The following is a brief *résumé* of all my cases of stone.

	Total.	Cured.	Uncured.	Died.
Lithotomy.....	6	3	—	3
Lithotrity.....	19	16	2	1

In my paper of last year, I entered into the relative value of some of the symptoms of stone, hæmorrhage, pain, the mechanical effects of a foreign body, and the secondary consequences of its presence; viz., inflammation with muco-purulent urine, etc. After describing the operation of lithotrity, and stating that I examined with a lithotrite as the most certain means of detecting stone, the following were my conclusions on some points in connection with the operation:—That preliminary injection was rarely necessary; that the quantity of fluid in the bladder offering the greatest facility for manipulation was about four ounces, but that less would suffice if the larger quantity was a source of uneasiness; that at the first sitting it was not prudent to crush the stone more than once or twice; that no rule could be laid down as to when the next operation should be performed, as this must depend entirely on the symptoms of the patient; that the first operation and its results formed a guide to the after-treatment, and that at subsequent sittings the instrument might be kept in the bladder five or six minutes, and in that time many fragments might be crushed; that the forcible removal of fragments through the urethra was not only inexpedient, but always a source of danger.

The following is among the questions which have since occurred to me as worthy of consideration.

Is it advisable to operate at once without first preparing the patient by the preliminary introduction of instruments?

M. Civiale, in his *Traité Pratique et Historique de la Lithotrité*, devotes several pages to the *préparation locale* and the *traitement préalable* in lithotrity. No doubt the urethra does, in most cases, become less sensitive by the preparatory introduction of instruments; but in my opinion, what is gained in one way is lost in another. The only point, therefore, which I care to ascertain, is whether the calibre of the urethra is sufficient to admit the introduction of an instrument. There is not absolutely any great difference in the degree of pain occasioned by an ordinary sound and by a lithotrite. Believing, as I do, that no instrument, save a lithotrite, will infallibly detect the presence of a stone, I invariably employ it at my first examination in preference to an ordinary sound. And I am sure that most persons would infinitely prefer suffering a little more pain in the first instance, to enduring the nervous anxiety attendant on the repeated introduction of instruments, together with the dread of an operation, which they imagine more dangerous and painful than it really is. By adopting preliminary treatment, the aggregate amount of pain is materially increased; besides which it is always a great source of comfort to the patient to know that the disease has been treated as soon as discovered, and the calculus crushed at the first examination. The plan I adopt enables him to look forward to successive operations without unnecessary dread.

In Case No. 3, in consequence of the enlarged condition of the prostate and the irritation produced by the introduction of the lithotrite, the patient suffered all the agonies of repeated retention. He experienced the greatest relief from retaining an elastic French catheter in the bladder after the operation. The great merit of this instrument, which is far superior to those made in this country, consists in its smoothness and pliability, which enables it to be kept for hours in a bladder loaded with débris without exciting the least irritation. The presence of a

silver catheter would confine the patient to one position in bed, and its retention in the bladder would cause increased pain. Should I ever be so unfortunate as to lacerate the urethra either in introducing the scoop, or withdrawing it when too full of débris, I should in that case retain this kind of catheter, so as to enable the inflammation about such a wound to subside before the urine and fragments were allowed to pass over the lacerated surface; for it is in these cases of laceration and these alone, as far as my experience goes, that there is any trouble from the impaction of fragments in the urethra.

In the discussion which followed the reading of the paper, alluded to at the Medical Society last year, the question was raised whether lithotrity, as performed by M. Civiale, is applicable to cases where there is so-called paralysis of the bladder. For such cases, one of the highest authorities in this country has recommended the removal of small calculi or the fragments of large ones *en masse*. This practice is not only directly opposed to that of M. Civiale and the late Sir B. Brodie, but occasions considerable and unnecessary suffering, and is also attended with great risk from extravasation. I prefer prolonging each sitting, introducing the scoop or non-fenestrated lithotrite more than once, and on each occasion pulverising the fragments as much as possible, and removing a little débris. Subsequently, but only in cases of paralysis, I should introduce the steel catheter, to which I have alluded, and should wash the bladder thoroughly out after each operation.

IMPERVIOUS STRICTURE OF THE URETHRA, AND ITS TREATMENT.

By WILLIAM ALFRED ELLISTON, M.D., Surgeon to the Workhouse Infirmary, etc., Ipswich.

