was removed by the trephine along the posterior edge and the cut in the bone thoroughly examined. Hairs were found embedded in the wound and a large clot of blood between the dura mater and the skull. There was no inversion of the inner plate and no splintering, except the fissure already mentioned, as proceeding to the sagittal suture. With a cutting chisel the edge of the gash was planed and cleared of all loosened and contused particles and all foreign matter, and the clot carefully washed out from the bottom of the wound. The fissure was left alone. The gash on the posterior aspect of the parietal was also explored. After trephining, as, in the first case, it was found to be less severe than the one in front, there being no fissure and no clot between the dura mater and the bone. The edges here were also planed and cleared of all débris and foreign matter. The gash in the occipital bone did not penetrate to the dura mater, and, considering the tough, non-brittle character of the bone, as shown by the trephining in the parietal, the edges were simply planed and cleared of all débris. The wound was carefully washed and then sutured; the other flesh wounds were washed and treated. The pieces of bone removed by the trephine, which had been kept in warm antiseptic lotion, were replaced and the periosteum carefully spread over them; the parietal flap was put in position and secured by four or five sutures just to secure coaptation, and loose enough to allow exit for oozing if it occurred in excess. After emptying much perchloride lotion through below the flap and over all the external wounds, iodoform was freely sprinkled over the wounds; then strips of iodoform gauze and then absorbent wool pads all over the scalp, which were firmly secured by bandages and strapping. The patient was put to bed and did well until the tenth day, when she complained of headache, and her temperature rose to 101°. Dr. Tytler was sent for. He removed the dressings and found all the wounds healed by first intention, but there was tenderness near the site of the wound on the posterior part of the parietal. Here the skin of the scalp had been much contused, and though it had been soaked with antiseptics it was feared it had not been rendered aseptic. It would have been better to have pared the lacerated edges. The wound was reopened near the painful spot and a little pus let out, and after lightly syringing the wound a small drainage-tube was inserted. Next day the temperature was normal and continued so. A sinus remained discharging pus. On probing this sinus bare bone could be felt. In this condition the patient left the hospital on June 1st, but to attend as an out-patient to have the wound dressed. Dr. Tytler was waiting for the sequestrum to separate. On Aug. 6th, there being no signs of healing, the patient was readmitted and had the sinus laid open. It was then found that the posterior reimplanted circle of bone was loose, so it was removed and the sinus healed forthwith. The patient has remained well since.

CASE 3.—This case was like the first. The patient, aged eleven years, was admitted on July 11th, 1892, with a compound depressed fracture in the middle of the right side of the frontal bone caused by a blow from a swing-boat. Proceeding as in the first case, a flap was raised and the fracture exposed. A rounded piece of bone about the size of a sixpence had been driven directly inwards so that it lay at the bottom of a pit about three-quarters of an inch deep. Reflecting the periosteum a V-shaped notch was cut in the upper part of the opening with the bone forceps and the bevelled edges were clipped away with the same instrument, for it was found that a larger surface of the inner plate than of the outer had been broken off. Introducing a small forceps at the notch the fragment was seized and removed and put in warm lotion. There was no wound in the dura mater, though it had been considerably depressed by the fragment. After removal the depression was quickly obliterated by a swelling up of the whole surface till it reached the level of the inner plate, but there was no pulsation of the brain to be seen or felt. There was evidently a large meningeal hæmorrhage. There were no symptoms of compression either before or after. The bone was replaced and the wound dressed as in the former cases. The patient was put to bed and did well. The dressing was removed about eight weeks afterwards, and it was found that the wound had healed everywhere. The patient was discharged on Aug. 11th, 1892.

Remarks by Dr. TYTLER.—A great deal of the success in these cases was due to the prompt manner in which the wounds were rendered aseptic immediately on admission of the patients by the house surgeons, Messrs. Worboise, Bentley and Williamson. There was no drainage-tube used, and the wounds were left unsutured at certain places to allow of drainage if

it should be required. Paring the contused wound is, I think, excellent, and if freely pared it would provide an easy channel for drainage if not too tightly sutured.

TORBAY HOSPITAL, TORQUAY.

A CASE OF IMPACTED CALCULUS BEHIND A STRICTURE OF THE URETHRA; RETENTION AND EXTRAVASATION OF URINE; OPERATION; RECOVERY.

(Under the care of Mr. F. T. THISTLE.)

THE complication of calculus of the bladder with a stricture of the urethra is occasionally met with, and the dilatation of the urethra found behind a chronic stricture facilitates the passage of a small stone into the pouch thus formed. After it has gained entrance into this dilated part the occurrence of ulceration and its escape through the opening into the tissues outside are to be expected. How long one or more of the stones in this case had been in the cavity below the urethra it is not possible to say, but instances are on record of their formation in such pouches. Erichsen points out that although mostly renal in origin they may be formed in the urethra, but in other instances appear to have been formed in a pouch lying to the outside of the passage and connected with it by a small aperture. He removed a stone consisting of triple phosphates and weighing an ounce from a point between the urethra and the symphysis pubis; the patient suffered from a tight stricture. As the evidence showing the point of origin is chiefly derived from a chemical analysis of the calculus, it would be interesting to have a report from Mr. Thistle of the composition of the other calculi removed. For the notes of this case we are indebted to Mr. A. E. Watson, house surgeon.

