselves at the disposal of the military authorities.

It must now conclude, only let me congratulate you, who to-day enter our noble profession, on the auspicious moment you have chosen. Never was the value of the physician or of the surgeon more generally acknowledged, or his opportunity better for rendering the great services that our professional training enables us to lavish on the unfortunate victims of a misused civilisation.

I assure you that many a time did I feel a glow of pride, though only a bystander, in belonging to a profession whose skill and devotion were bringing ease of mind and body to hundreds of miserable fellow creatures, starving and dying in agony. Prepare yourselves: your opportunity will come, I trust in not so bloody an epoch as this; but in occasions less exciting, and, therefore, conferring the more credit on you who undertake the often tedious duties of our sacred calling. Your vocation will not lead you to the highest offices of the state, or to the renown attainable by the soldier or the lawyer, but of true glory and of the noble satisfaction that rewards a well spent life, you can attain your just share. May you begin to-day a prosperous career!

ON SOME RARE FORMS OF OPACITY OF THE CORNEA.*

By WM. FAIRLIE CLARKE, F.R.C.S.,

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THE cases which I desire to bring before the Association are all examples of opacity of the cornea; but they belong to two distinct classes, and each class is sufficiently rare and sufficiently important to make it worthy of the attention of the Section.

The first case is one of *congenital leucoma*—a very uncommon affection, and one which gives rise to many interesting questions. The others are cases of "symmetrical opacity of both corneæ"—a disease which is far from frequent, and the pathology of which is involved in great obscurity.

These two subjects I shall take in order. I shall first relate a well-marked case of congenital leucoma, and offer some remarks upon it; and then I shall proceed to give the details of three cases of "symmetrical opacity" which have lately come under my care, and, by comparing these with published cases, I shall hope to be able to give a clear account of the nature and progress of the disease, even if I am

unable to throw much light upon its causation or upon the means by which it may be cured.

And first of congenital leucoma. (Case —.) John Thomas Day, an infant five weeks old, was brought to Mr. Bowman at the Royal London Ophthalmic Hospital on account of "a skin over its sight". As I had the good fortune to be clinical assistant to Mr. Bowman, I had an opportunity of observing the case and taking notes of it. In the left eye there was a leucoma, which occupied nearly a quarter of the cornea. It was situated on the inner side, and extended almost from the circumference to the middle line, covering just half the pupil. It was observed within an hour after birth, and it had the same appearance then that it has now. There has never been any perceptible inflammation or discharge. The pupil was adherent, but not displaced. The surface of the leucoma was perfectly smooth, regular, and polished: it was of a dense texture and of a brilliant white colour.

This case suggests some interesting considerations. How could such a white mark as this be formed upon the cornea? If the pathology of a congenital leucoma is the same as that of one coming on after birth, then we must suppose that a very unusual series of changes have taken place *in utero*. We must suppose that after the cornea was developed a large and deep ulcer has been formed in it either spontaneously or as the consequence of injury; that this ulcer has perforated the cornea, so that the iris has become adherent; and that subsequently the ulcerative process has ceased, repair has commenced, lymph has been poured out, the cavity has been filled up, the contour of the cornea has been restored, and there remains only the dense white scar, which I have attempted to represent in the accompanying drawing.

But, though nature has done so much to repair the mischief, the sight has been left permanently damaged, for the leucoma occupies nearly a quarter of the cornea, coming up to the central point and covering half the pupil.

I know of no surgical treatment that is likely to do any good in such a case; but it will be interesting to observe, as the child grows up, whether Nature makes any effort to remove the blemish. The leucoma is so dense and solid that we can hardly suppose that much of it will be absorbed; still, the lapse of time may bring about some amendment.

We now turn to the second and more important class of cases to which we have alluded; namely, the symmetrical opacities of both corneæ. The case which we have just related may be regarded as a surgical curiosity; it is so rare and so irremediable. But those which we have now to consider are not so very infrequent: they may, in some instances at least, be benefited by operations; and their symmetrical nature leads us to believe that they depend upon some constitutional cause which may perhaps be ascertained and counteracted.

Three cases of this affection have lately come under my observation at the Central London Ophthalmic Hospital. These I shall relate in order, and then I shall compare them with published cases of the same kind; and, finally, I shall offer some remarks upon the whole series.

