rall of Dublin, in 1841, and may properly be called enucleation of the globe.

It is usually performed in the following manner. The patient is well chloroformed. The lids are held asunder by the spring wire speculum. The conjunctiva is divided circularly near its reflection with a pair of short-bladed, lancet-edged, straight scissors. The ocular fascia is next cut through, and the muscles exposed. The strabismus-hook is slid under the various tendons, which are conveniently divided in the following order. First: the rectus externus, and in succession, the rectus superior, inferior, and internus. The globe starts forwards, and the obliqui are cut. The forefinger is now slid along the outside of the globe as far as the nerve, which is divided with a pair of blunt-pointed, laterally curved scissors. Bleeding is restrained by syringing the cavity with cold water. In a few days, cicatrization of the stump formed by the ends of the muscles, and the conjunctiva is complete, and an artificial eye is adapted with good cosmetic effect.

Mr. Critchett varies the operation, and uses only a sharp and blunt-pointed pair of scissors, and without the aid of the hook performs it very rapidly. If not resorted to very late, this proceeding is, in most instances, followed by cure, or by a very essential improvement in the eye sympathetically affected.

Enucleation of the globe is also advisable in certain scrofulous or malignant diseases of the organ, and also in painful conditions of the globe or disorganisation of its structure.

I here show you the eye of a child, aged three years, which I removed, after the plan described to you, on the 28th day of April last. The history of this case is interesting.

CASE. Fanny Love, aged 3½, of fair complexion and healthy aspect, the child of healthy parents, without scrofulous or syphilitic taint, has had a slight squint in the right eye for more than twelve months. Six months since she had measles. About a month after this, her parents saw a white spot behind the pupil of the right eye, and thought her vision imperfect. Soon after this, I saw her. I found the eye normal in size and in consistence. Vision was lost; the iris acted sluggishly; there was no pain. The pupil being fully dilated by atropia, a large white flocculent oscillating mass was seen at the fundus of the eye; it had an irregular surface, and here and there was stained by slight sanguineous effusions. It appeared to occupy a large portion of the vitreous space. The little patient would not tolerate the use of the ophthalmoscope. Seven weeks after this examination, the flocculent mass was found to be much larger, and the effusion of blood more evident. The anterior chamber was nearly obliterated by the bulging forwards of the iris. The lens was still transparent. Enucleation of the globe was performed on the 28th day of April, 1860. No trouble followed the operation; and the child was not confined upstairs a single day.

Dr. Bader, who very kindly examined the eye microscopically and chemically, said that he had never seen a similar disease. The account of his examination is most learned and elaborate; but for our purpose, it is sufficient to state that he found the vitreous space occupied by a creamy whitish opaque semifluid substance, which could be removed in flakes. The whitish appearance depended upon the presence of carbonate of lime in considerable quantities.

I here show you two eyes, also removed at the Plymouth Eye Infirmary. There was nothing very unusual in the cases; but I exhibit them, that you may see how free from raggedness the surface of the globe of the eye is when removed in the manner described; and I would observe, that these specimens have not been trimmed since their removal.

[To be continued.]

A PRECOCIOUS MOTHER. There was one case during the year worthy of especial notice, in consequence of the extreme youth of the mother. Elizabeth D. was born of native parents, in the almshouse at Taunton, United States, May 24th, 1847, and at the same place she became the mother of a healthy boy, on the first day of February, 1858, being only *ten years eight months and seven days old*. This appears to be a rare case in this climate, but is well attested by the physician (Dr. A. Baylies) of the almshouse at Taunton, who officiated professionally both at the birth of the young mother, and at that of her "hopeful son". This boy weighed eight pounds at birth, and at the age of eighteen months it weighed 37½ pounds, and was in the enjoyment of robust health. (*Massachusetts Registration Report, and American Medical Times.*)

A Course of Lectures ON URINE, URINARY DEPOSITS, AND CALCULI.

DELIVERED AT THE PATHOLOGICAL LABORATORY,
DURING THE SESSION 1857-58.

BY

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LECTURE VII.