At a time when stricture of the male urethra, in its different stages, is the subject of considerable discussion in the columns of the various medical journals, I venture to hope that the records of the subjoined cases may be interesting to the profession, as illustrating a course of treatment from which I have seen the best results in my own practice, and in the wards of Guy's Hospital; and which, moreover, I believe to be superior to any operation yet suggested for the relief of impervious strictures in or anterior to the membranous portion of the canal.

The operation is in great favour with Mr. Cock. I do not think, however, that he has published the results of his cases; but I believe they have been most favourable.

It is performed thus. The patient being tied in the lithotomy position, and brought to the edge of the table, the left forefinger of the operator is introduced into the rectum, and the anterior edge of the prostate felt for. A long and narrow scalpel should then be plunged into the perinæum by the right hand of the operator, about half an inch in front of the anus, care being taken not to wound the rectum; the knife may be carried upwards from the prostate in the median raphe of the perinæum. In this way the urethra may usually be punctured without much difficulty, owing to the distension of the canal posterior to the stricture by the retention of the urine. As soon as the urethra is punctured, a female silver catheter, with the tapes applied, should be as quickly as possible passed into the bladder and secured. No staff is required. Mr. Cock thinks a staff is apt to mislead the operator; he thinks it best to trust to one's anatomical knowledge to hit the urethra, which, with the introduction of the catheter, are the main points of the operation. In a deep pe-

rinæum, these may both be matters of considerable difficulty.

The object of the operation is two-fold: to evacuate the bladder, and to promote the absorption of the stricture itself. It is a matter of experience, that almost all strictures will relax if the bladder can be evacuated by any artificial means. This operation is, therefore, an admirable illustration of the influence of rest in the treatment of disease as instanced in Case II, reported below.

The greatest care and attention are required in the after-treatment. The female catheter should be retained at least three or four days; attempts being made daily, or rather at the discretion of the surgeon, to introduce a catheter—not too small a one—through the stricture. Usually this will be accomplished in four or five days; the time required may, however, be much longer, as in Case II. It is essential to keep the artificial opening in the perinæum quite patent by the daily introduction of a female catheter, until a catheter can be introduced through the stricture into the bladder.

This operation, therefore, is comparable in its adaptation to practice, to the older and more generally preferred operations of puncturing the bladder *per rectum* or *supra pubem*. Excepting in those cases where the obstruction is in the prostatic portion of the canal, I think that this operation has this great advantage over puncture of the bladder, that, in the event of the stricture proving impermeable, an artificial urethra is established, and the patient has perfect control over his urine, instead of a fistulous opening into the bowel or through the abdominal walls.

It differs considerably from the operation of perineal section suggested by Mr. Syme; as he passes a staff down to, and if possible through, the stricture, and divides it. In this operation, no staff is required, and the stricture is not divided. I will not presume to say that, in all cases, this operation will supersede the necessity for the division of the stricture (which I must regard as a more dangerous operation); but I believe that there are few cases indeed which might not be made amenable to treatment without the division of the stricture, at any rate from the outside. I think, however, there can be no question that, assuming that the urethra may be dilated to its original size and kept so by mere puncture, we get a vastly superior urethra to what we do in those cases where it has been deemed necessary to resort to the division of the stricture.

CASE I. *Old-standing Stricture and Fistulous Openings, with Occlusion of the Natural Urethra. Establishment of Artificial Passage.* David Cook, aged 57, was admitted into the Infirmary of the Ipswich Workhouse, Nov. 7th, 1864.

The history of the case was briefly this. About sixteen years since, he first had symptoms of retention of urine, for which he consulted a surgeon in the country, who failed to introduce a catheter. Infiltration followed, and the surgeon made an artificial opening towards the distal end of the penis into the urethra; since which the meatus urinarius had been occluded. He seemed to have passed urine tolerably well through this artificial opening for some years. During the past three or four, however, micturition had been both difficult and painful. He consulted several medical men, and was for some time out-patient at a county hospital. But, inasmuch as catheterism was impossible, matters became gradually worse. About fourteen days previously to admission, the urethra gave way. Infiltration occurred; and fistulous openings broke out in the penis, scrotum, thighs, and above the pubes. Suppuration supervened.