A man aged thirty-two was admitted into the hospital on the morning of Aug. 29th, complaining of pain and swelling in the perineum and inability to pass his urine. He was a short, dark-haired man, fairly developed, but with an anxious expression and somewhat sallow complexion. He stated that he had gonorrhœa in 1877, and in 1889 an operation for stricture was performed at St. George's Hospital. He passed a No. 5 catheter after this until six weeks ago, but was then unable to get one in. For the last three months he has suffered from a sharp cutting pain at the "neck of the bladder," worse on passing urine, and sometimes the stream suddenly stopped. He was unable to pass urine two days before admission, and on the day before (28th) his perineum became swollen and painful.

On examination an elongated, brawny swelling was seen and felt in the middle line of the perineum, and about the centre of the swelling fluctuation could be made out. There was marked tenderness, but no redness of skin. The scrotum and penis were much swollen; no urine had been passed since the day before admission, when a little dribbled away; a catheter could not be passed. The patient was put under an anæsthetic in the afternoon and a longitudinal incision was made in the middle line of the perineum over the fluctuating portion of the swelling; a stream of urine, mixed with pus, gushed out. On introducing the index finger into the wound a hard, smooth stone could be felt (this weighed ninety-one grains, and was a smooth uric-acid stone), which was withdrawn with small forceps, and on reintroducing the finger two more stones could be felt lying in a pouch, formed partly by the dilated urethra and partly by an abscess cavity. The pouch was very large, and extended into the perineum and backwards behind the neck of the bladder. It contained, besides the stones, pus and urine and several sloughs, and its walls were rough and sloughy. The second stone extracted resembled the first, and weighed 124 grains; the third was oval, weighed 425 grains, and was found at the back of the pouch behind the neck of the bladder. It had to be extracted with lithotomy forceps. A sound was then guided into the bladder, but no more stones could be found. Free incisions were made into the scrotum, penis and sides of the perineum, and a large quantity of decomposing urine was let out. A tube was introduced through the perineal wound into the bladder and another in the perineal pouch. A dressing of blue wool, absorbent wool and tenax was then applied, and the penis and scrotum were frequently fomented with warm iodoform. A morphia suppository (1½ gr.) was ordered. The patient's general condition was very bad for two days after this, but on Sept. 2nd the following note was made: Patient much better this morning; slept well. Pulse 100; stronger and fuller. Takes nourishment well. The perineal wound is looking

well, suppurating freely; the pouch is filling up. He passes urine freely through the perineal wound. The incisions in the scrotum and penis are healing rapidly. Temperature normal. On Sept. 24th a No. 1 silver catheter was passed through the stricture after some difficulty, the patient being under an anæsthetic. The catheter was guided into the bladder (by the finger introduced through the perineal wound) and tied in. The stricture was gradually dilated, and on Oct. 22nd the edges of the perineal wound were pared and stitched with silver wire. The surrounding tissues were so indurated that the wound would not unite. The patient is now in very good health, he passes urine through the perineal wound three or four times daily, and has little or no trouble from his urine dribbling through the wound.

Remarks by Mr. THISTLE.—The case is an unusual one, and the impaction of a stone behind a stricture is seldom a cause of extravasation of urine. The perineal pouch was most probably formed by the dilated urethra behind the stricture and the walls of an abscess. The third calculus was found at the back part of this pouch and behind the neck of the bladder. With regard to the stricture, it was situated about the bulbous portion of the urethra, and although no catheter could be passed when the patient was admitted, one was passed some weeks after, when the parts had been kept at rest and all element of spasm had disappeared. The wounds in the scrotum, penis and perineum healed very rapidly, although the tissues had been saturated with putrid urine.

Medical Societies.

MEDICAL SOCIETY OF LONDON.

Cholera.

An ordinary meeting of this Society was held on Dec. 5th, the President, Mr. Hutchinson, being in the chair.

