ART. II.—*Notes of a Case of Disease of the Kidneys, induced by the Presence of a Stone in the Bladder.* By CHARLES B. BALL, M.D., Ch.M., Dub. Univ.; Surgeon to the Blaenavon Iron Works, Monmouthshire.

THE following case appears to be worthy of record, as there are several points of clinical and pathological interest connected with it, especially so as in these days of improved surgery it so seldom happens that a case of vesical calculus in an otherwise healthy individual is allowed to run on to a fatal termination without any operation having been attempted:—

The patient, a young man of twenty-two years, came under my notice in March, 1874, for the first time. He complained of pain after micturition, but had no other symptoms of stone. Sounding showed the presence of a small calculus about the size of a horse-bean. There were no symptoms of much bladder irritation; the urine was free from albumen and crystalline deposits, and he had no constitutional symptoms of any consequence. The urethra was capacious, and the case appeared in every way eminently fitted for lithotrity, but I was unable by any means to persuade the patient or his friends to consent to operation, although the great danger of delay was pointed out.

I subsequently lost sight of the man for upwards of two years, during which time he underwent several quack treatments for stone with the usual result. In the end of last July I was again asked to attend him, when I found his symptoms very much aggravated; he was greatly emaciated; he suffered intense pain during micturition—so much so, that he invariably passed water lying down. The urine was alkaline, slightly albuminous, it deposited a quantity of ropy mucus, and the microscope revealed in the sediment an abundant supply of crystals of triple phosphate, together with pus corpuscles. Sounding showed that the calculus had increased greatly in dimensions, and considerable pain was caused whenever the instrument struck the stone. He was now anxious to undergo any operation which was calculated to relieve him of his intense suffering.

The question whether operation was justifiable in such a wretched case at once arose, and I came to the conclusion that there were no symptoms which ought to negative the performance of lithotomy. The small amount of albumen in the urine might have come from the pus secreted by the inflamed bladder, and he had no pain or tenderness in the loins to indicate renal disease. Lithotrity was considered inadmissible on account of the size of the stone, and the cystitis which existed. The operation was readily acceded to, but owing to family matters it had to be postponed for a week.

Two days before the appointed time he had a violent rigor with intense pain in the left side. Suppression of urine followed, uræmic convulsions supervened, and he died comatose six days after the initial rigor.

Of course, all thought of operative interference was abandoned when these severe symptoms developed themselves.

On making a *post mortem* examination the urinary organs were found in the following condition:—On the right side the kidney was simply a contracted cyst, in the wall of which but faint traces of glandular structure remained. There was a small quantity of fluid in the cavity; the ureter was very much dilated and full of fluid, which could with difficulty be made pass into the bladder by pressure. On the left side the kidney was greatly increased in size, and the surface was nodular. On making a section, it was found to be full of abscesses about the size of filbert nuts. The pelvis contained foetid fluid, and the ureter was dilated to the usual size of the small intestine; it was full of the same foetid fluid, which could with difficulty be made to enter the bladder by pressure.

The bladder was much contracted in capacity, and its coats were greatly hypertrophied, measuring half an inch in thickness. It was with great difficulty that a fine probe could be passed from the ureter into the bladder, and a ridge of thickened muscular tissue surrounded the openings of both ureters; these appearances are well shown in the lithograph; the ureters were, however, larger when the specimen was received.

The stone which the bladder contained weighed 2½ oz., and, on making a section of it by means of a lapidary's wheel, it was found to be of compound structure; analysis showed the central portion to be composed of oxalate of lime, consisting of two layers, the inner darker and the outer lighter; this was surrounded by pure phosphate of lime of intense hardness—so much so, that its surface could only be scraped by a penknife, for analysis, with considerable difficulty, and it was in appearance like porcelain; on the outside of all was a thin layer of ordinary mixed phosphates, which was soft and easily fusible before the blow-pipe. The appearance of the stone in section is shown in the engraving.

