is protected by an ivory bulb, and its broader extremity is inserted into a narrow socket and attached to the revolving stem that I use in my gromele, which is protected by a flexible tube. This instrument can be inserted into the abdominal wound, and guided by external manipulation to the cardiac orifice, and there set in revolution. It can in this way remove tissue and enlarge the calibre of the oesophageal opening when occluded by morbid growths.

My first instrument of this kind was a roughly-improvised one, and yet with it I obtained results which were at least encouraging, if not completely satisfactory. I have since had such an instrument constructed upon my model which will be free from the unavoidable defects of the original, and which presumably will do more satisfactory work.

The use of this instrument is naturally indicated in cases where the obstruction is located near the cardia, and of sufficiently voluminous bulk to be safely bored out. The nature of the tumour, its rapidity of growth, etc., has also to be considered, but in a certain number of cases its utility will be, I think, established. It is easily introduced, easily guided by external manipulation to the point desired, and its ivory bulb-shaped extremity readily engages in what is left of the cardiac opening. With a correct diagnosis of the existing indication it can be used with safety; the knife edges are not sharp, its action is that of a dull rather than a sharp curette, and healthy tissue, being more resistant, is not liable to be removed. If by its aid we can restore the natural passage of the food for any length of time, we may accept it as a solid gain. I offer the instrument as an aid to an operation which in some cases may be an actual necessity, and which in all is a decided advantage if it can be performed with any prospect of success.

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ON OBSCURE HÆMORRHAGE FROM A SINGLE KIDNEY AND ITS CURE BY NEPHROTOMY.*

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At the end of the last and the beginning of the present century there was considerable talk of "hæmaturia sine materia" or "essential" genuine hæmaturia. Rayer¹ has, for instance, a whole chapter upon this subject. Later on, in the most flourishing period of etiological inquiry, little or nothing was heard about genuine hæmaturia, probably because new or hitherto little noticed causes of hæmorrhage of the kidneys were discovered. In short, in every case of severe bleeding a tumour, tuberculosis, or a hitherto symptomless stone was supposed to be the cause. Since in later years operations upon the kidneys have become more frequent, the question of genuine hæmaturia has once more most unexpectedly come to the front. This is due to the circumstance that surgeons, operating for the removal of stone, tumour, or tuberculous

deposits, supposed to be the cause of the bleeding, found the kidney apparently healthy. In some cases the kidney has been removed, the bleeding has ceased, but the microscopical examination has shown no pathological changes. These observations have given a tremendous impulse to the discussion of "hæmaturia sine materia," and there have appeared in the last few years a series of reports of cases supposed to range under this heading. These are described sometimes as "renal hæmophilia" (Senator, Broca, Passet), sometimes as "hæmorrhage of anatomically unchanged kidneys" (Piqué and Reblaud, Groslik), as "hæmaturic neuralgia" (Leguen) and by Klemperer even as "hæmaturia from a healthy kidney." These authors cannot explain the bleeding in other ways than by supposing the existence of a "local hæmophilia" or an "angioneurosis." This latter hypothesis (Leguen, Broca), that the bleeding should be caused by a nervous disposition in the patient, seems now, since Klemperer has adopted it, to be the predominating. Moreover, Klemperer has quite recently expressed the opinion that such forms of hæmaturia can be diagnosed and cured without surgical interference, and therefore that operations in such cases are not permissible.

We stand, then, face to face with an important question belonging to the borderland between medicine and surgery, and it seems to me that it is highly necessary, from the surgical side, to carefully weigh and examine Klemperer's opinion, which would cut away our hitherto settled indications for surgical interference.

I have during the last couple of years been forced to take up this matter, from having had under treatment a small series of cases of unilateral hæmaturia, which could not be explained by the usual or known causes, and I take the opportunity of submitting the results I have arrived at to your notice as a slight contribution towards the solving of this question.

