was placed on light diet, with one pint of beef-tea, half a pint of milk, two pints of lemonade, and four ounces of port wine diluted with water, so as to last the twenty-four hours. An orderly was placed in attendance, and a bed-pan and urinal were supplied him, with instructions that the patient was to keep the recumbent position, and on no account to turn on his side or quit his bed. On the 8th it was reported the medicine acted characteristically in causing warmth at the epigastrium, followed by perspiration and relief of pain. The following was the account given by the patient of the special symptoms induced:—"About twenty minutes after taking the medicine yesterday, a 'pulling sensation' began at the point beneath the right false ribs in front, which was the seat of pain, then a sense of 'pulling and pricking,' 'pins and needles,' ran along the lower margins of right inferior costal cartilages for a distance of about four inches. The pricking ran backwards and forwards between the points above mentioned, and both sensations lasted for about a quarter of an hour. Afterwards the pain in side was much relieved and still continues easier than before." The sympathetic pain of the right shoulder, above the scapular end of the clavicle, still continued, and was increased by the patient turning on the left side. He could lie on his right side with ease, but his position was dorsal. Short dry cough, the result of pressure on the base of the right lung, continued. From 9 P.M. to 12 midnight he had profuse sweating, and his sleep was disturbed. Temperature: morning, 98.8°; evening, 103°. Pulse: morning, 70; evening, 88. Treatment, diet, and extras continued. On the 10th the pain in the side was almost gone, but the pain in the shoulder continued. The short dry cough was troublesome, recurring about every half hour. Night sweats occurred for the past three nights, lasting from 9 to 12 midnight. Temperature: morning, 98.6°; evening, 103.3°. Pulse: morning, 72; evening, 84. The treatment was continued. On the 11th he was much better, and could bear pretty firm pressure without pain at the points which were formerly so tender to the touch. The patient stated that yesterday, after a dose of the medicine, he observed a "quivering" in his side at the tender spot in front, which lasted about half a minute. It was noted that he perspired much during the day, from sunrise to sunset. Sleeps better at night; face slightly jaundiced. Temperature: morning, 98.9°; evening, 102.2°. Pulse: morning, 73; evening, 85. Treatment continued, and diet as from the first. On the 12th he was reported as looking better; colour returning to the countenance, which had lost its anxious look. There was no sweating during the previous night. The hands were cool and moist, but not clammy, and the cough, which was sympathetic and depending on upward pressure on the base of the right lung, was less frequent. Temperature: morning, 98.2°; evening, 100.7°. Pulse: morning, 81; evening, 71, small and jerking. The ammonium chloride, which still acted characteristically, was continued; the diet and extras as before, with some extra milk, but as yet no solid food. On the 13th the night sweating returned, and lasted most profusely for about an hour. The patient described the perspiration after each dose of the medicine as very different from that which came on at night. The former brought with it a feeling of comfort, followed by relief of pain and all unpleasant symptoms; the latter induced weakness, and was attended with discomfort. The pain was now entirely gone from the hepatic region. He could turn on the left side without much pain, but was cautioned not to do so. Temperature: evening, 101.8°. Treatment continued. On the 16th the temperature was normal, and the pulse was firmer and fuller. The pain had left the shoulder, and the patient could lie on the left side without pain. Night sweats ceased since the 13th. On the 18th the pain in the shoulder returned, which the patient attributed to having lain on the right side in his sleep. On the 28th the medicine ceased to produce characteristic action. Since last report the progress had been most favourable. The patient's appetite was now good; he slept well, and had rapidly regained colour, flesh, and strength. The chloride was now reduced to eight grains thrice daily, and the patient was permitted to sit up for an hour in the day. Diet and extras as before, with the addition of two eggs and an ounce of butter. On Dec. 5th he was allowed to take gentle exercise morning and evening, and from that time till Jan. 11th following he remained in hospital solely on account of debility; and on the latter date he was discharged to duty having thoroughly recovered his health.