URINE IN DISEASE. *Insoluble Substances in Urine.* 1. *Floating on the Surface, or suspended through the Fluid.* URINARY DEPOSITS. 2. *Light and Flocculent Deposits.* 3. *Dense and Opaque Deposits.* 4. *Granular and Crystalline Deposits.* EXAMINATION AND PRESERVATION OF URINARY DEPOSITS. *Collecting Urine for Microscopical Examination.* *Period when the Urine should be examined.* *Removal of the Deposit from the Vessel containing it.* *Of Collecting a very small quantity of a Deposit from a Fluid.* *Magnifying Powers required in the Examination of Urine.* *Of the Chemical Examination of Urinary Deposits.* *Examination of the Deposit in the Microscope.* *Of Placing the Deposit in the Preservative Fluid.* *Refractive Power of the Medium in which Deposits are mounted.* *Media in which Urinary Deposits may be preserved.* *Of Keeping the Deposit for subsequent Inquiries.* *Of Preserving Deposits permanently.* *Mucus, Epithelium, Fungi, and Vegetable Growths. Spermatozoa. Casts. Pus. Phosphates, Urates, Blood-Corpuscles, Uric Acid, Cystine, Oxalate of Lime.* *On Preserving Crystalline Substances which are more or less Soluble in Water.* OF EXTRANEOUS MATTERS OF ACCIDENTAL PRESENCE. *Larvæ of the Blow-fly. Hair. Cotton and Flax Fibres. Portions of Feathers. Silk. Fibres of Deal from the Floor. Starch-Granules. Portions of Tea-Leaves. Milk. Sputum. Epithelium from the Mouth. Vomit.*

GENTLEMEN,—We now come to the examination of the different insoluble substances which are often met with in the urine in cases of disease. You may remember that I mentioned that in healthy urine only a very little insoluble material, in the form of a faint flocculent cloud, was to be detected. This consists of granular matter, probably composed of epithelial debris, and imperfectly formed cells of epithelium derived from some part of the genito-urinary mucous membrane. This is what is ordinarily termed the *mucus* present in healthy urine, and may be greatly increased in quantity in certain diseases of the mucous membrane.

It will be convenient, for the purposes of description, to arrange these insoluble substances in a certain order; and I think that the subdivision which I shall recommend to your notice will be found of some practical value when you are trying to discover the nature of different insoluble substances. It is not my endeavour to devise a natural classification, but merely to arrange deposits in the order in which they can be practically treated of most conveniently. There are objections to this, as to every other subdivision; but, as it is simple, and depends merely upon the general characters which you can observe by the unaided eye, I venture to recommend it to you.

Insoluble substances may float on the surface of the urine, or may be diffused throughout the fluid, or they may sink to the bottom, forming *deposits* of greater or less density.

1. *Insoluble Matter floating upon the Surface of Urine, or diffused through the Fluid.* Fatty matter in a very minute state of division, as it occurs in cases of *chylous urine*, is one of the most important substances contained under this head; and, in alluding to this form of fatty matter, it will be convenient to direct your attention at the same time to all the different states in which fatty matter is found in the secretion, *dissolved* by other constituents; in a *molecular* or *minutely divided state*; in the form of *globules*, which may be *free*, contained in *casts*, or within *cells* constituting fat-cells; or in the form of small *concretions*, as described under the term *urostealith* by Heller, but only in one single case.

Urate of soda is another substance which is often suspended

in a molecular state through the fluid, rendering it turbid; but this also forms a deposit, and it will therefore be more convenient to consider it under that head. Phosphates are found not unfrequently in the pellicle upon the surface of urine; but in this case they are merely buoyed up, as it were. We shall have to consider this salt also under urinary deposits.

2. *Light and flocculent Deposits, usually transparent, and occupying considerable volume.* Under this head I shall include mucus, with different forms of epithelium derived from the kidney, ureter, bladder, urethra, vagina, etc.; certain well defined forms of fungi and vibriones; sarcinæ; spermatozoa; casts of the uriniferous tubes; rarely, benzoic acid in small quantity.

3. *Dense and opaque Deposits, occupying considerable bulk.* This class will include only deposits of urates, pus, and phosphates.

4. *Granular or crystalline Deposits,* occupying a small bulk, sinking to the bottom, or deposited upon the sides of the vessel. This division includes a great many different substances. Among the most important are uric acid, oxalate of lime, certain forms of triple phosphate and phosphate of lime, cystine, carbonate of lime, blood-corpuscles, and very rarely, cancer-cells, tubercle-corpuscles, and echinococci.