CASE I.—John Woodfield, aged 55, a commercial traveller, living at Islington, presented himself at the Central London Ophthalmic Hospital in May 1870. He said that about two years ago a haze began to come over both his eyes at the same time. It was not attended by any pain or by any inflammatory symptoms, either acute or chronic. From that date it had been gradually becoming more and more dense, until it had now become so bad that he had been obliged to desist from his employment and to seek relief at the hospital. He was a hale, ruddy man, strong and healthy-looking for his age. There was an obscure history of syphilis thirty years previously, but it did not seem that he had ever had any secondary symptoms. He had never had either gout or rheumatism; his father, however, was "a martyr" to the former complaint. His work had always been of a very harassing kind, and for the last eighteen months he had felt nervous, faint, and giddy. Both eyes were affected, though the left was worse than the right. The opacities were of a rusty brown colour, and slightly shaded off at their edges. They lay somewhat horizontally, travelling in a direction from within outwards and downwards, and occupying exactly correspondent parts of the two corneæ. They were not raised above the level of the surrounding cornea, for the curvature of the eye was perfectly regular, and the epithelium covering them was smooth and brilliant. Probably they were situated in the anterior elastic lamina. With the right eye the patient could read No. 5 of Jaeger's test-types at ten inches, but with the left he was only able to make out No. 16 at the same distance, and that only when the test-type was held on the outer side of the eye. When the pupils were dilated with atropine, the *fundus oculi* could be clearly seen in both eyes, and presented a healthy appearance.

CASE II.—George Hill, aged 40, applied at the Central London Ophthalmic Hospital in February 1870. He was a water-gilder by trade, and had been in the habit of working over a hot stove, melting quicksilver and gold together; and he said that sometimes the fumes of the

* Read before the Surgical Section at the Annual Meeting of the British Medical Association in Newcastle-upon-Tyne, August 1870.

mercury were given off so freely that there was quite a deposit upon his face. He was a thin, pale, delicate-looking man. There was no history of gout or rheumatism, and he said that he had never had syphilis.

Fifteen years ago, "a cloud began to come before his sight." It was not attended by pain or inflammation, or acute symptoms of any kind. For the last five or six years it had been so bad that he had been obliged to give up his work. There was now a symmetrical opacity in each cornea. It was of a rusty brown colour, and slightly diffused at its edges. It was of an oval shape; the long axis lying along the horizontal meridian of the eye, corresponding to the palpebral aperture. The opacity was about four lines long by two lines broad. The pupils were active. He could only read, with each eye separately, No. 10 of Jaeger's test-types at six inches. With the ophthalmoscope, the details of the *fundus oculi* could be clearly seen by looking over the opacity, and they had a perfectly healthy appearance.

CASE III.—Thomas Prichard, aged 50, living in Clerkenwell, was employed in making wooden frames for barometers, but he had nothing to do with the mercury. He had not been subject either to gout or to rheumatism, and there was no history of syphilis. For many years he had been an occasional applicant at the Central London Ophthalmic Hospital, but he first came before me in February 1870.

Fifteen years ago his sight began to get cloudy. First the left eye was affected, and soon afterwards the right. The opacity came on gradually without pain or inflammation. He says it took about six years to reach its worst. Then for four years it remained stationary; but he was always able to do his work with the aid of convex glasses. About five years ago his sight began to improve, and now both eyes were becoming somewhat better.

His state on admission was this: there was in each cornea an opacity of a greyish colour. The opacities were about five lines in length by three in breadth. The long axis of each lay along the horizontal meridian of the globe, corresponding to the palpebral aperture. The opacity was very dense, sharply defined at its edges, and having the appearance of being slightly raised. There seemed to be a tendency for the opaque deposit to break down and chip off near its centre, for in the right eye there was a large irregular patch in the centre, where the cornea appeared to be transparent. In the left was a smaller space of the same kind. It was through these apertures that he was able to see to do his work; and it was apparently as they increased that his sight improved. With his right eye he could read No. 4 of Jaeger's test-types at six inches, and with his left No. 10 at the same distance.

This case and the preceding one I brought before the Pathological Society of London in April last.

I shall now transcribe, with some little abbreviation, the only two cases of this rare affection that I have met with in our professional literature. They are to be found in the appendix to Mr. Bowman's *Lectures on the Parts concerned in Operations on the Eye*. The one occurred in Mr. Bowman's own practice; the other in that of Mr. Dixon.