The above case is given *in extenso* so as not only to illustrate the characteristic and special symptoms produced by the drug, but also the chief points to be attended to in regard to the auxiliary treatment, diet, and management, without attention to which success need not be looked for. In a future paper I hope, in addition to some recapitulatory remarks to touch on the surgical proceedings that may be advisable in certain forms and stages of hepatic trouble. I hope also to furnish further statistics of cases treated in the hospital under my charge during a second tour of service in India,—contrasting these with the records of cases previously treated in the same hospital, by different medical officers, so as to bring into relief the gradual and steady progress of cases treated strictly according to my method towards recovery, with the retrograde or unsatisfactory progress of cases not so treated, or in which the medicine was prescribed in a desultory manner—not persistently administered,—or in which no attention was paid to the rules for diet, strict rest in bed, the avoidance of all stimulants, except in case of extreme debility or threatened collapse. These and such questions as have been suggested by a perusal of the cases recorded by various medical officers at the Royal Artillery Hospital, Secunderabad, India, from 1871 to 1877, I must defer for another occasion. Before concluding, however, there is one point of the greatest importance to the Indian medical officer to which I must briefly refer, as without attention to it all his efforts may be nugatory, and a valuable means of cure may be rendered powerless and suffer unmerited disrepute. In the *Medical Press and Circular* for September, 1889, will be found an interesting paper on "Hepatitis and Hepatic Abscess," by Surgeon Harrison Younge, Medical Staff, who, in speaking of the value of the chloride of ammonium in these diseases, gives the following caution: "Care should be taken in the selection of the medicine, as a large amount of the chloride of ammonium supplied in India is quite inert." Now, in its purest form, in small crystals, the ammonium chloride is a very cheap drug. Let us hope, then, that this matter has been remedied long ago by those responsible for medical supplies in India. If it has not, now that public attention has been again called to it, no time should be lost in seeing that a pure supply of such an important therapeutic agent is at once procurable.

Lymington, Hants.

SOME RECENT LITHOTOMIES WITH INFERENCES.

By SURGEON H. HERBERT, I.M.S.

THE following cases occurred at Aden while I was acting civil surgeon there last year:—

CASE 1. *Supra-pubic Lithotomy; Ruptured Urethra; Calculus over ten ounces; Perineal Drainage; Death on tenth day from Suppurative Nephritis.*—An Arab Sultan, from thirty to thirty-five years old, emaciated and feeble. Symptoms of stone since childhood. Admitted Aug. 17th, 1890. Though the stone was so large, it was not till fluid had been injected that it was felt, the sound having passed up in front in a fold of mucous membrane. The urine was scanty, slightly alkaline, sp. gr. 1010, with much pus. Treated till 21st with boracic acid internally. Urine then neutral. Aug. 21st.—Operation: median incision. Not more than four ounces of fluid were injected into the bladder. The penis was then tied with a tape to prevent the escape of urine already taking place. Almost immediately afterwards extravasation took place into the penis, perineum, and scrotum. (Since this I have used the method described by Greig Smith¹ to avoid tying the penis.) A catheter was passed to empty the bladder of fluid, and a deep median incision made into the base of the perineal swelling with the intention of using it (since an incision had to be made) for drainage afterwards. But it necessarily wounded the bulb; and in spite of continuous direct pressure, the penis and perineum filled up again two or three times with blood. The stone was extracted with some difficulty, the vesical wall being firmly contracted on it. A soft catheter was run in from the perineum, and the patient supported on an inclined plane. Very little inflammation followed the extravasation. There was some tympanites with flatulence, and slight

¹ Greig Smith's Abdominal Surgery.

general tenderness of the abdomen for a few days. Stitches and drainage-tubes were removed from the supra-pubic wound on the fourth day; and the wound opening out, the base of its upper half consisted of little but peritoneum, rising and falling with contractions of underlying gut. The urine was very scanty for two days, but after this more plentiful, neutral, sp. gr. 1010, with pus. The temperature kept continuously high, with a slight rise during the first few days. Afterwards it fluctuated chiefly between 101° and 103° F. The pulse varied between 120 and 140. The perineal drainage was by no means perfect. The collapsed bladder wall had a tendency to lie over the end of the catheter and block it. Afterwards a female catheter with lateral openings was used with much better effect. On the fifth day an attempt was made to do without it, as the patient wanted a change of position. But the next morning the usual drop in temperature was absent, tongue drier and pain about the wound. So the catheter and inclined plane were resumed. Again, on the ninth day, the attempt was repeated from 4 P.M. From midnight onwards the man complained of pain about the wound, and next morning there was a temperature of 103·6° F., pulse 150, headache, tongue absolutely dry, scarcely any urine secreted, and pain about the wound. A drop of two degrees in temperature followed a return to the old conditions; but it was only temporary, and the patient died the same evening.

