and hæmostatic. In fact, there is everything to recommend the proceeding, and nothing (that I know of) to forbid its general adoption in all cases of labour and miscarriage.

Cheltenham.

ON GRANULAR KIDNEY FOLLOWING SCARLATINAL NEPHRITIS.

BY J. DIXON MANN, M.D. ST. AND., F.R.C.P. LOND.,
PHYSICIAN TO THE SALFORD ROYAL HOSPITAL.

THE absence of any essential distinction between the pathological processes concerned in the production of the different forms of Bright's disease is once more forcibly demonstrated by the following case. The patient was under my observation from the time she was attacked with nephritis until her death—a period of twenty-eight years.

In 1866 a girl aged fourteen years, previously healthy, had an attack of scarlet fever followed by nephritis and dropsy. There was nothing unusual in the course of the acute stage of the kidney disease; it subsided in a few weeks, and the patient regained her former state of health except that albumin continued to be present in the urine. From this time until her death, which took place in October, 1894, the urine was examined six or eight times every year, and albumin was found to be present on every occasion. For seven or eight years after the original attack the patient had occasional subacute attacks of nephritis, during which the urine became scanty, cloudy, and smoky, or red; at such times it contained numerous hyaline and fatty casts. In the intervals the urine was clear, of medium colour, and was free from excessive deposit, only an occasional cast being present. In some of these attacks there was considerable œdema of the hands and feet as well as of the face; at all other times no trace of œdema was present. These attacks usually followed exposure to cold; sometimes they occurred without any ascertainable cause. Each attack lasted about two or three weeks; they were entirely absent during the later period of the patient's illness. With the exception of occasional slight attacks of bronchial catarrh and of subacute rheumatism the general health was good. As a girl the patient was of a rosy complexion, and she retained the greater part of her facial colour throughout life; she never became anæmic. She was moderately stout and did not lose flesh until the last year of her life. At the age of twenty-eight she married, but had no children. From 1866 to 1880 the urine invariably contained a considerable amount of albumin, varying from 0·2 to 1 per cent. Somewhere about the year 1880 a change was noticed in the character and the quantity of the urine; in place of being of medium, or rather higher than medium, colour, and of moderate amount—thirty-four to forty-five ounces daily—it became of lower specific gravity, 1005 to 1010, paler in colour and more abundant, eventually reaching sixty to eighty ounces daily. The percentage of albumin also diminished, never exceeding 0·3 per cent. Casts were now very rarely, and blood-corpuscles never, found, the urine being almost free from deposit. From time to time observations were made as to the relative amounts of serum albumin and serum globulin in the urine. The proteid quotient was found to range within wide limits, being sometimes as high as 35, and at others as low as 0·8. The only striking feature observed was that the mean of the quotient tended to fall as the case advanced. The diminution was by no means regularly progressive, but, taking the whole series of observations, there was a decided drop during the last year; this was probably due to the altered constitution of the blood plasma induced by the disease. The daily excretion of urea did not materially deviate from the normal, although during the latter part of the patient's life the percentage of urea in a given volume of urine was diminished. A few weeks before death a considerable reduction in the amount daily excreted took place. The arterial tension gradually rose as time went on and the left ventricle became hypertrophied. In 1888 a mitral systolic murmur was observed. In September, 1894, the patient was troubled with persistent headache and sleeplessness, having previously been a heavy sleeper. Retinal hæmorrhages had been observed a short time before. She then became worse, and, after having been unconscious for several days, died from uræmia in October, 1894.

