being incrustated with a gritty material and small fragments of lead. This having been thoroughly scraped with a Volkmann spoon, and disinfected by means of a solution of chloride of zinc, forty grains to the ounce, the wound was then stuffed with strips of lint, soaked in a mixture of iodoform and carbolate of glycerine, and a firm bandage applied from the toes upwards. The patient suffered but little pain, and on the removal of the lint in forty-eight hours the wound was found to be perfectly sweet. Since then there has been neither pain, rise of temperature, nor other bad symptom; and now, after a month, the wound is rapidly filling up with granulations, and the patient is able to walk about without any inconvenience, and purposes returning home to London in the course of next week.

On considering this case, there appear to me to be two points which are specially worthy of notice:—1. It is remarkable that the patient should have recovered at all without amputation after the receipt of such an injury, comprising as it did a contused and lacerated wound of the knee-joint, with penetration if not fracture of the internal condyle, this being further complicated by the presence of a considerable but unknown number of foreign bodies, the exact nature and position of which were never known until after the last operation. This is especially the case when one remembers that the accident occurred before the introduction of immobilisation and antiseptics had so materially modified the views of modern surgeons as to the treatment of such cases, and when such an acknowledged authority as Professor Longmore states that "he does not think any instance occurred during the Crimean war in which the synovial capsule of the knee-joint was manifestly penetrated and the patella or ends of the femur or tibia fractured, where the wounded limb and life of the patient were preserved." 2. The successful removal of a bullet from the centre of a long bone at so long a period after the receipt of the injury must be of comparatively rare occurrence. Erichsen mentions the case of General Bem, from whose external condyle Liston removed a bullet fourteen years after its lodgment; and Nélaton's extraction of a bullet from the lower end of the tibia of Garibaldi has become historical. Guthrie, Longmore, Gross, and Agnew make no mention of such cases. That bullets have often been found lodged in bone is well known, but these were either removed shortly after the receipt of the injury or obtained after amputation or on post-mortem examination. The length of time that the bullet remained in the tissues before extraction—namely, rather more than thirty years—is of itself remarkable, although there are numerous cases on record where a longer interval has elapsed, as in that instanced by Gross, in which he removed a bullet weighing six and a half drachms from the soft parts between the tibia and fibula forty-nine years after the receipt of the injury.

Edinburgh.

CLINICAL NOTES ON THE DIAGNOSIS OF GRANULAR KIDNEY.

By LESLIE PHILLIPS, M.D. BRUX.

CASES are very commonly met with the urine of which does not present the characters we are accustomed to look for in granular kidney, yet at the autopsy the renal lesion is found to be this form of Bright's disease. The object of the present paper is to establish some of the anomalies which may be observed in the condition of the urine, and to point out certain erroneous conclusions, which may easily be arrived at if we expect to find in all cases of granular kidney pale urine of low gravity, containing a cloud of albumen. Cases frequently come under notice for the first time, late in the disease, when the urine is found to resemble in no respect the typical secretion of granular kidney. The following cases will illustrate some of the difficulties of diagnosis.

CASE 1.—W. B.—. Ascites depending on cirrhosis of the liver. Average daily quantity of urine passed, 9 oz.; gravity 1015; sometimes containing no albumen, sometimes a trace. At the post-mortem examination the kidneys were granular and somewhat fatty, weighing together 5½ oz. During life the condition of the urine might well have been ascribed to congestion of the kidney due to pressure of the ascitic fluid

on the renal veins. It may be remarked, however, that the association of albuminuria with hepatic cirrhosis strongly suggests granular kidney. The specific gravity of the urine in intertubular nephritis varies greatly, and it is a fact which requires emphasis that the specific gravity is often as high as 1030.

CASE 2.—C. D.—, aged fifty-seven. Mitral stenosis and multiple embolism. For a month the specific gravity of the urine varied between 1025 and 1035, contained no albumen on repeated examination, but always contained urates; later, the gravity fell somewhat, and a cloud of albumen was constantly found. At the post-mortem examination the kidneys weighed together 6½ oz.; they were granular, with patches of old embolic change.

CASE 3.—P. W.—, aged about eighty. Brought in comatose; did not recover consciousness. Urine acid; sp. gr. 1024; trace of albumen; oxalates, urates, and uric acid were present, but no casts could be found.