A critical study of the cases reported in literature has shown me that the majority of them are most doubtful as cases of "hæmaturia from a healthy kidney." It is clear that before such a diagnosis can be pronounced every possible means ought to be taken to ascertain, first, whether the bleeding really comes from the kidney; and, secondly, whether the possibility of morbid changes of the kidney is absolutely excluded.

The cases reported in literature fall into two groups: (1) those which have been exclusively under medical treatment, and (2) those in which the kidney has been the object of palpation, incision, or removal through operation.

The cases in the first group are quite useless in deciding the question, because there is no cystoscopic examination and no necropsy of the kidney. It is, therefore, quite impossible to say whether the bleeding was due to the kidneys, the bladder, or some other part of the urinary tract, or whether the kidney really was healthy.

Therefore, we are restricted to the second group in searching for proofs of the existence of hæmaturia from "healthy kidneys." By critically examining the 12 reported cases of this kind, it will be found that very few—I think only 2 (Schede and Klemperer)—are in any way convincing. In the 2 cases named the hæmaturia ceased after removal of the kidney, the microscopical examination of which gave a negative result, and no other cause of the bleeding was discovered.

As to the other cases, it is true that the authors themselves state that they have been unable to find any actual cause for the hæmorrhage, whilst they see in the circumstance that the bleeding ceased after simple exploratory operation, a proof that the bleeding originated in the kidney and was only caused by a nervous disposition in the patient. But if you examine these cases, you will find that the patients never showed any symptoms of hysterical or other nervous disposition, while in each case mention is made of other pathological changes, which much more probably could be supposed to be the cause of the hæmorrhage. In the case observed by Senator and Israël, histological examination of the removed kidney showed "interstitial inflammatory areas"; in Lauenstein's case there was oxaluria and a distension of the pelvis, in which no blood was found (probably a stone was impacted in the ureter); in Sabatier's case there was chronic albuminuria, bacteriuria, and the microscopical

* Read in the Section of Surgery at the Annual Meeting of the British Medical Association, held in Edinburgh July, 1898.

examination of the removed kidney showed "traces of interstitial inflammation and sclerosis"; in Anderson's there is notice of pus in the urine; in Broca's epithelial and granular cylinders and cells of renal epithelium—in short, nephritis; in the cases of Israël, Piqué and Reblaud it is distinctly stated that the kidney was both displaced downwards and movable.

In none of all these cases has a bacteriological examination of the urine taken place, and as it is now a well-known fact that urinary infection without suppuration is not rare, it must be admitted that the possibility of infection is not at all excluded, even in the cases where only blood without pus was found in the urine.

Finally, in the cases where the kidney was supposed to be normal, no notice is taken of the possibility that it may not be the kidney at all, but perhaps the pelvis or the ureter which has been the seat of the bleeding. Then the fact that the blood by cystoscopic examination is seen to come from the orifice of the ureter does not prove that the blood originates from the renal tissue.

The cases reported in literature cannot, then, convince us of the existence of bleedings from healthy kidneys on a nervous basis, and it seems to me to be an open question whether the real cause of the bleeding has not been overlooked in these cases, or in most of them; therefore, new and carefully observed cases are necessary for the solution of the question, and I think the following four cases may be of some value in this respect.

CASE I.—E. P., aged 21. No history of arthritic disease in the family. A sister died from hæmatemesis caused by ulcer ventriculi. The patient, always healthy as a child, has exhibited no signs of hæmophilia. From the age of 16 severe attacks of pain in the right side of the abdomen, treated as appendicitis; in the latter years she has twice had hæmaturia subsequent to such attacks of pain. Her medical attendant examined the urine carefully between these attacks of hæmaturia and found it quite normal. No gravel, calculus, or red sediment in the urine. She was brought into my clinic on October 6th, 1896. A fortnight before severe hæmaturia had again set in, which remained constant and considerable.

Objective Examination.—The patient is slightly built, of a nervous and lively disposition, very pale, languid and exhausted. No resistance or tenderness in the cæcal region: the right lobe of the liver is felt an inch and a-half under the curvature: on deep palpation, only the inferior pole of the kidney can be felt. The stethoscopic examination shows nothing abnormal. No petechiæ on the body.