Upon admission, he was much emaciated and collapsed. He complained of shivering fits, and seemed likely to sink rapidly. The urine was dribbling away unconsciously, mixed with pus, from the fistulous opening. The penis and scrotum were infiltrated and swollen to an enormous size. Both the original meatus and the artificial one were impermeable to catheters. He was at once ordered a generous diet; but no alcoholic stimulants were allowed.

Nov. 30th. He had somewhat revived; and I suggested to him the propriety of submitting to an operation. To this he willingly agreed; and to-day, after consultation with Dr. J. H. Bartlet, and with his kind assistance, I incised the perinæum, punctured the membranous part of the urethra, and introduced into the bladder a female silver catheter, which was properly secured and left for three days. Free incisions were at the same time made in the penis and scrotum. He was ordered brandy and egg mixture, in addition to a full generous diet.

In a week's time, he was very much better. The wounds were granulating; and the penis and scrotum were much reduced in size. He could control his urine for half an hour at a time, and expressed himself as much relieved by the operation. Albumen was present in the urine in small quantities; but it was thought to be due probably to the admixture of pus. The female catheter was regularly introduced every day through the new urethra for some weeks, in order to establish a permanent passage. His bladder being in a state of chronic cystitis, he experienced much relief from the injection of warm water and morphia. He continued to convalesce for nine or ten weeks. The fistulous openings discharged but little. He had perfect control over his urine, which he could then hold for two or three hours. He was able to sit up, enjoyed his food, and seemed fast recovering.

About the end of February, he had some unfavourable symptoms; he vomited occasionally, fell off his appetite, and became much emaciated. The fistulæ again discharged profusely. He became gradually weaker; and I imagined him to be sinking from disorganisation of the kidney.

March 28th. He was becoming weaker daily and more emaciated. The fistulæ discharged pus profusely. It was satisfactory to remark, that he had perfect control over the evacuation of his bladder, and could hold his urine two or three hours at a time. A permanent artificial urethra was established in the perinæum, through which I easily, this day, passed a female catheter.

April 7th. He died yesterday.

AUTOPSY. At the autopsy this day, kindly performed by Dr. Moore, we found the bladder very small, and the coats much thickened. A capitol and capacious passage had been established between the bladder and the perinæum through the membranous part of the original urethra, now a mere *cul-de-sac*. To our great astonishment, we found the kidneys and ureters perfectly healthy. The heart and other important organs were equally normal. There is little doubt, therefore, that, had this operation been done earlier, the man's life might have been spared for some years. The large amount of sloughing in the different fistulæ was too much for even an unusually good constitution; and, in the absence of any pathological change in any of the important organs, it may, I think, be fairly presumed that exhaustion was the sole cause of his death.

CASE II. *Impermeable Stricture of the Urethra: Puncture of the Urethra behind the Stricture: Successful Result.* William Farthing, aged 42, was admitted into the infirmary of the Ipswich Workhouse, the latter part of December 1864.

His previous history was that he had been troubled on micturition for fourteen months past, which occurred three months after, and was probably consequent upon, a somewhat severe gonorrhœa, concerning the treatment of which it would be well to remark, *en passant*, that no injections were used. Catheterism was attempted by the medical officers of Her Majesty's ship *Nile*; subsequently in hospital, by Deputy-Inspector-General Salmon; it was found, however, to be impossible to introduce a catheter of any shape or form; and, in consequence of the impermeable nature of the stricture, he was discharged from the navy on March 18th, 1864.

On admission, he could pass no stream. His urine dribbled away by drops, causing great pain. I found a tight stricture in the bulbous portion of the urethra, which was pervious to a No. 4 silver catheter; and another in the membranous portion of the canal, quite impermeable. Here the instrument diverged into false passages, and gave rise to some little hæmorrhage. He was ordered alkaline medicine with large doses of tincture of henbane. Attempts were repeatedly made by myself and some medical friends, to introduce a catheter under the influence of large doses of opium, the warm bath, and chloroform; but all to no purpose. I accordingly suggested to him the necessity of an operation, to which he willingly assented.

Jan. 15th. After consultation with and with the kind assistance of Drs. Bartlet, senior, and H. G. Moore, he was placed under chloroform. I punctured the membranous portion of the urethra (which was considerably distended with urine) and introduced a female silver catheter through the wound, inwards into the bladder. A large quantity of urine was thus drawn off, and the catheter was firmly secured. He was ordered to have a generous diet, and to take two grains of opium at bedtime.