The examination of urinary deposits is now a subject of such great importance, and the advantages derived from it are so generally admitted, that I need scarcely refer to its value, in assisting us to form a diagnosis in many cases of disease. Within the last fifteen or twenty years, the investigation of urinary deposits has been so much simplified by the conjoint use of the microscope and chemical analysis, that the nature of the greater number of deposits has been correctly ascertained. When you commence examinations of urinary deposits for the first time, you will doubtless meet with many difficulties; and in some specimens which you examine you will perhaps discover no deposit whatever; whilst in examining others, the whole field of the microscope is seen to be occupied by substances of various shapes and colours, the nature of which you will be unable to ascertain. Many of the substances which lead to this difficulty have obtained entrance into the urine accidentally; and I must therefore warn you against mistakes easily made, which are serious, and may bring great discredit upon your powers of observation. Portions of hair have been mistaken for casts of the renal tubes; starch-granules for cells; and other substances of extraneous origin, such as small portions of woody fibre, pieces of feathers, wool, cotton, etc., often take the form of some of the urinary deposits, and to a certain extent resemble the drawings given of them in their general appearance, so as to mislead the student in his inferences, and retard his progress in investigation.

Collecting Urine for Microscopical Examination. Urine, which is to be submitted to examination, should be collected in considerable quantity, in order to obtain sufficient of the deposit for examination. In many instances, the amount of sediment, even from a pint of urine, is so small that, without great care in collecting, it may be altogether passed over. The amount of deposit from a measured quantity of urine should always be roughly noted. The space occupied by the deposit may be compared with the total bulk of the fluid, and we may say the deposit occupies a fifth, a fourth, half the bulk of the urine, etc.

Bottles used for carrying specimens of urine should be made of white glass, with tolerably wide mouths, and capable of holding at least four ounces; but, if the sediment only of the urine is required, the clear supernatant fluid may be poured off, after the urine has been allowed to stand for several hours, and the remaining deposit may then be poured into small bottles of an ounce capacity, or even less. The only objection to this latter mode of collecting urine is, that no estimate of the amount of sediment deposited by a given quantity of urine can be formed. The bottles may be arranged in a case capable of containing two, four, or six. They may be obtained of Messrs. Weiss, in the Strand; Mr. Matthews, near King's College Hospital; and other instrument makers.

Period when the Urine should be Examined. In all cases the urine should, if possible, be examined within a few hours after its secretion; and, in many instances, it is important to institute a second examination after it has been allowed to stand for twenty-four hours or longer. Some specimens of urine pass into decomposition within a very short time after they have escaped from the bladder; or the urine may even be drawn from the bladder actually decomposed. Under these circumstances, we should expect to find the secretion highly

alkaline, having a strongly ammoniacal odour, and containing crystals of triple phosphate, with granules of earthy phosphate; and upon carefully focussing, numerous vibriones may generally be observed. In other instances, the urine does not appear to undergo decomposition for a considerable period, and may be found clear, and without any deposit, even for weeks after it has been passed.

In those cases in which uric acid or oxalate of lime are present, you will find that the deposit increases in quantity after the urine has stood for some time. These salts are frequently not discoverable in urine immediately after it is passed, but make their appearance in the course of a few hours. The deposition of uric acid depends upon a kind of acid fermentation, which has been the subject of some beautiful investigations by Scherer.

In order to obtain sufficient of the deposit from a specimen of urine for microscopical examination, we must place a certain quantity of the fluid in a conical glass (Lecture I); in which it must be permitted to remain for a sufficient time to allow the deposit to subside into the lower part.

Removal of the Deposit from the Vessel containing it. In order to remove the deposit from the lower part of the vessel in which it has subsided, I firmly close the upper end of the pipette with the forefinger, the tube being held by the thumb and middle finger. Next, I plunge the lower extremity down to the bottom of the deposit. The forefinger may now be raised very slightly, but not completely removed, and a few drops of the fluid with the deposit slowly pass up into the tube. When a sufficient quantity for examination has entered, I press the forefinger again firmly upon the upper opening, and carefully remove the pipette. A certain quantity of the deposit is now allowed to flow from the pipette on to the glass-slide or cell, by gently raising the forefinger from the top. It is then covered with the thin glass cover, and subjected to examination in the usual way. Dr. Venables recommends that the deposit should be obtained by inverting a corked tube into which the urine has been previously poured. A small quantity of the deposit adheres to the cork, and may be removed to a glass-slide; but, as a general rule, I think the plan above described will be found efficient.