Cystoscopic Examination.—The mucous membrane of the bladder normal. A strong blood-coloured stream comes from the right ureter; clear urine from the left. The urine, taken under aseptic precautions, is deeply blood-coloured; microscopical examination shows innumerable red blood corpuscles and a few white ones; no tuberculous bacilli or other micro-organisms. Spreading on agar-gelatin yields a negative result. Diagnosis uncertain, vacillating between calculus and tumour.

On October 6th, 1896, on the seventeenth day of hæmaturia, right lumbar incision is performed under chloroform. The kidney, which is situated high up behind the liver, is loosened with difficulty, as the superior third adheres firmly to the adjacent parts. Drawn out through the wound, the kidney is seen to be of peculiar shape, long and quite narrow and thin; pale in the lower two-thirds, whilst the upper third is deep bluish-red. Pelvis and ureter are not distended. No calculus is felt. The whole kidney is now divided from the convex margin into the pelvis; the mucous membrane of pelvis pale, quite normal; papillæ healthy; no tuberculous deposit or signs of tumour, but the tissue of the upper third of the kidney is bluish-red and remarkably brittle in comparison to the lower two-thirds, which are absolutely normal. After excision of a piece of tissue from the upper third of the kidney for microscopical examination the kidney was united with catgut sutures. The upper third was so brittle as to make it absolutely impossible to apply sutures in it; the surfaces of the wound here had, therefore, to be kept together by sutures in the capsule alone. The kidney was then replaced in its normal position, and only fixed there with a plug of sterilised gauze, placed under the inferior pole, and passed through the posterior angle of the lumbar incision, which was joined with deep catgut and superficial fishgut sutures. On the next day the urine was but slightly mixed with blood; the third day it was quite clear. The fourth day the plug was removed, the wound healing *per primam*.

From the eighth day the urine was quite free from blood and albumen, and has been so since. The patient was discharged perfectly cured on November 10th, 1896, and has in the eighteen months which have since elapsed been well, free from pain, and has passed quite normal urine.

The microscopical examination by Professor Dahl of the piece of tissue gave the following results: Stasis in the veins and the capillary vessels; in some places small circumscribed necrotic parts without coneiform shape. In the arterie rectæ fresh thrombi were found, and in the capsules of Bowman extravasations of blood; in the convoluted tubules hyaline cylinders.

Remarks.—How shall we explain the bleeding in this case, how the recovery after operation? The only way in which both things can be explained seems to me the following: the bleeding and the changes in the upper third of the kidney were due to a compression of this part between the liver and the ribs, caused by tight lacing; the operation loosened the adhesions and freed the kidney from compression.

CASE II.—Mrs. P. aged 56 years. Admitted on May 17th, 1897. No morbid disposition in the family. She has been perfectly healthy until 1885, when she, after a fatiguing day's washing, and after having lifted heavy tubs, noticed blood in the urine for the first time. A similar

second short hæmaturia two years ago; 16 days before admission the hæmaturia reappeared again after severe exertion. The urine resembled dark blood, without coagula, and remained the same up to date of admission. No gravel or other deposits in the urine. She has become very emaciated and anæmic during her present illness.

Objective Examination.—The patient is extremely pale and emaciated, of a dirty cachectic complexion. Stethoscopic examination gave normal results. On palpation of abdomen the left kidney could not be felt, but on the right side under the curvature a large hard tumour was felt, and supposed to be the greatly swollen right kidney. The cystoscope showed the mucous membrane of the bladder normal; a considerable stream of blood was seen coming from the right ureter, clear urine from the left. The urine, taken under aseptic precautions, was acid, without any smell. It was of a deep dark blood colour, and yielded a high, red deposit, which under the microscope showed numerous red, a few white, corpuscles, and many small mobile bacilli, found on cultivation to be bacterium coli.

The diagnosis was malign tumour of the right kidney.