It seems that in the man's enfeebled condition from suppurating kidneys and loss of blood the imperfect granulation tissue formed in the wound was an insufficient barrier to the absorption of poisonous matter from the septic urine. The ill-effects of the change in treatment were most unmistakable, and form a strong argument in favour of perineal drainage in selected cases of supra-pubic cystotomies. This is avoided as entailing an unnecessary addition to the operation; whereas, with the finger in the prostatic urethra as a guide from above, it is one of the simplest of counter-openings, large enough only to admit the tube, and causing practically no loss of blood. It provides true drainage in contradistinction to the overflow from above. I have since used (in Case No. 2) a metal lithotomy tube with closely set large lateral openings for the terminal two inches of its length. With this kept clean by frequent washing, and aided by position on an inclined plane, scarcely a drop of urine can ever foul the abdominal wound. And in any case with offensive alkaline urine coming down from the pelvis of the kidneys the benefit of its immediate removal must be great, at least until a barrier of granulation tissue has formed. The few recorded cases where a catheter simply passed down the urethra and kept in has sufficed to drain away the whole of the urine must be regarded rather as lucky accidents, and not to be expected.

No post-mortem examination was obtained. The calculus consisted of oxalic, uric, and phosphatic layers. It is $3\frac{1}{2}$ in. long and $2\frac{7}{8}$ in. broad, and weighed after drying 10 oz 1 dr. It is interesting as an example of spontaneous fracture and solution. In front there is a lozenge-shaped depression, $1\frac{1}{8}$ in. long and $\frac{1}{16}$ in. deep, and the sharp edge fragments from this have become welded on to the base of the stone. There is a small worm-eaten cavity in the phosphatic layer behind the opening on the surface, and another in the uric acid layers, filled with débris, and cut across by chance in the section. The large deficiency in front was probably caused mainly by concussion against the symphysis pubis. It was situated immediately behind this; its margins are sharply cut and regular, and its floor mainly smooth; and the patient had travelled a long distance in coming for treatment, jolting on a camel. But the existence of the small cavities suggests that a process of solution was the starting point or adjuvant of the fracture.

The following two are the only other cases with decomposing urine that I have had of the high operation in adults.

CASE 2. Supra-pubic Lithotomy; Six Phosphatic Calculi; Perineal Drainage; Recovery.—An Arab, between thirty-five and forty years old. After the incision through the abdominal walls had been made, the rest of the operation was done with incomplete anæsthesia, as the patient took the chloroform exceedingly badly. The bladder was firmly contracted, rectum empty, and the contractions of the recti muscles troublesome. The mass of calculi, phosphatic throughout, was large, and weighed just under four ounces

when dried. The smaller ones were embedded in the prostate and neighbouring part of the trigone, so much so that one was not detected by the finger till the perineal opening was being made. No stitching except at the upper angle of the incision. In extracting the embedded calculi the mucous membrane was bruised and lacerated, and the pockets left were unfavourable for drainage, and the urine was very foul. Thus there was high fever for the first five days. The bladder was frequently washed out through the large perineal tube. Occasionally a few drops of pus and urine were found at the bottom of the supra-pubic wound. But a strip of muslin inserted kept it perfectly clean, and there is no doubt the immediate removal of the sticking urine and the prevention of its contact with the raw retro-pubic surface far counterbalanced any possible irritation from the presence of the tube in the bladder. It was left in till the fourteenth day, as the urine was still alkaline. It had then caused slight epididymitis in the right testicle. No disturbance followed its removal. The perineal opening closed very rapidly, the supra-pubic wound slowly. This was a more favourable case than the first, as there was no loss of blood from the perineal incision, and the urine before operation averaged about sixty ounces daily, with sp. gr. 1009.

CASE 3. Supra-pubic Lithotomy; Death on eleventh day; Retro-pubic Suppuration.—An Arab, from fifty to sixty years old. This case stands as a contrast to the last. It seemed so favourable that perineal drainage was not resorted to. The urine was alkaline, but averaged forty-four ounces daily, sp. gr. 1007. The stone weighed barely over one ounce, and was only imperfectly coated with phosphates. It was removed with great ease and without any bruising of the tissues. No stitching. The bladder was washed out every four hours, yet the wound became superficially sloughy, and remained so in the deeper parts. There was a little fever for the first six days. On the ninth the temperature kept below 98°, and on the morning of the tenth day the patient was collapsed, with a temperature of 95°. After this it did not rise higher than 97°. Hiccough persisted all the next day (eleventh), and the man died at 8 P.M. At the necropsy there was found a collection of pus in front of the bladder, shut off from the sloughy wound. The bladder itself was not much inflamed. The ureters were dilated, and there was double pyonephrosis, rather more marked on the left side, where there was a small calculus loose in the pelvis. The layer of kidney tissue varied from a mere membrane to half an inch in thickness. This patient ought not to have died; and I feel certain that a perineal tube would have kept the wound healthy and brought about a favourable result. A lateral operation would have been done, only that it was thought the stone was larger. Perineal drainage is not practised at home, mainly for two reasons. First, cases really requiring it are rare in civilised countries, patients being commonly treated while their stones are still small by crushing or by lateral lithotomy. Thus the cases liable to retro-pubic suppuration, urinary infiltration, and septic absorption, or, in other words, adults with foul urine and advanced suppurative pyelo-nephritis, have failed to be differentiated from the simple ones with sweet acid urine and oxalic or uric acid calculi, who die, if at all, probably from some fault in the operation. And, secondly, an ordinary tube or catheter passed in from the perineum will probably fail to entirely divert the flow of urine from the supra-pubic route, and so be practically useless. But there is no doubt that with a suitable tube as above described the whole of the urine can with certainty be drained away, and the common causes of death entirely removed.