Surgeon-Colonel J. B. HAMILTON read a paper on Cholera, its Epidemic Progression and Causation. He explained the number of conflicting theories of the causation and spread of cholera by each observer reasoning on the facts that had come to his personal knowledge. The statistician surveyed the various outbreaks from his office and mapped out the progress of the disease. He alluded to the curious want of unanimity in the writings of Indian authors which had discredited Indian opinion on this subject. The object of the paper was to show that no theory hitherto propounded covered the ground of epidemic cholera, the explanation in every case falling short in some material particular. There were three principal theories: (1) propagation by drinking water, food &c.; (2) human intercourse; and (3) conveyance of the disease by the air, to which might now be added the so-called vibrio or cholera bacillus. He assumed that the identity of the disease as met with in Asia and Europe respectively was now established and he thought that its progression also took place on much the same lines. Here as there it followed certain well-defined lines, was more virulent at the commencement than at the close of an epidemic (thus accounting for the successes claimed for so-called specifics) and it did not retrograde or work backwards. Admitting the contaminated water theory for the sake of argument, he raised the question as to the value of filtration, expressing grave doubts as to the efficacy of any system of water filtration as carried out by the water companies. He called attention to a paper by the State geologist for New Jersey on the plan of precipitating the organic matter of water by the addition of two grains and a half of alum to the gallon and subsequent filtration. He asserted, on the authority of an eminent bacteriologist, that cholera had never been proved to be one of the diseases conveyed by bacilli. Koch believed that the disease was conveyed by the bacillus, but many other authorities, after mature consideration, had come to a directly opposite conclusion, and he referred to some of the examples mentioned by the dissenters in support of their view. He denied that the diminution of cholera in Calcutta that had followed the introduction of a supply of pure water was due directly to the purity of the water. The effect of a pure water-supply on the general health would account for a large share of the diminution apart from the absence of specific contamination. The case of Fort William, where the mortality fell from 20 per 1000 to 1 per 1000 on the introduction of a better water-supply, could not be accepted as certain

proof that the improvement was entirely due to the better water-supply, because at the same time general sanitation was also much improved, notably by the erection of spacious barracks and the use of earth closets. He referred to the outbreak of cholera in the great Alipore gaol which followed the introduction of the pipe water, and he claimed that it was as fair to put this to the account of the water as it was to attribute all improvements in the mortality returns to that cause. He traced the course of epidemic cholera in India, showing how the heavy rainfall extinguished cholera in Lower Bengal and how with the monsoon it advanced up the valley of the Ganges or Bramaputra or both. He urged that this fact was evidence in favour of the air, plus heat and moisture, being the chief factor of progression. He admitted, however, that instances were on record of the cholera progressing in the face of the monsoon. In 1878-79 the disease left the endemic area and advanced to Oude, the following year it spread over the Punjab on to Cabul. During the epidemic in the north-west in 1878 large numbers of natives went by rail from the infected districts into the Punjab, many dying on the way, yet the disease never became epidemic there during 1878 and did not break out in the non-infected districts. The same thing occurred the following year, when the Punjab in its turn had become an infected district. Cholera then went up rivers and refused to ignite in uninvaded districts or in districts over which it had traversed. He mentioned several instances within his own experience of cholera breaking out under circumstances in which the water-supply could not well be suspected. He asked how it was that cholera sometimes attacked European barracks while the filthy native bazaars close by with a filthy water-supply escaped. He maintained that observation and experiment tended to prove that the comma bacillus could not determine cholera unless there was some other factor present in addition. He insisted that cholera was not infectious or contagious in the ordinary sense; indeed, the wards of a cholera hospital seemed to be about the safest place to live in during a great epidemic. He referred to an outbreak at Allahabad last year which occurred quite suddenly and without any adequate explanation, and he observed that the period of incubation appeared to be not longer than three days. In reference to the transmission of cholera by the air, he referred to the remarkable instance of two hill stations, separated by a deep valley and at a distance of fifteen miles, in which cholera broke out and ceased on the same days, the intervening country remaining free. Admitting that much still remained to be learned in respect of this disease, he characterised quarantine as impracticable, useless and vexatious. He insisted upon the importance of evacuating infected dwellings forthwith, a measure which he considered as even more important than the removal of the patients themselves. As a disinfectant he recommended crude sulphate of iron in preference to dangerous substances such as corrosive sublimate. He concluded with the suggestion that the first opportunity should be taken to try the effects of the transfusion of the blood of the goat directly into the veins of the patient in the algide stage.

The PRESIDENT said that he had had a good deal of experience personally in dealing with cholera, especially in the epidemic of 1846. He was one of the earliest converts to the water theory of Dr. Snow, and all his experience since then had tended to confirm his conviction of the truth of that doctrine.

Dr. MACLEOD of Allahabad referred to the fallacy of dealing with this subject from its general aspect. As to its incidence, it was accidental rather than general, both as regarded communities and places; its mode of progression was also peculiar—going by leaps and starts and travelling in zigzags or forwards and backwards. To use general terms such as waves and areas to describe epidemics was only to add confusion to the subject. So long as the data remained imperfect, so long would any general statement formed on those data be imperfect also.

Dr. SIMPSON of Calcutta said that the conflicting views in regard to cholera which obtained in India and Europe were due to the different methods of investigation adopted. An outbreak in England was succeeded by a local investigation, followed afterwards by statistical evidence; but in India, owing to its immense size and the paucity of medical men, the local investigation was either not conducted at all or was very imperfect, and a statistical statement was relied on in its place. All his experience pointed to the fact that when a careful local investigation had been made the cholera