On May 20th, 1897, right lumbar incision was performed under chloroform. I found the kidney displaced downwards in a remarkable oblique position, with its upper pole turned towards the vertebral column, the convex border turning forwards and upwards, so that the kidney seemed to have made half a turn upon the pedicle. The kidney was kept in this position by the very pronounced falciform liver, the furrow of which was exactly opposite to the upper edge of the kidney, whilst the kidney was behind and adherent to the posterior surface of the lobe of the liver, so adherent that it could not be detached without making a 2-inch split in the peritoneum. It was evident that the hard tumour I had felt was kidney *plus* liver, not the kidney alone. The kidney, which was certainly a little enlarged, being especially longer than is normal and bluish on the surface, was brought through the wound. I placed my forceps on the pedicle, and a complete division of the kidney from the convex border into the pelvis was then performed without any bleeding. The tissue was cyanotic, but otherwise normal in appearance; no calculus or tumour could be found. The pelvis perhaps a little dilated; its mucous membrane smooth and pale. After excision of a piece of tissue for microscopical examination, the kidney was united with catgut sutures and replaced in its normal position, where it was kept by a pad of sterile gauze placed beneath its inferior pole, after which the lumbar wound was closed.

The next day (May 21st) the urine was clear, not tintured with blood. On June 1st the urine did not give chemical blood reaction, but a slight quantity of albumen. On June 7th the urine was without albumen, but there was still bacterium coli. After two months' treatment with salol and distilled water ($\frac{1}{2}$ to 2 litres daily) the urine was quite sterile. During the year which has elapsed since operation the patient has been quite healthy, and the urine normal (last examination July, 1898).

The microscopical examination of the extirpated tissue showed stasis in the veins and the capillary vessels. No infiltration of round cells. In the tubuli recti a number of small staff bacteria.

Remarks.—I suppose that the bleeding was caused by the stasis in the veins produced by the torsion of the pedicle of the displaced kidney.

CASE III.—C. J. K., aged 47, married farmer. Admitted on December 21st, 1897. No morbid disposition in the family. The patient has enjoyed good health, excepting during the last two years, during which he has suffered somewhat from bronchitis during the autumn. Three months before admission the hæmaturia began for which he came under my treatment. During these three months there has constantly been much blood in the urine (equal parts of urine and bright fresh blood). He has during this period had a dragging sensation in the left renal region, but no pain. The passing of the urine has not been painful or frequent. He has kept his bed a fortnight, but the hæmaturia remained unchanged. He has grown very thin and lost his strength, and has latterly been unable to work.

Objective Examination.—The patient is strongly built, but very pale. Stethoscopic examination shows slight emphysematous enlargement of the lungs; the heart sounds clear and regular. Palpation of the abdomen showed nothing abnormal; the left kidney could not be felt. In the left epididymis a flat, uneven infiltration is felt; the prostatic gland and the vesiculæ seminales are not infiltrated. The cystoscope shows the bladder normal. Clear urine comes from the right ureter, bloody urine from the left. The urine is acid, very bloody, contains numerous red and few white blood corpuscles. No tubercle bacilli or other microbes could be found; no crystals. The diagnosis is doubtful, inclining mostly to tumour or tuberculosis; the infiltration in the left epididymis being in favour of the latter, whilst the absence of bacilli in the urine is against it.

On December 29th right lumbar incision was performed under chloroform. The kidney was found lying high up under the diaphragm, apparently in its normal position; it was loosened and brought forward through the wound. It was apparently quite normal in size, shape, colour, and consistence; the pelvis not dilated; no tumour or calculus. A 3-inch long incision was made from the convex border into the pelvis, but the tissue was found quite normal; no tuberculous deposits could be discovered there or in the pelvis, the mucous membrane of which seemed to be healthy. The kidney was united and replaced, the lumbar wound closed. An exploratory incision on the right side showed the right kidney healthy.