CASE 4.—J. E.—, aged fifty-three. Convulsions; coma. Urine acid; sp. gr. 1022; cloud of albumen; small quantity passed. Area of cardiac dulness diminished; no change in retinæ; radial arteries hard. At the post-mortem examination there were emphysema of the lungs, atheroma of the arteries, and the kidneys were cirrhotic, each weighing 2½ oz. In obscure cases the diagnosis is assisted by the coexistence or otherwise of hypertrophy of the heart, atheroma of the vessels, and a history of nocturnal micturition and retinal changes. It must be remembered that in each of these there are certain fallacies which should not be overlooked. The patients are usually of an age when emphysema of the lung is common. An emphysematous lung renders the diagnosis of cardiac hypertrophy difficult, by diminishing the area of cardiac dulness. An atheromatous radial, with its other characters, cannot be made to disappear by the pressure of the finger as the healthy vessel does. A history of getting out of bed to pass urine is not of much value unless it has been habitual, and often more than once during the night. Albuminuric retinitis shows that the disease is of old standing, but not necessarily that it is of the interstitial variety. The arterial tension is usually high in this disease, as in Fig. 1. It will be seen that the pulse-

FIG. 1.

wave is elevated above the percussion impulse, and that the dicrotic notch is high in the tracing, while the descent of the lever is gradual. The tension, however, in granular kidney may be very low, and this will often be found to be due to failure of the heart—a condition in which digitalis acts well as a diuretic, and in which stimulants may be urgently indicated.

CASE 5.—S.—, aged sixty. Senility. Urine constantly gave these results: sp. gr. 1010; acid reaction; cloud of albumen. At the necropsy the kidneys were granular and cystic. The tension of the pulse was low (see Fig. 2).

FIG. 2.

Figure 3 is the sphygmogram obtained from Case 3, in which also tension was at its lowest. The urine of granular kidney

FIG. 3.

may simulate that of chronic tubular nephritis. For the diagnosis, in addition to the usual signs, an important clinical fact is that in granular kidney it is generally difficult, and sometimes apparently impossible, to find casts.

CASE 6.—H. P.—, aged sixty-seven. Bronchitis and emphysema; dilated right heart, with tricuspid regurgitation; atheromatous radials. The urine passed daily amounted to forty-two ounces; sp. gr. 1025, with a quarter of a column of albumen coagulatum; no casts were found on careful examination. At the necropsy the kidneys were cirrhotic. The same difficulty in finding casts is useful in discriminating recent subacute cases of Bright's disease from that class of cases where an acute attack supervenes on old intertubular nephritis.

CASE 7.—E. V.—, aged thirty-two. General oedema of body; uræmic convulsions; death. The urine passed was ten ounces; acid reaction; sp. gr. 1010; one-third of a column of coagulatum; no casts could be found. At the post-mortem examination there was general anasarca; the heart weighed 24 oz., and the valves were competent; kidneys markedly granular and cystic, weighing together 7 oz.; microscopically, most of the tubes were blocked with swollen epithelium, the matrix was much increased, and the arteries were thickened.

Although granular kidney is properly a disease of advanced life, it occasionally occurs in young people or children. In the following case, which is of sufficient interest to be given *in extenso*, the general character of the symptoms resembled chronic or subacute nephritis, with this notable difference, that no casts could be found on careful examination of the urine. The kidneys proved to be extremely cirrhotic, and the disease must have been of old standing.

CASE 8.—P. S.—, domestic servant, aged twenty-six. Had scarlatina when a child. Noticed symptoms fourteen

FIG. 4.