Post-mortem examination showed that the heart was considerably hypertrophied, especially the left ventricle. The liver was rather large and hyperæmic; it showed no cystic changes. The kidneys were very small; the left weighed two ounces, and the right a few grains under two ounces. They were dark-red in colour, without any white or yellow spots or patches. I am indebted to the kindness of my colleague, Professor Sheridan Delépine, for the following minute description of the kidneys: "Both the kidneys were small, measuring three inches and a half in length and one inch and three-quarters in width. Generally speaking they were normal in shape. The ureter and pelvis were of normal size. The capsule could not be stripped off without the substance of the cortex being torn and a number of cysts opened. The denuded surface of the cortex was very granular, cystic, and congested; some of the cysts projected much beyond the surface of the organ, the largest measuring about half an inch in diameter. This cyst contained a thickish, colloid-looking material. Microscopically examined, the organ presented all the appearances generally associated with the term "granular kidney." The capsule was thickened and rough on its external surface, indicating fibrous induration of the perinephral tissues. The interstitial tissue of the cortex was much increased, especially in the region of the pyramids of Ferrein, where the tissue was very transparent, finely fibrillated, and œdematous or myxœdematous looking; here and there it was moderately cellular, but there was no evidence of any recent small-celled infiltration. In the labyrinth the fibrous tissue was more scanty, denser-looking, and more coarsely fibrillated. In the medulla the increase of connective tissue was also very well marked and the œdematous look more striking; in many places the bloodvessels (capillaries) were separated from the collecting tubes by a layer of connective tissue thicker than the diameter of the tubules or of the bloodvessels themselves. The large arterial arches and many interlobular arteries were little altered, but were surrounded by a large amount of adventitious connective tissue. The smaller arteries, especially the terminal branches of the interlobular arteries immediately under the capsule, showed great thickening of their walls, most marked in the tunica intima, which in some exceptional cases was so thick as nearly to obliterate the lumen. The veins were generally dilated and also the capillaries. The Malpighian glomeruli and the capsule of Bowman were almost without exception scarcely distinguishable owing to fibrous transformation; those which remained distinct were in a state of fibro-hyaline degeneration; only a few Malpighian bodies appeared to be capable of performing any function. The convoluted tubules were mostly dilated, giving to the labyrinth an appearance resembling that of lung parenchyma. In many of the dilated tubules much atrophied epithelium could be recognised; in some the epithelium was lying loose in the lumen, in others the atrophied cells were pressed against the basement membrane by a mass of colloid matter in which cells more or less degenerated or vacuolated could be recognised. Some of the most dilated tubules formed cysts quite distinct to the naked eye, reaching in one instance a diameter of half an inch. A small proportion of convoluted tubules showed considerable atrophy. The straight tubules in the medullary rays were much atrophied, and here and there large cysts could be found in the labyrinth. In the papillary region of the pyramids of Malpighi some of the large collecting tubules were also much dilated."

Professor Delépine's report places this case amongst those in which, as a sequence of acute parenchymatous nephritis, a pathological condition is met with indistinguishable from that associated with the common type of granular kidney. The resemblance is complete; the tissues attacked and the character of the changes produced are identical. It is necessary to emphasise this lest the case should be regarded as one of arterio-sclerotic atrophy. In this form of contracted kidney the changes are almost entirely limited to the renal arteries and their branches. The arteries affected are gradually obliterated by thickening of the intima so that the glomeruli supplied by them are rendered functionless and, in consequence, atrophy along with the tubules derived from them; localised patches of cicatricial contraction of the cortex ensue, and these may be so numerous as to affect the entire cortex, producing naked-eye appearances very like those of the ordinary cirrhotic kidney. The distinction consists in the limitation of the morbid processes to the arteries; there is practically no increase of connective tissue, nor are Bowman's capsules thickened. In my

case the connective tissue throughout the cortex was greatly increased, Bowman's capsules were almost obliterated by fibrous invasion, and the larger and many of the interlobular arteries were but little altered, only the intima of their terminal branches being thickened. That the original disease which attacked the kidneys in the case under notice was of the acute parenchymatous type the clinical history clearly shows. That after a time it merged into chronic parenchymatous nephritis is equally obvious, and that the ultimate result was a condition absolutely indistinguishable from the ordinary granular kidney is demonstrated by Professor Delépine's report. The continuity of the morbid processes is established by the fact that albumin was always found to be present in the urine during the whole of the post-scarlatinal period of the patient's life, and also that the urine gradually approached in character the urine from an ordinary case of contracted kidney. During these twenty-eight years the kidneys were undergoing a series of changes, the character of which altered as time went on. The primary disease being scarlatinal nephritis would chiefly attack the glomeruli, but accompanying this there would also be more or less diffuse interstitial inflammation. The usual course is towards recovery or to comparatively early death. In the latter case the effect of the inflammatory processes on the vascular parenchyma is to produce more or less rapid and permanent loss of function, which ends matters forthwith; or, when the inflammation is less destructive, it leads to chronic changes which are also to a preponderating degree parenchymatous. Any changes that occur in the interstitial tissue are of negligible quantity, simply because, being of much slower type, they have not time to assert themselves before the more vital structures succumb. In my case, however, neither the original attack nor the subacute attacks which followed were of such virulence as to permanently damage the glomeruli beyond a point which was consistent with considerable duration of life. The necessary factor—time—consequently came into play; interstitial hyperplasia took place, with subsequent contraction of the overgrowth, together with the other indurative changes met with. It would thus appear that the condition found after death was simply the ultimate expression of one not unfrequently seen, in a modified form, in cases of chronic parenchymatous nephritis (large white kidney), which have survived rather longer than usual. In such cases some amount of fibrous hyperplasia of Bowman's capsules, along with cicatricial contraction of the cortex, which may reduce the kidney to less than the normal size, are by no means uncommon. The essential feature of the case was its singularly protracted course, which allowed the cirrhotic changes to reach a most advanced stage.

Manchester.

ON THE VALUE OF BICHROMATE OF POTASH IN CERTAIN AFFECTIONS OF THE STOMACH.

BY J. B. BRADBURY, M.D. CANTAB., F.R.C.P. LOND.,
DOWNING PROFESSOR OF MEDICINE IN THE UNIVERSITY OF CAMBRIDGE; PHYSICIAN TO ADDENBROOKE'S HOSPITAL.

