that there is no distinct membrane lining the aqueous chambers. The disease that I am now about to describe, of which I have seen very many well-marked examples, and which is well figured in Mr. Dalrymple's plates, is probably seated in the inner or the elastic layer of the cornea, and extends slightly and superficially over the surface of the iris—perhaps the term "corneo-iritis" would most correctly indicate its true seat. This disease resembles, in some respects, "true corneitis;" it occurs most frequently in children and in young adults; it comes on very insidiously, usually attacks one eye at a time, and is often limited to one eye; the pain is slight; there is but little intolerance of light; the patient chiefly complains of dulness of vision; the sclerotic vessels around the margin of the cornea are considerably injected. On examining the cornea carefully, it is observed to be quite smooth and bright upon its surface, instead of finely granular, as in corneitis; and upon the inner layers of the cornea are some tolerably well-defined whitish spots or patches, varying very much in size, shape, and thickness, but they are usually round, and most thickly studded near the centre of the cornea. I have seldom seen them quite at the circumference. It is very difficult to ascertain how far the iris is involved, because, looking through an altered medium, its colour seems changed, and its natural transparency lost. This, however, is frequently not the case in the early stage of the disease, as shown by the perfect activity of the pupil; and, when it extends to the iris, it seems to be limited to the delicate membrane covering it, and not to invade its proper texture, because the pupil can generally be acted upon by belladonna; and when the cornea regains its transparency, no change is observable in the iris, except some slight adhesions to the capsule of the lens, although, during the height of the disease, I have on several occasions observed large red vessels on the surface of the iris.

This disease presents great varieties as regards its intensity. In some cases, almost the only evidence of the disease is the presence of a few small, well-defined spots on the inner surface of the cornea, the remaining parts being clear and bright, and vision being only slightly interfered with, and there being little or no increase of vascularity; whereas, in the other extreme, the patches on the inner surface are larger, more irregular in shape, and denser, and the intermediate parts of the cornea are hazy, the surface of the iris is dull and vascular, the sclerotic vessels are much injected, and there is severe, dull, aching pain, and intolerance of light; vision is also very seriously impaired. Between these two extremes we find every shade of difference. This disease belongs to the same family as corneitis; it is less frequent in children, and never occurs, according to my observation, after the middle period of life. I have most frequently met with it in young adults of a feeble constitution, with a tendency to struma; and in the more severe cases, where the cornea and iris have been rather seriously implicated, and where adhesions to the capsule and slight dulness of the surface of the capsule remain, I have had reason to think that the disease might be traced to some remote syphilitic taint, either hereditary or acquired, but usually the former. It is very protracted in its duration, and does not seem to yield to any specific plan of treatment, but usually passes away from the surface of the cornea at the end of some months, leaving, in the more severe cases, some adhesions of the pupillary margin, and a slight dulness over the surface of the capsule of the lens, which never, under any circumstances, disappear when they have once formed. Such adhesions do not prevent some action of the pupil, and allow much more accurate vision than the appearance of the eye would indicate.

The treatment should be principally directed to the establishment of general power, and the exhibition of some mild alterative tonic. Preparations of iodine and the iodide of iron seem to be useful; and where any syphilitic taint is suspected, small doses of mercury are indicated, and appear to act as a tonic. I have been particularly struck with the value of this medicine in those cases that I would denominate strumo-syphilitic, occurring in children from eight to twelve years of age, where the condition of the eyes I am now describing has formed part of a group of symptoms resembling very closely the tertiary forms of syphilis, such as loss of the soft palate, exfoliations about the nasal bones, periosteal inflammations, &c. Such cases I have attributed to the engrafting of some hereditary syphilitic poison upon a strumous diathesis; and it is in such cases that I have found mercury act most favourably. The local treatment should be merely soothing; and where there is reason to suspect that the iris is involved, belladonna may be advantageously employed in the early stage, to prevent adhesions, and to counteract any tendency to closed pupil.