CASE 4. Lateral Lithotomy; Hæmorrhage on fourth day; Death; Necropsy.—I bring this case forward with a view of suggesting that cases of death after lateral lithotomy, reported as due to secondary hæmorrhage are, in the absence of a post-mortem examination, possibly wrongly stated. The operation was done by Dr. Anderson, civil surgeon. The stone weighed 510 grains, was oxalic, with a thin coating of phosphates. The operation was rather prolonged, as the stone kept slipping from the grasp of the forceps. The temperature rose afterwards, and from the evening of the second day did not descend below 102° F. The patient became increasingly drowsy, and at 4.30 P.M. on the fourth day bleeding occurred, with clots as well as fluid blood. The hospital assistant computed the amount at six ounces. It ceased spontaneously. The patient died the same night at 2 A.M. Unfortunately, the urine was neither measured nor examined after the operation, having to be received into

carbolic fluid owing to the flies. Thus, in spite of the kidney symptoms, the bleeding was thought to show secondary hæmorrhage; but the necropsy proved that it was due to a general acute congestion of the whole urinary tract. There was old ecchymosis in the deep parts of the wound, with one or two bright spots, but no sign of any recent bleeding. The bladder was empty and contracted, its mucous membrane in longitudinal folds, and the ridges bright red from extravasation. The ureters and pelvis were dilated and acutely congested. There were bloody fluid and clots in both ureter and pelvis of the right side, and minute extravasations in the mucous membrane. Those on the left side were empty. The kidneys showed the signs of suppurative nephritis with recent acute congestion, rather more marked on the right side.

CASE 5. Lateral Lithotomy; Extravasation of Urine on ninth day; Chronic Interstitial Nephritis.—In this case I extracted an oxalic calculus, weighing 156 grains, from a boy aged sixteen years. Though small, it was much branched, and needed a fair-sized opening in the tough prostatic tissue, though it came easily through a small opening in the distensible skin and subcutaneous fat. The temperature kept about normal, and the whole of the urine was coming through the urethra, when, on the morning of the tenth day, we found the penis considerably swollen, and the scrotum and perineum less so. The soft, recent uniting medium in the wound was broken down enough to admit a small drainage-tube into a cavity containing a foul mixture of pus and urine. The penis was relieved by small punctures and slung up to a cradle. This treatment was evidently not enough; and next day there was more swelling and more fever. Though two large firm tubes were introduced and the whole of the urine drained away through them, there was considerable suppuration under the skin and in the glans of the penis. When this gradually healed up some weeks after, the temperature still kept elevated, at least in the evenings, and the urine was found to be faintly alkaline, with sp. gr. 1005 and 1006. There was a dry tongue and a tendency to diarrhoea, and the patient gradually emaciated. The wound was kept open superficially by a very short wire dilator. Drugs, such as quinine and boracic acid, were given internally. An attempt was made two months after the operation to let the wound close, as much of the urine came through the urethra; but suppuration extended under the skin into the perineum, and needed a counter-opening. When I left Aden, eighty-eight days after the operation, the temperature had only been normal in the evenings for a few days, and some urine was coming through the wound, which was still kept open superficially. The tongue was moist, however, and nourishment was well taken, and recovery seemed near. Extravasation during the healing of a lithotomy wound must be very rare. It seems natural to expect that a considerable obstruction to the passage of urine along the urethra should be a necessary factor in its production. But here there was none, and in one of the few cases of extravasation I have seen complicating stricture the stricture was only slight, and admitted a No. 8 catheter at the time. The case stands as a warning against a too limited superficial incision. The subsequent long-continued symptoms of chronic interstitial nephritis probably had some connexion with the fact that on first opening up the wound on the tenth day we came on to a small cavity of stinking urine and pus. The temperature before the extravasation took place had been quite normal for several days.