Of Collecting a very small quantity of a Deposit from a Fluid. When the quantity of deposit is very small, the following plan will be found of practical utility. After allowing the lower part of the fluid which has been standing to flow into the pipette, as above described, and removing it in the usual manner, the finger is applied to the opening, in order to prevent the escape of fluid when the upper orifice is opened by the removal of the finger. The upper opening is then carefully closed with a piece of cork. Upon now removing the finger from the lower orifice, the fluid will not run out. A glass-slide is placed under the pipette, which is allowed to rest upon it for a short time. It may be suspended with a piece of string, or supported by the little retort stand. Any traces of deposit will subside to the lower part of the fluid, and must of necessity be collected in a small drop upon the glass-slide, which may be removed and examined in the usual way.

Another plan is to place the fluid, with the deposit removed by the pipette, in a narrow tube, closed at one end, the bore of which is rather less than a quarter of an inch in diameter. This may be inverted on a glass-slide, and kept in this position with a broad elastic India-rubber band. The deposit, with a drop or two of fluid, will fall upon the slide, but the escape of a further quantity of fluid is prevented by the nature of the arrangement.

Magnifying Powers required in the Examination of the Urine. Urinary deposits often require to be examined with different magnifying powers; those which are most frequently used being the inch and the quarter of an inch. The former magnifies about 40 diameters ($\times 40$); the latter from 200 to 220 ($\times 200$, $\times 220$). Large crystals of uric acid are often readily distinguished by the former, but crystals of this substance are sometimes so minute that it is absolutely necessary to use high powers. Octohedra of oxalate of lime are frequently so small that they cannot be seen with any power lower than a quarter; and, in order to bring out the form of the crystals, even higher object-glasses than this are sometimes necessary. Spermatozoa may be seen with a quarter, but they then appear very minute. In these cases, an eighth of an inch object-glass, which magnifies about 400 diameters ($\times 400$), will be of advantage. The casts of the tubes, epithelium, and the great majority of urinary deposits, can, however, be very satisfactorily demonstrated with a quarter of an inch object-glass.

You will often learn much by subjecting a deposit, the nature of which is doubtful, to examination in various fluids, such as water, spirit, mucilage, turpentine, Canada balsam, etc.

Of the Chemical Examination of Urinary Deposits. In the investigation of those deposits which are prone to assume very various and widely different forms, such as uric acid, it will sometimes be necessary to apply some simple chemical tests, before the nature of the substance under examination can be positively ascertained.

Suppose, for instance, a deposit which is found, upon microscopical examination, not to possess any characteristic form, be suspected to consist of uric acid, or of an alkaline urate, we have only to add a drop of solution of potash, which would dissolve it, and then excess of acetic acid, when the crystals of uric acid will be deposited after some time in their well known rhomboidal form; or any other chemical tests which should be considered necessary may be applied.

When it is requisite to resort to chemical reagents, a drop of the test-solution is to be added to the deposit, which is placed in the cell, or upon the glass-slide. If necessary, heat may be applied to the slip of glass by a spirit-lamp, and, with a little practice, the student will soon be able to perform a qualitative analysis of a few drops of urine, or of a very small portion of a deposit.

Examination of the Deposit in the Microscope. The drop of urine with the deposit is to be placed in a thin glass cell, or in one of the animalcule-cages sold by Messrs. Powell and Lealand, of the Euston Road. The latter instrument will be found convenient for examining urinary deposits, as a stratum of fluid of any degree of thickness can be very readily obtained.

Various parts of the specimen are to be brought into the field of the microscope. It is better to examine the object as regularly as possible, commencing on one side, and moving it up and down, until the whole has been traversed. After one specimen has been examined, and the nature of its contents noted, another may be treated in a similar manner. Specimens should be taken from the deposit at different levels, for while some deposits soon sink to the bottom, others are buoyed up, as it were, either by the small quantity of mucus which the urine contains, as is the case with small crystals of oxalate of lime, or by the flocculent nature of the deposit itself.

As each part of the deposit is brought under the field of the microscope, you should endeavour to recognise every object as it passes under view. This, however, will for some time be found a matter of considerable difficulty, arising partly from the great number of deposits which commonly occur together, and partly from the very various forms which many of these substances are liable to assume, but chiefly, I believe, from the great number of substances of accidental presence which are found in almost every specimen of urine subjected to examination; especially in urine obtained from the wards of a hospital, upon which the first microscopical observations are usually made.

[To be continued.]