I now pass on to the consideration of some of those changes that are observed to take place within the anterior chamber of the eye. The first of these that I would notice, is the occurrence of pus in this situation, which gravitates to the lower part of this cavity, and is termed hypopion; as this is a symptom resulting from various causes, it is not correct to describe it as a separate disease, but it may be convenient to mention some of the usual sources of this morbid product within the aqueous chamber. The most common cause of pus in this situation is, according to my observation, the occurrence of an ulcer upon the inner surface of the cornea, corresponding to a similar ulcer on its external surface, the middle laminæ remaining entire; the matter may often be seen trickling down from the ulcerated part to the bottom of the anterior chamber, where it remains during the upright posture, but readily passes to either side when the head is sufficiently inclined either way; another source of this symptom is an abscess between the layers of the cornea bursting internally; occasionally, in very acute inflammation of the aqueous chamber, pus is poured out into this cavity without any evidence either of an ulcerated surface or of a false membrane. An organized tubercle upon the iris may suppurate, and thus become a source of this symptom, and in one or two rare instances I have seen hypopion follow a severe attack of fever in an eye in other respects perfectly normal and free from every trace of inflammatory action, analogous, in this respect, to the manner in which pus is found in other cavities of the body after fever, irrespective of inflammation. The presence of matter in the anterior chamber is of no moment, except as it forms an index and measure of the amount and severity of diseased action that is going on in the eye. It has been suggested to evacuate it with a small cutting needle; this would be a rash and injurious proceeding, unless the extreme pain and severity of the general symptoms indicated aggravation from tension of the globe, when great relief may follow the evacuation of the pus together with some of the aqueous humour; such cases must be treated in other respects upon such general principles as I have already laid down—warm and soothing appliances being more particularly indicated where pus is present. Occasionally blood is found in the anterior chamber, this is usually the result of a blow, but in a few rare instances it has been found to be vicarious with the menstrual function. Blood becomes readily absorbed in this situation; but it is important to give a guarded prognosis, as it probably results from such an amount of violence as will cause some permanent injury to one or more of the delicate structures of the eye, which will not show itself until the blood is entirely absorbed.

There is yet one other curious change in the anterior chamber of the eye which I have often observed, and which deserves notice: the natural secretion becomes altered in colour and quality, being yellow, and highly albuminous, and much increased in quantity. The result of these changes is, that the cavity is much increased in size by the thrusting back of the iris and lens, and the surface of the iris appears of a green colour; there is also very severe pain and tension, and much dimness of vision. I believe this disease usually occurs in an eye that has been more or less damaged by previous attacks of inflammation of the deeper textures, attended with adhesion between the iris and the capsule of lens to such an extent as to convert the anterior chamber into a perfect shut sac. The best mode of relieving the pain, in these cases, is to puncture the cornea with a needle, so as to evacuate a portion of this yellow, albuminous fluid, so as to remove all tension. The iris will then fall forwards, and resume its natural colour, showing that its green aspect was due to the yellow secretion in front of it. This gives immediate ease; but it often happens that the same thing occurs again and again, and requires a repetition of the same plan until the abnormal tendency is worn out. It is important not to allow all the fluid to escape, otherwise the iris will fall in contact with the cornea which for a time occasions great pain. The peculiar appearance arising from this abnormal accumulation and change in the aqueous humour can never be mistaken when once seen. It is admirably portrayed in one of Mr. Dalrymple's plates of "Diseases of the Eye."

ON

SILICATE OF IRON AS A URINARY DEPOSIT.

By JOHN HARLEY, Esq., Stockport Infirmary.

While engaged in examining the urine of patients suffering from various diseases, the secretion containing the above deposit came under my notice.