AMPUTATION OF THE PREGNANT UTERUS AT TERM, WITH INTRA-PERITONEAL TREATMENT OF STUMP.

BY H. M. MILTON, M.R.C.S., &c.,
CAIRO HOSPITAL.

IN THE LANCET of Nov. 29th, 1890, was published an article in which I reported three successful cases of supra-vaginal amputation of the uterus for fibromata, with separate ligature of the vessels and intra-peritoneal treatment of stump. Since that article was written I have performed the same operation once more, also successfully, these four cases being the only ones in which I have practised the operation. On March 8th of this year an oppor-

tunity occurred of applying the same method of operation to a pregnant uterus at term.

A Fellah woman, primipara, aged twenty-three, was admitted at noon, having been in labour about 100 hours. She was completely collapsed, but conscious, and her pulse easily felt. Her pelvis was osteomalacic, and the rami of the pubis so approximated that it was with difficulty that three fingers were introduced. The membranes had ruptured three days previously, and the head was jammed on the pelvis. The only possible method of delivery was by an abdominal section, and though the chance of recovery was minimal, she elected to take that chance. At 2 P.M. she was chloroformed, and the following operation performed. The abdominal walls were incised up to two inches above the umbilicus. The uterus was made to protrude, and turned to the right. This brought into view the huge vessels of the left broad ligament stretched on the distended uterus, and a closed artery forceps was easily passed under them, piercing the broad ligament and raising the vessels from the uterus. One handle of the artery forceps was then passed beneath them, and the two handles were held by an assistant ready to be clamped when required. The uterus was then turned to the left and the vessels of the right broad ligament similarly treated. The placenta was readily found at the top of the uterus, and the uterine wall incised below its attachment. The opening in the uterus was enlarged with the fingers, and the child, which had been for a long time dead, was easily removed, the artery forceps holding the vessels of the broad ligament being at the same moment clamped. Some two or three ounces of blood escaped from the uterine cavity. The uterus was then cut across with scissors, a little above the reflection of the peritoneum on to the bladder. No bleeding occurred except as the uterine arteries and veins on either side were cut across, they being at once seized with forceps. The stump of the uterus was washed out with water, draining through the vagina. The vessels of the two broad ligaments, already clamped, were separated one by one and tied with silk, as also were the uterine vessels. The edges of the stump were then sewn together with a continuous catgut suture, and the peritoneum united over it with a continuous Lembert silk suture. The peritoneal cavity was washed clean with sterilised water, a large glass drain inserted, and the abdominal wound closed. The whole operation occupied twenty-five minutes. The patient revived for a few hours after the operation, then sank gradually, and died at 7 next morning.

Remarks.—In spite of the fatal result, I think operative interference was not only justifiable, but a duty. The operation itself possesses various advantages: it is as easy of execution as an ordinary ovariectomy; there is no possible fear of hæmorrhage at the time of operation except from the slipping of a clamp, and the chance of subsequent bleeding is rendered minimal, as each vessel is ligatured separately. The stump is perfect, being entirely covered with peritoneum, and the peritoneal cavity is entirely closed except for the drainage-tube, which I think might be omitted. As regards the child, its nutrition is in no way interfered with, as the circulation is carried on normally until the moment when the uterus is opened. The preliminary fixing of the clamps round the vessels of the broad ligaments is not absolutely necessary, as generally there is but little bleeding from the torn uterus, but as a matter of caution I think it advisable.

REMARKS ON THE MALARIAL FEVERS OF THE PESHAWUR VALLEY, AND THEIR PROPHYLACTIC TREATMENT.

BY SURGEON-MAJOR ANDREW DUNCAN, M.D., &c.

INSPECTOR-GENERAL MUNRO has described the Peshawur valley as one surrounded by lofty mountains, with a great amount of water in it that was stagnating, and an absence of all permanent vegetation. These features, with the constant rotation of annual crops, all tend to produce malarious disease. The types of fever were said to be endemic in the valley, frequently becoming epidemic, remittent, intermittent, congestive remittent, and the ardent or simple continued. The usual rotation of these fevers was said to be as follow:—The simple continued occurred in April, May, and even in June; the remittent and congestive remittent in July, August, and September;