DISPARITY OF THE SEXES IN VICTORIA. Some remarkable facts respecting the disparity of sexes in this colony are disclosed in the Census of 1857. Sir Henry Barkly, the Governor, in noticing these facts, says in a despatch:—"It now appears that though considerable improvement in this respect took place between 1854 and 1857, yet that the effective disproportion at the latter period was far more serious than would be deducible from the fact of there being 163 males to every 100 females in the entire population. Since tabling the portion of it above the age of 20 years, there were no less than 217 males to that number, the proportions below that age being pretty nearly equal. There were 88,355 unmarried men of 20 years of age and upwards to 12,645 unmarried women of corresponding ages; or, to raise the age of marriage for men to 21, and lower it to 15 for women, there was still an excess of 61,859 bachelors, not to add 5,112 widowers. Even this comparison, however, fails to convey a full sense of the evil as it affects the goldfields, where it appears that the percentage of unmarried men is, to that to be found in the seaport towns, as 61 to 39; or, to state the case in another form, where the bachelors are to the spinsters in the proportion of more than 20 to 1. There are, moreover, 8,096 married men chiefly in the mining districts whose wives are not in the colony. Only 9 per cent. of the women on the goldfields above 20 are unmarried; while in Great Britain the proportion who marry under that age is only 2½ per cent., 30 per cent. of the girls between 15 and 20 are here married."

Illustrations

OF

HOSPITAL PRACTICE:

METROPOLITAN AND PROVINCIAL.

HULL GENERAL INFIRMARY.

CASES OF TETANUS.

[Reported, with Remarks, by C. J. EVANS, Esq., House-Surgeon.]

CASE I. Idiopathic Tetanus: Recovery. (Under the care of O. DALY, M.D.) William Roberts, aged 20, by occupation a groom, was admitted under the care of Dr. Daly, on March 1st, 1860, labouring under symptoms of tetanus. He had suffered for about three weeks from a pretty severe pain under the right breast. Twelve days before admission, he got wet, and remained in that state all day; before which he had been quite well, with the exception of the pain above mentioned. He attended at the Dispensary; and the pain left his chest, and became located in his back and loins; it had since then been gradually extending itself all over him, but was especially severe in the abdomen. A week ago, he found that he could not open his mouth as usual.

On admission, he could just open his mouth sufficiently to protrude his tongue, which was thickly covered with a white fur. His bowels, he said, were moved once daily, but not without castor oil. The abdomen was hard and compressed; the muscles of the neck, legs, and thighs, were rigid, but the extremities less so; those of the arms were natural. Every few moments, a sudden pain attacked him in the back, and passed to the abdomen, making him start. The pulse was 100, of moderate volume; the breath fœtid. He was easiest when sitting up in bed and leaning forward. He was ordered to have five grains of Dover's powder every two hours, an ounce and a half of citrate of potash mixture three times a day, and a diet of milk and arrowroot.

March 2nd. He passed a tolerable night. The bowels were not open.

R. Pilul. coloc. comp. 3j; olei crotonis ℥ij. M. Fiant pilul. xij quarum sumat ij statim et repetat horâ somni.

The powders and mixture were continued, and beef-tea was ordered.

March 3rd. The bowels were well opened after the pills. A linseed-meal poultice was ordered to be applied under the lower jaw.

March 5th. He was in some respects a little better. The tongue was less furred, and the abdomen less rigid. The croton-oil pills were ordered to be repeated, as his bowels were inclined to be costive.

March 10th. The abdomen was much less rigid, and the muscles of the neck also. He could protrude his tongue much further. He had never had, nor had he now, any difficulty in deglutition. Pulse 78. He was ordered to take the powders every four hours.

March 15th. He was gradually improving. The abdomen was becoming quite soft. He continued to take the purgative pills occasionally. He was ordered to have ammonia liniment rubbed into the neck night and morning.

He subsequently had a warm bath several times, and was discharged cured on April 2nd.

CASE II. Lacerated Wound of Hand, with Fracture: Tetanus on the tenth day, and Death on the fifth day after. (Under the care of R. M. CRAVEN, Esq.) T. Fenwick, aged 62, married, a very free liver, was admitted under the care of Mr. Craven on Sept. 8th, 1859, having met with an accident to his hand from machinery the previous day, and bringing with him the following account of the injury, kindly sent by Mr. Jackson, surgeon, of Welton, under whose care he first came. "The carpus and metacarpus have been very severely fractured, and the integument has been much torn. The radial artery has been torn through, which I have only been able to secure at the upper end; but little bleeding has taken place from its lower end. . . . I have removed several portions of loose bone, and brought together the integuments of the lower arm and wrist. The tendons, etc., were completely exposed. . . . The thumb and fingers are quite warm to-night, notwithstanding the loss of the radial artery."

On admission, there was no hæmorrhage; and the hand was