Remarks.—The clinical history above detailed gives additional proof of the great difficulty there is in arriving at a correct conclusion as to the state of the kidneys in cases of vesical calculus. That the right kidney had suffered for a considerable time from suppurative nephritis is clearly shown by the *post mortem* appearances, but I think that, for some time previous to death, the disease in that gland had become passive, the secreting structure having been destroyed. The left gland, on the contrary, showed

signs of recent disease only—so much so, that it appears possible that if lithotomy had been performed a few weeks before, it might have been successful, as the intense symptoms which followed the rigor six days previous to his death would appear to indicate that the abscesses dated from that time, so that if the suppuration in that gland had been obviated by removal of the cause, the patient might have lived for a long time with only one kidney capable of secreting urine.

The case also appears to throw important light on the cause of diseased kidney as a result of vesical calculus. In the books on the subject which I had an opportunity of seeing, Sir B. Brodie's theory, as to its mode of production, is given—namely, that the renal mischief is due to the extension of inflammation from the interior of the bladder up to the ureter to the kidney. This explanation, however, does not appear to be altogether satisfactory. For in the first place we do not find any signs of inflammation in these tubes *post mortem*—in fact, they are generally dilated as in the above case, which is precisely the opposite condition to what we would expect to find if the ureters had suffered from any inflammation similar to that in the bladder.

Secondly, we would expect that if inflammation spread up the ureters, it ought also to travel along the urethra, and from this tube along the vasadeferentia, but we do not find urethritis or suppurating testicle as a frequent result of neglected stone.

The cause of the disease in the case under our consideration was, undoubtedly, an obstruction to the flow of urine into the bladder from the ureters, the openings of which were tightly strictured. The small pieces of whalebone, shown in the lithograph, indicate the openings alluded to; these were passed with considerable difficulty from the ureters into the bladder.

The obvious result of such obstruction would be the accumulation and decomposition of urine in the ureters and pelves, which would soon, by continued irritation, set up suppuration in the glandular structure. The case is exactly similar to what happens in cases of urethral stricture and prostatic disease, except that in the latter cases the bladder is behind and not in front of the obstruction. That the openings of the ureters should become strictured, is, I think, easily accounted for by the following considerations:—

Firstly, it is the narrowest part of the tube, naturally, and it passes obliquely through the muscular structure of the bladder.

Secondly, as in cases of calculus, the coats of the bladder are thickened, while its cavity is diminished; the ureter as it runs through these coats is subjected to further constriction.

Thirdly, the spasmodic contraction of the bladder on a stone in its interior, would tend to occlude the openings.

Judging by the analogy of the urethra, we may, I think, conclude that spasmodic contraction of the ureter is more frequent than is generally supposed; and that a spasmodic stricture, which would cause considerable retention during life, might leave but slight traces *post mortem*.

We are, I think, justified in the conclusion that the chief factor in the production of renal disease in cases of contracted bladder, whether from calculus or other cause, is the strictured openings of the ureters.

The structure of the stone appears to be very unusual, the intense hardness of the middle layer, which is composed of phosphate of lime, being remarkable; it is susceptible of a high degree of polish; and had it been subjected to lithotripsy it would have, no doubt, taxed to the utmost the powers of the instrument.

ART. III.—*A Few Remarks on Enucleation of the Eyeball for Traumatic Inflammation.* By H. MACNAUGHTON JONES, M.D., M.Ch., F.R.C.S.I. and Edin.; Surgeon, Cork Ophthalmic and Aural Hospital, &c.

SOME time since I published in this Journal, with some accompanying observations, the particulars of a case in which I enucleated the eyeball on the suspicion of a foreign body remaining in the eye, and where a piece of percussion cap was found, after removal of the eyeball, lodged in the vitreous humour. I then dwelt (Feb., 1876) on the responsibility which rests on the surgeon who, in certain traumatic cases, advises the injured ball to be retained, and pursues an expectant plan of treatment. Having then epitomised the views of modern Continental and British ophthalmologists on this subject, it is not necessary again here to refer to these. Since that paper was written, during the year 1876, it has fallen to my lot, in hospital and in private practice, to see an unusually large number of serious accidents attended with severe injury to the eye. In forty-five cases of serious wounds treated in the hospital the operation of enucleation had to be resorted to fifteen times; besides, I saw three patients in private practice requiring removal of