The subject is a strong, plethoric woman, aged forty-six, unmarried. Catamenia ceased for the last six years. She

states that she had fever about two years and a half ago, which chiefly affected the kidneys, since which she has experienced shooting pains in the lumbar regions, accompanied with scalding and irritation on micturition. This has continued with greater or less severity up to the present time, but has never prevented her from following her employment, which is altogether confined to the house, and that principally during the night. Appetite and digestion extremely good, as is the health, with the exception of the urinary irritation, which is sometimes severe, and at others amounts to nothing, and some slight œdema of the legs.

My attention was first called to the urine in the early part of December last, from which date up to the present time I have had the opportunity of daily examining it. The results are the following:—

December 4th.—Urine amber-coloured, acid, specific gravity 1·020, having an abundant, light-coloured, flocculent, gelatinous-looking precipitate, occupying about one-third of the volume of urine, together with a heavier, sandy-looking one; irritation excessive.

Dec. 4th to Dec. 30th.—The urine still retains the same characters, but the sandy-looking deposit has decreased in quantity; specific gravity averaging about 1·013; irritation much diminished.

Dec. 30th to Jan. 12th.—The secretion is for the most part pale-coloured; specific gravity ranging from 1·010 to 1·013. The appearance of the urine is much the same, having a light-coloured precipitate floating on a now scanty, sandy-looking one, whose colour is generally dirty-white, but occasionally it has a reddish tint.

The average quantity of urine passed in twenty-four hours for one week was forty ounces. The irritation and lumbar pains have now almost entirely ceased.

Jan. 12th to March 9th.—Urine presenting the same features, with now and then an additional deposit of urate of ammonia, and occasionally one of uric acid, sometimes in thick lozenges, and at others in beautiful, aggregate prisms. The sandy-loooking deposit varies in quantity, but for the most part remains now as little more than a sprinkling at the bottom of a broad vessel, while the flocculent one occupies about an eighth of the volume of the urine. Quantity voided in twenty-four hours varying from forty-three to fifty-five ounces, once attaining eighty-seven ounces. Average quantity for a fortnight between these last dates, fifty-one ounces. Specific gravity generally about 1·012, falling as low as 1·008 in that whose quantity amounted to eighty-seven ounces.

From these statements it will be seen that these two deposits were constantly present in the urine, and evidently bearing some ratio to each other, and to the amount of irritation experienced.

Examination of the deposits.—On decanting the supernatant urine, and boiling the remainder, the flocculent deposit was dissipated, and the heavier one quickly subsided. This latter was separated from the urine, well washed, and boiled in water, after which it remained as a dirty-looking, fine, sandy powder, which was apparently unaffected by boiling with the dilute or concentrated mineral acids, but the presence of sesquioxide of iron was plainly demonstrable in all, after being so treated, the hydrofluoric excepted, in which the deposit was partially soluble. Exposed to heat it blackened, from the decomposition of a trace of organic matter present, but was with great difficulty fusible before the most urgent flame of the blowpipe. Mixed with an excess of pure carbonate of soda, and fused in a platinum spoon, and the hard, greyish, semi-transparent mass boiled in a quantity of water, a portion remained undissolved. The watery solution treated in the usual way with hydrochloric acid yielded pure silica. The above insoluble residue dissolved immediately in dilute hydrochloric acid forming a yellow solution, which, on the application of the suitable re-agents proved to be one of sesquioxide of iron. It was unaffected by ferricyanide of potassium, showing the absence of any proto-oxide. Repeated analyses proved these two substances, silicic acid and sesquioxide of iron, to be present in the deposit in equivalent proportions, $Fe\,O_{1\cdot5} + Si\,O_3$—that is, in nearly equal parts.

With regard to the flocculent deposit, a microscopic examination showed it to consist of separate and distinct nucleated cells, which, under a quarter-inch object-glass, appeared as beautiful globules, rather larger than those of ordinary mucus, having a well-defined margin, and containing from three to five distinct nuclei. I have not the least hesitation in referring these cells to what Dr. Golding Bird has provisionally termed "organic globules;" and this case agrees with his experience, that their presence is indicative of great irritation in the urinary organs. Mixed with these globules could be seen, under the microscope, transparent, irregular particles of the siliceous deposit, a portion of which was always suspended amongst them in the urine, and would become deposited on boiling it.