CASE IV (Mr. Bowman's).—James Kemp, aged 55, for forty years a house-painter, a man of healthy constitution, but of late reduced by deficiency of food, arising from want of power to follow his occupation, came under my care in January 1849. On each cornea was a horizontal band, of brownish opacity, extending from side to side, and so much broader opposite the pupil as completely to hide it from view, unless the pupil was dilated, or was examined either from above or below through the still transparent cornea. Both the iris and the pupil could be seen to be perfectly natural and active. When the pupils were considerably dilated, he obtained some useful vision, especially with the left eye, where the opacity was not quite so extensive as on the right. The opaque part was very finely mottled with dark dots, some of which were only to be seen with a lens; its margins were shaded off rather abruptly, and the cornea beyond them was perfectly clear. The opacity had the appearance of occupying a superficial position, and of being very slightly raised; but the surface reflected the light as brilliantly as other parts. The shape of the opaque tract was peculiar in being slightly inclined downwards from the inner side, so that its lower edge in each eye corresponded exactly with the margin of the lower lid, when the eyes were directed to a new object. The inner end of the opacity in the left eye was traversed by a narrow line in which the cornea was as transparent as ever.

The singularity of these opacities led me to inquire particularly into the man's history. He had had an ophthalmia ten years before, lasting only a fortnight, and leaving no blemish. After a period of about three years, his wife noticed that he had a speck on each eye; but as his sight was perfect, he doubted it. After two or three years more, the specks were more evident to others, and he began to find that in a strong light his sight was clouded, so that he applied for relief at the Ophthalmic

Hospital, and remained a patient there for about two years, during which time he was treated with drops and lotions, but rather got worse than better; in fact, the opacity seemed confirmed and incurable, and was steadily encroaching over the front of the pupil. Within the last year he has been quite thrown out of work, able to see only in an obscure light, and then only objects on one side.

Like those who had previously seen him, I regarded these opacities as indelible; but as he came from time to time, it occurred to me to make an attempt to shave off a portion of one of them, in order to examine its nature more completely. I accordingly made the patient come from the hospital to my house, where I could at once place any portion I might be able to detach under the microscope. The first scratch with the point of the lancet on the right eye (January 20th), detached the epithelium, which seemed healthy, and brought me down upon the opacity, which felt hard to the instrument, and had a smooth surface. In scraping and trying to slice off a thin film of it, a thin flake cracked off and separated, leaving what seemed a hole through the cornea; but the aqueous did not escape, and I then saw that the pupil was visible through the perfectly transparent lamellated texture, behind the opacity. It was now easy to chip off the opaque film over a space corresponding to the pupil; and when this was done he could see large letters plainly, for the exposed surface was nearly smooth.

The subsequent inflammation was slight, and in a few days the epithelium was restored, without any return of opacity, and he could see very much better. The fragments which had been removed became of an opaque white when dry, and when examined under a sufficient magnifying power, presented the appearance of an aggregation of rounded, highly refracting grains, disposed in a sort of network. They all lay nearly in one plane, and the epithelium which had covered them was perfectly healthy. The deposit appeared to consist of the same ingredients as ordinary bone; viz., phosphates of lime and magnesia, with a considerable proportion of carbonate of lime.

On the 22nd of February, the area exposed by the operation on the right eye remaining clear, I performed the same operation on the left, and with precisely corresponding results, so that in a few days afterwards he could see almost as well as eight years before. With this eye he could, in fact, with some care, read "pearl type".

CASE V (Mr. Dixon's).—J. T., cabinet-maker, aged 58, applied to the London Ophthalmic Hospital October 16th, 1848, complaining of dimness of sight, which had been gradually getting worse for the last six months, until it had entirely prevented him from following his trade. His eyes, when cursorily viewed by a person placed directly in front of him, seemed to have no pupillary apertures; but, on close inspection, it was found that this appearance was produced by a transverse opaque band passing along the equator of each cornea, so as entirely to hide the corresponding portion of the iris. These bands were of a brownish tint, closely resembling that of the irides, about a line and a half in breadth, and gradually shaded off at their edges, leaving the upper and the lower portions of the cornea perfectly transparent, through which an oblique view of the pupils could be obtained. These were rather small, but perfectly normal; and the patient could readily distinguish an object placed above or below the level of the eye. Except the opacities of the cornea, no morbid appearance could be detected in either eye; and the patient stated that there had been no inflammatory symptoms during the time the dimness had been coming on.