days before admission. Illness began with backache, cramp and swelling of the eyelids and feet, and the body has become gradually swollen. There is a mitral regurgitant bruit. On the second day after admission she had headache and vomiting. The urine was alkaline; sp. gr. 1010; nearly solid on boiling; no casts were found.—Third day: From 5 A.M. till 9 A.M. she had eleven convulsions; did not speak during the day; semi-comatose; no oedema of limbs; she resents interference. Evening pulse 120; respiration 36. No physical signs in lungs.—Fourth day: Same condition of stupor; pulse 128. In the afternoon she recovered a little from stupor. Tongue dry; sordes on lips; restless.—Fifth day: Restless and noisy.—Sixth day: Cough; restless; no physical signs in lungs; involuntary micturition; violent purgation with three grains of compound powder of elaterium.—Seventh day: Respiration 36; chest full of coarse, loose crepitations; coughs up copious frothy sputum, having a striking uniform pink colour, which the microscope shows is due to blood. This lasted till death, which occurred in the night. At the necropsy the lungs were cedematous; bronchi contained pink mucus. There was hypertrophy of the left ventricle; the mitral valve segments were small, probably allowing regurgitation. There was notable pallor of the brain and meninges; on section the brain looked bloodless. The kidneys presented the characters of cirrhosis, except that the capsule peeled well; each weighed 2½ oz. (See Fig. 4.)

Birmingham.

CASE OF OVARIOTOMY IN ROME.

By J. H. THOMPSON, M.D.

THE LANCET of June 20th, 1885, contained a report by me of a case of ovariectomy in Rome; the sequel, of which the following is the history, I believe to be unprecedented in the records of ovariectomy.

On reference to the original article, it will be noticed that I did not cut off the ends of the ligatures embracing the pedicle, but left them outside the abdominal wall; and that after several weeks, finding them still firmly attached, I resorted to continuous gentle traction, using an elastic ring, to one side of which the ligatures were attached, and the other side made fast to the abdominal wall by strips of adhesive plaster. At the end of eleven weeks, there being no sign of separation, I cut them off as short as possible and let the attached ends drop into the abdominal cavity. My patient continued perfectly well until February of this year, when she sought advice on account of a throbbing and dragging pain at the lower part of the abdomen, with frequent and painful micturition. She had missed her periods for two months, and believed herself to be pregnant. Upon examining the cicatrix, the lower part was found to be markedly contracted; pressure gave slight pain. The urine was carefully examined, and found to be normal. Under these circumstances I thought the pain might be due to traction made by the gravid uterus upon adhesions between the stump and the cicatrix. In the first week of March she aborted, losing a considerable quantity of blood. From this she quickly recovered, but the discomfort about the bladder continued. In May she had a smart attack of fever, and complained of intense pain. Poultries, hot sitz-baths, and opium were prescribed. On the fourth day after the commencement of this exacerbation she experienced sudden relief, and voided about eight ounces of urine loaded with pus and some blood. For several days a large quantity of pus was passed with the urine. The pain was much diminished, and no longer pulsating. It was evident that an abscess had formed in the abdominal cavity, and had evacuated itself into the bladder. From this time until the middle of June there was steady improvement, but then the pain returned with increased violence, and it was only after long-continued efforts that she could succeed in passing urine. As I was leaving Rome for the summer vacation, I recommended her admission into St. Giacomo Hospital, the attending surgeon of that institution being familiar with her history. On my return to Rome in October, Prof. Pandolfi kindly furnished me with a written report of her case whilst under his charge, which I have translated, and of which the following is a synopsis:—

"Margherita M— came under my care on July 6th of this year. She was then suffering great pain, accompanied by fever. On examination I found the bladder much distended, the fundus reaching to the umbilicus. Immediate relief was necessary, but, to my surprise, I was unable to pass the catheter, the urethra being blocked by a hard resisting body. I tried to seize the foreign substance with the ordinary forceps, but found it impossible. Having provided myself with Serey and Etoilles' extractor, I succeeded in removing the mass, which upon examination proved to be a number of ligatures encrusted by the urinary salts. As soon as the impediment was removed she passed a large quantity of fetid turbid urine. For some days her urine remained turbid, but gradually improved, and at the end of twenty days she was discharged, being perfectly restored to health.

"I think, my dear colleague, the explanation is clear. The threads removed from the bladder were evidently the ligatures placed around the pedicle of the ovarian tumour you removed from her in March, 1884. Now I think that at some distant time after the operation a slow *flogosi* set in, caused by disturbance of the adhesions, or by the presence of the unencapsuled ligatures, which eventuated in an abscess which ulcerated through the corresponding wall of the bladder. It is clear how the rest happened. This interpretation explains the pain and fever which accompanied the evolution of this interesting, rare, and fortunate case.—GAETANO PANDOLFI, M.D."

The accompanying illustration is taken from a photograph of the specimens. In removing the mass, the incrustation