The decanted urine was apparently normal, always possessing an acid reaction. The urea was found deficient in quantity, amounting to only 8·77 grains in 1000. We must not forget, however, that the amount of secretion is nearly double that given as the usual average.

From the following analysis of the bright, filtered urine, it will be seen that it contained a comparatively large amount of silica.

In 21,000 *Grains of Urine, Specific Gravity* 1·013.	Grs.	*In* 1000 *Grs.* Grs.
Chloride of sodium, phosphate of soda, chloride of ammonium...	216	10·28
Phosphate of lime and magnesia	23	1·09
Sesquioxide of iron, a trace ...	—	—
Silicic acid	5	0·238
Total amount of inorganic salts	244	11·608

The quantity of urine voided on this occcasion was fifty-two ounces in the twenty-four hours, thus giving 5·4 grains of silicic acid present in the fluid portion of the secretion for that period.

Another quantity of urine, (eighty-seven ounces, specific gravity 1·008,) passed in twenty-four hours, furnished exactly the same quantity.

The presence of so large a quantity of silicic acid in this secretion, and its combination with sesquioxide of iron, as a distinct urinary deposit, is remarkable, and cannot fail to be of interest, both in a physiological and pathological point of view.

Every care was taken to ascertain, with regard to the ingesta, whether anything unusual was taken, or whether there existed a partiality to any of the ordinary articles of diet, such as bread; but these precautions only served to prove that the woman, although a hearty eater, was not an extraordinary one.

P.S.—For the week intervening between July 9th and 16th, I again had an opportunity of examining the urine. The siliceous deposit had increased in quantity, the secretion still retaining the same characters as noticed throughout. Multitudes of the "vibrio subtilis" were developed in the still acid and undecomposed urine, after keeping the samples a few days.

POST-MORTEM APPEARANCES IN CHOLERA.

By GEORGE ROBINSON, M.D., Newcastle.

As opportunities of examining the bodies of persons who have died from cholera are not very frequent, only two being inspected post-mortem out of the 1500 deaths which occurred here last year, the following particulars may not be uninteresting to the profession.

About seven o'clock on the morning of Saturday, July 8th, Michael McCann, a labourer, aged about forty, was found by the police lying under an arch near some lime-kilns, in the south-western part of Newcastle, and within a few yards of the river Tyne. He was evidently in a state of great prostration, and was then suffering from vomiting and purging, with severe cramps. He was at once carried to a comfortable bed in the vagrant ward, and the surgeon to the district, Mr. Sang, was sent for, and speedily attended. By this gentleman he was found to be in a state of choleraic collapse, and almost moribund, being pulseless and cold, with rice-water discharge from the bowels, occasional vomiting, and severe cramps in the abdomen. Warm applications, stimulants, and suitable medicines were diligently used, but without avail, as he continued to sink, and died at nine o'clock, two hours after his admission, being sensible to the last. The body was examined eight hours after death, by Mr. Sang and myself, and the following were the only morbid appearances observed:—

The lungs were healthy; the heart, a little enlarged, contained in its right cavities a quantity of black, imperfectly-coagulated blood; at the origin of the aorta were some slight calcareous deposits. The stomach and intestines were unnaturally vascular, and distended with fluid. The peritoneal surface of the latter was of a pink colour, the stomach of a deeper red. On laying open the stomach it was found to contain at least a quart of reddish-brown fluid, suspended in which were several large fibrinous shreds, with a little mucus adhering to them; the mucous membrane of the stomach appeared greatly congested, and many of the submucous vessels were distended with dark-coloured blood. On the greater curvature, and about three inches distant from the pylorus, was a very large coagulum, consisting partly of fibrin and in part of blood, the latter