Counterirritation, by means of issues in the temples, stimulant applications, and mercurial frictions around the orbits, having been employed in succession without any result, I tried to remove the opacities by operation. On February 19th, I carefully scraped off the epithelium from the centre of the right cornea, and found a very thin layer of hard matter beneath it. This was closely united to the proper substance of the cornea, and could be raised from it only in small flakes and with considerable difficulty. When this opaque deposit had been entirely scraped off, the cornea beneath it was found to be perfectly transparent.

By March 1st the irritability of the eye had subsided, and the spot where the opacity had been removed was covered with new and perfectly transparent epithelium. In the following week, the same procedure was repeated on the left eye, the result of which was a very great improvement of vision, and a restoration of the cornea in front of the pupil to its almost perfect transparency. The fragments removed became opaque when dry, like those in Kemp's case; and, on being chemically tested, were found to consist principally of lime, either in the state of phosphate or sulphate.

If, now, we take a review of these five cases of symmetrical opacity of both corneae, we observe that they appear to belong to two varieties. The first two cases that I have related form one group; the three other cases another. In the first group, the opacity is of a rusty brown colour, and does not rise above the level of the surrounding cornea; in the second group, it has a greyish or mud colour, and is slightly ele-

vated. In the first group, the deposit appears to be merely pigmentary; in the second, it has a calcareous nature (phosphate and carbonate of lime).

It would seem from Case III that the calcareous deposit has a tendency after a time to chip off, and thus lead to a spontaneous cure. This corresponds with the experience of Messrs. Bowman and Dixon, who found that it easily broke off under the knife, and that the subjacent cornea was smooth and transparent. There is, therefore, in these calcareous cases, much encouragement to operate; or, if the patient decline an operation, we may hold out to him the hope of a spontaneous cure, though it may be long delayed. In neither class of cases does any milder treatment seem to be of any avail; but in one of my cases the use of stenopaic spectacles was attended with great benefit.

It has been supposed that these symmetrical opacities are connected in some way with the gouty or rheumatic diathesis; but the cases which I have related lend no support to this theory.

NOTES OF A CASE OF BILIARY FISTULA.*

By G. H. PHILIPSON, M.A., M.D.Cantab., M.R.C.P.Lond.
Physician to the Newcastle-upon-Tyne Infirmary, etc.

FISTULÆ of the biliary passages may open externally, or communicate with some internal organ. Of the latter, most pass from the gall-bladder or the ductus communis choledochus into the duodenum, stomach, colon, portal vein, or urinary passages of the right side.

As an example of external fistula, the following case may be instanced, which is at the present time under my care in the Newcastle Infirmary, and for the history of which I am indebted to the Senior House-Surgeon, Dr. Page.

Mary L., aged 34, a dress-maker, had been married thirteen years, and had had seven children, all born alive. Up to fifteen years of age, when menstruation first occurred, she had enjoyed good health. From fifteen to twenty-one years of age, when she married, she experienced no illness, with the exception of frequent headache and occasional constipation.

In June 1868, she went to bed feeling quite well, but during the night awoke with violent pain near the umbilicus. At this time she suffered severely from tenderness and distension of the abdomen.

In September 1869, in consequence of the severity of the abdominal pain and a protrusion of the umbilicus, she applied for aid at the Newcastle Dispensary. A few days afterwards, the skin around the umbilicus ulcerated and a quantity of glairy fluid escaped, at first like the white of an egg, afterwards yellow. About a week later she became jaundiced. Subsequently the discharge lessened and the jaundice passed away, and about this time she became pregnant.

On Christmas Day 1869, she was suffering so much pain, that the opening was enlarged and four gall-stones were removed.

In May 1870 she was confined. The sinus, which up to that time had continued to discharge, sometimes a yellowish, at other times a greenish, fluid, closed for about a week, when it recommenced to pour out fluid, and the patient suffered from a recurrence of the abdominal pain and again became jaundiced, and was admitted into the Newcastle Infirmary on the 9th of June, 1870.

June 11th. The skin and conjunctivæ were yellow, the tongue furred and dry, the urine dark porter-coloured, and the fæces pale. At the umbilicus, a fistulous opening existed, about the size of a goose-quill, from which a glairy greenish fluid exuded, easily increased in amount and in rapidity of flow by circumjacent pressure. A silver probe was easily passed for four inches, and could be moved from side to side. The patient was ordered salines and a generous diet, and improved daily in appearance and in strength.