I BROUGHT back with me from the meeting of the British Medical Association at Clifton in August, 1894, a small box of soft gelatine capsules—prepared by Messrs. Duncan, Flockhart, and Co. of Edinburgh—each containing one-tenth of a grain of bichromate of potash. With the box were no directions, and for some months I could not make out in what diseases they were intended to be used. At the beginning of this year Professor Fraser of Edinburgh kindly sent me a paper which he read before the International Medical Congress at Rome[1] on the use of this drug in certain affections of the stomach, and I soon had the opportunity of testing its value in the case of my parlour-maid.

CASE 1.—In February she had an acute attack of gastralgia, which neither bismuth, morphia, nor iron, with the most careful dieting, would alleviate. She had had many similar attacks before and had always been relieved by a powder containing bismuth, opium, magnesia, and soda, or by iron. The pain was so severe that she was compelled to give up her work; it came on usually *directly* after eating, occasionally before, and was relieved by vomiting. She was slightly anæmic, but the bowels and catamenia were fairly regular. I determined to try the capsules, and after taking one three times a day for two or three days on an empty stomach she became much better and continued to improve. She has kept quite well ever since. Altogether she took two boxes of the capsules, each box containing about twelve.

CASE 2.—A man aged thirty, married, was admitted into Addenbrooke's Hospital, Cambridge, on April 3rd of this year suffering from attacks of vomiting after food. Generally the attacks came on many hours (from ten to twelve) after a meal, and most often occurred in the early morning. No pain was felt after food had been taken, but occasionally bright blood was found in the vomited matters. The Sunday before admission he brought up two tablespoonfuls of blood in the vomit. He had been troubled with these attacks of sickness for three years, and in consequence had been almost constantly an in- or out-patient at the hospital. Relief was obtained for a time, but the attacks quickly recurred. The patient was somewhat wasted, but there was no evidence of any other disease. He was of temperate habits. He was dieted on beef-tea and milk, and the day after admission was given one capsule of potassium bichromate (one-tenth of a grain) three times a day. He vomited on each occasion an hour after taking the first three capsules and once four days afterwards. On April 10th, one week after admission, he was allowed bread, on the 13th fish, and on the 17th pudding. On April 28th he left the hospital greatly improved in every respect, having gained weight and the power to take solid food.

CASE 3.—A woman aged forty-six was admitted to Addenbrooke's Hospital on April 17th last suffering from pain in the stomach and vomiting. These symptoms commenced seven years ago and had been more or less present ever since. She had lost flesh and occasionally had brought up dark blood in the vomit. She was the mother of eighteen children, of whom ten were living, and there was a pronounced family history of phthisis on the father's side. When admitted the patient presented a somewhat wasted appearance; the gastric pain was constant, being worse after food, and vomiting occurred after every meal. There was tenderness in the epigastrium and right hypochondrium, but no tumour was felt. The tongue was slightly coated and the appetite poor; the bowels were regular. She was put on a milk and beef-tea diet, but no improvement occurred, and three days afterwards was ordered one potassium bichromate capsule (containing one-tenth of a grain) three times a day, with an occasional dose of an elixir of cascara sagrada. During the night she vomited once, but the next day she was free from pain. The improvement continued. On April 28th, eight days after commencing to take the capsules, fish was added to her diet, and on May 5th full diet was allowed. This, however, produced retching and abdominal discomfort, and it was therefore found necessary to replace the meat by fish. Subsequently the patient gradually improved and was finally discharged on May 11th. Reporting herself at the hospital two weeks later, she stated that the improvement had continued and that she was practically well.

CASE 4.—A man aged fifty-nine was admitted into Addenbrooke's Hospital on April 6th last complaining of a constant gnawing pain in the epigastrium and occasionally shooting into the loins. This first commenced about a month before Christmas and had continued ever since. It was sometimes worse about an hour after food, but there was no definite relation to meals. The patient stated that he had lost two stone since Christmas; he had never vomited, and no family history of cancer was obtained. The bowels were constipated. On examination of the abdomen the superficial veins were found distended; an ill-defined roundish mass, slightly tender, was felt in the region of the umbilicus, but no enlargement of the liver or spleen could be detected. A trace of albumin was found in the urine. On admission he was put on a milk and beef-tea diet, a purgative and a simple enema being also given. No improvement occurred. On April 10th potassium bichromate capsules, one three times a day, were given. Improvement almost immediately followed; the pain abated, the patient gained weight and was soon discharged, being able to take solid food with impunity.

CASE 5.—A young woman aged eighteen first consulted me on May 14th, 1892. Her symptoms were pain after eating and extending between the shoulders, occasional vomiting, but no hæmatemesis. She was afraid to eat on account of the pain. The bowels were very costive. The catamenia were regular. She had not been well for two

[1] Vide THE LANCET, April 14th, 1894.