Jan. 16th. He was very comfortable. The urine had passed freely through the catheter. Attempts to pass a catheter by the natural passage failed.

Jan. 17. I again endeavoured to pass a No. 6 silver catheter, but this instrument diverged into a false passage, and induced such profuse hæmorrhage, that I determined to try no more for some days to come.

Jan. 18th. The female catheter was removed.

Jan. 19th. Urine had passed freely through the opening in the perineum. The female catheter was introduced and removed.

Jan. 20th. I again attempted to pass a good sized catheter through the stricture, and again induced profuse hæmorrhage, which saturated the bed. I introduced the female catheter through the wound in the perineum, and, having some difficulty in passing it, let it remain.

Jan. 22nd. The female catheter was removed.

Jan. 23rd. The female catheter was introduced and removed.

Jan. 26th. This was the eleventh day since the operation. He was passing his urine freely, and with control, through the perineal opening. To-day, I introduced a No. 8 silver catheter slowly and steadily through the first stricture, and after about ten minutes of gentle but firm pressure upon the hitherto impermeable stricture in the membranous part of the canal, I had the satisfaction to feel the stricture gradually giving way. The catheter slowly glided into the bladder, and was there retained.

Jan. 29th. The catheter was removed.

From this time an instrument was introduced daily. By February 10th, the wound in the perineum had healed, and he passed his water freely and without difficulty by the natural passage. Warm baths were used twice daily.

March 22nd. He could now pass as good a stream as ever. For the last fortnight he had been able to introduce a No. 8 instrument for himself, which he had done every other day. To-day I passed a No. 10 catheter without any difficulty; and, being anxious to return to Woolwich, he was discharged cured.

Reviews and Notices.

OPTICAL DEFECTS OF THE EYE, AND THEIR CONSEQUENCES, ASTHENOPSIA AND STRABISMUS. By JOHN ZACHARIAH LAURENCE, F.R.C.S., M.B. Univ. Lond., Surgeon to the Ophthalmic Hospital, Southwark; etc. Pp. 109. London: 1865.

THE term "Optical Defects of the Eye" may to many appear tautological; inasmuch as it may be said that all defects of the organ of vision are necessarily optical. Mr. ZACHARIAH LAURENCE, however, uses the term to denote the defects of vision which depend on irregularities in structure or function of the parts of the eye concerned in vision ($\phi\psi\varsigma$), in contradistinction to injuries and other pathological lesions of the eye itself ($\phi\theta\beta\alpha\lambda\mu\omicron\varsigma$), which come within the province of ophthalmic medicine and surgery. The optical defects of the eye are, in short, those which require for their comprehension and treatment an acquaintance with the physical laws of vision, and with the manner in which such knowledge may be applied to the artificial correction of these defects. Such is the instruction which Mr. Laurence here endeavours to impart in as simple a form as the subject will admit, and at the same time with sufficient detail to give the student of optical defects a good starting point for observation.

The remarks here offered by Mr. Laurence are, as he states in the preface, founded on the information which he has derived from a study of the writings and labours of the distinguished ophthalmologists, Donders, Snellen, Mackenzie, Giraud-Teulon, Von Gräfe, etc., as well from his own experience. They were originally imparted in the form of lectures at the Southwark Ophthalmic Hospital; but are here arranged in ten chapters, as follows. 1. Optical Considerations; 2. Physiological Optics; 3. Pathological Optics; 4. Myopia; 5. Hypermetropia; 6. Astigmatism; 7. Presbyopia; 8. Paralysis of Accommodation; 9. Asthenopia; 10. The Connection between Convergent Strabismus and Hypermetropia.

In the first chapter, Mr. Laurence gives such an outline of pure optics as is necessary for the understanding of the optical construction and defects of the eye.

In the second, the author treats of the optical structures of the eye in their physiological relations. The phenomena of accommodation is explained, and the different theories of its mechanism are given. Mr. Laurence states that the chief instrument of accommodation is the ciliary muscle; but that the iris acts as a supplementary organ. It contracts when we view near objects; dilates when we look at distant ones. He believes that

"The contraction of the pupil is intended as a corrective supplement to our accommodation, properly so called" (increase of convexity of the crystalline) "by diminishing any slight circles of diffusion in the