On June 22nd sudden and severe pain occurred in the abdomen and very little fluid passed from the opening. The probe was arrested about an inch from the surface. Three gall-stones, about the size of small hazel-nuts, were extracted by Dr. Page, and the pain abated and the discharge recommenced.

It having been thought that the case might be of service in supplementing the experiments by Professor Hughes Bennett upon the chologogue action of mercury upon the lower animals, a communication was addressed to that gentleman, who answered, that unless it was positively determined that the ductus communis choledochus was impervious, it would be utterly useless to institute any proceedings.

To clear the doubt, active aperients were administered. After free

purgation, the alvine evacuations from being clay-coloured began to give evidence of containing bile, and on July 2nd it was noted that such had become dark brown in colour. The proposed investigation for estimating the amount of bile which passed from the fistulous opening, of necessity, therefore, was abandoned.

In this case, in all probability, in consequence of gall-stones having become impacted in the biliary passages, the gall-bladder became widely distended, and, from consequent inflammation, adherent to the abdominal walls, which subsequently ulcerated. The quantity of bile which flowed from the fistulous opening was never excessive, hence the small effect upon the nutrition.

In contrast, the chief points of a case of fistula of the right pleura, at this time also under my care in the Newcastle Infirmary, will be briefly given.

William W., aged 17, was admitted on the 21st of July, 1870. About twelve months ago, a swelling appeared in the right side, which, after having been poulticed, broke. July 23rd. On the right side, about one inch outside of the nipple and two inches below, was an opening, about the size of a small pea. A probe was easily passed upwards and backwards for fully four inches. About one ounce of thin sanious pus passed in the twenty-four hours. During tranquil respiration, the percussion-note was resonant to the level of the fistulous opening, the liver-dulness commencing at this line. In forced inspiration, the percussion was resonant to a finger's breadth below the opening. Respiration was heard anteriorly fully one inch below the right nipple, posteriorly for two inches below the angle of the scapula. The heart's impulse was in the normal situation; the cardiac dulness was not increased. No account of an acute attack of pleurisy was given. It is presumed, therefore, that the case had been chronic from the first, and the effusion never great in amount.

These cases are both, at present, in the Newcastle Infirmary, and may be visited at any time by any of the members. The coincidence of their being under observation at the same time, together with the interest of and the dissimilarity of the cases, is a sufficient apology, it is trusted, for their being simply recounted.

DEATH FROM THE EXTERNAL APPLICATION OF CARBOLIC ACID ACCIDENTALLY APPLIED.

By EDWARD SANDWELL, L.R.C.P.Ed.,
Medical Officer Westminster Union.

ON August 31st, Emma —, aged twelve months, came under my care suffering from extensive ulceration of the whole of the gluteal region, together with the labia, etc. The mother of the infant is charwoman to the Ragged Schools in this district; and, having on the 29th of August to clean the rooms, took with her the baby and another child twelve years of age to look after her. Just before she commenced working, the superintendent had used his usual disinfectant of one ounce of carbolic acid to a quart of warm water, which he sprinkled about the room, as was his practice. The elder child sat the baby on a block of wood on which some of the disinfectant had been thrown. Nothing was noticed on the day of the occurrence, the child being washed and put to bed as usual. The next morning, blistering had commenced, and rapidly passed into the state of ulceration in which I first saw it. I ordered a dry application of Fuller's earth and French chalk, which seemed to comfort and cause a diminution of the inflammation. On the fifth day after the accident, I gave a lotion of liquor plumbi with glycerine. Several sloughs formed and separated, the child gradually becoming weaker from exhaustion and shock. There were some signs of internal inflammation, for which I applied the usual remedies. The child died on the tenth day.

On making a *post mortem* examination, I found the rectum much inflamed; the intestines had patches of inflammation; the right pleura was also much inflamed.

Before the accident, the child was very healthy, showing no signs of internal inflammation or other disease. It was well forward with dentition, and was a full robust child; but after the injury, emaciation was very rapid.

From inquiries, I find that it is not at all uncommon for people to complain of burning and even blistering of the gluteal region after having used a closet to which carbolic acid had been recently applied. This only tends to show the necessity of caution being used in the administration of this disinfectant, even in a diluted form.

* Read in the Medical Section at the Annual Meeting of the British Medical Association in Newcastle-upon-Tyne, August 1870.