The first two days after the operation there was still blood in the urine, but from the third day the urine became clear, with doubtful reaction of blood with guaiacum and turpentine. On January 5th the urine was clear, without blood or albumen. The wound healed *per primam intentionem*. The patient was dismissed in excellent health on February 1st. During the five months which have since elapsed the patient has been in perfect health and able to work, and the urine has been normal.

Remarks.—It must be admitted that here we have an absolutely obscure case, analogous to the observations of Schede and Klemperer. To interpret this case, like Klemperer, as bleeding resulting from nervous disposition, seems to me unsatisfactory, for the patient was a robust farmer in the prime of life, without the least nervous tendency. It seems to me preferable to suppose that a slight tuberculous or other affection has been overlooked, and that the incision has had a curative effect upon it, like that we see from laparotomy in cases of tuberculous peritonitis.

CASE IV.—D. J., aged 28, married woman, admitted May 5th, 1898. No morbid disposition in the family. The patient never showed tendency to bleeding. During the last two to four years she has noticed pains in the left side and loin after physical exertion. The urine was formerly always clear. On November 25th, 1897, she was suddenly attacked by severe pains in the left side, radiating down towards the bladder, and she had frequent vesical tenesmus. After this attack had lasted two days, a violent hæmaturia set in, during which the urine was mixed with equal parts of blood. The hæmaturia lasted six days, but afterwards the urine did not become clear. She was sent to the Royal Frederick Hospital, where she remained three months, first in the medical department, where a renal calculus was supposed to be the cause of the symptoms, for which reason she was transferred to the surgical department for operation; but the chief surgeon refused to operate her, having no distinct diagnosis, and she was dismissed from the hospital in the same state as she entered it.

As the patient's condition grew steadily worse, and the violent pains became more and more frequent, she consulted me and was admitted into my clinic for examination. I found her pale and emaciated. On examining the abdomen, I found the left kidney enlarged and displaced, reaching from the curvature to the fossa iliaca.

Cystoscopic examination showed the mucous membrane of the bladder normal, but turbid urine flowed from the left ureter, clear from the right. The urine was acid, slightly bloody, diffusely turbid, with a loose, slightly red deposit half an inch high, which consisted of numerous red and white blood corpuscles, few epithelial cells, no cylinders, but numerous moving bacilli; by spreading and cultivation only bacterium coli appeared. On May 13th an oblique left lumbar incision was made under chloroform. The kidney was found displaced downwards so much that its lower pole reached the entrances to the small pelvis, whilst the upper pole was just under the twelfth rib.

The pelvis was much dilated, of the size of a mandarin orange; about an inch up, on the exterior side of it, the ureter was seen to turn inwards with a sharp bend. The kidney itself seemed to be normal. The ureter was of normal calibre, and no calculus could be felt here or in the pelvis. The kidney was drawn forward through the wound, and after placing my pressure forceps on the pedicle, it was entirely divided from one pole to another into the pelvis, from which a great quantity of turbid, slightly bloody urine escaped. The mucous membrane of the pelvis was somewhat swollen and red, the two superior calyces enlarged to the size of hazelnuts. The tissue of the kidney was normal in colour and structure. A small piece of tissue was removed for microscopical examination. The ureter was permeable to bougie No. 12 (French) in its entire length. After lengthy syringing of the pelvis and ureter with boiled water, the divided kidney was united with catgut sutures, replaced in its normal position and fixed there by means of a strong silk suture through the lower pole of the kidney, which was tied over a gauze pad outwards at the height of the tenth rib. The lumbar wound was closed, and a Pezzer's catheter placed in the bladder.

The second day after operation the urine was clear. On the fourteenth day the sutures were removed. The wound healed *per primam*. After a month the silk suture through the kidney was removed. The patient was discharged in good health on July 3rd.

The extirpated tissue proved on microscopical examination to be quite normal, excepting that groups of bacteria were found in the tubuli recti.

In discussing the origin of the bleeding in these four cases, we must naturally consider Cases II and IV together, because they resemble each other, in both the kidney being displaced downwards, and the urine infected by bacterium coli. We have, then, two morbid factors, either of which might be supposed to play some part in the origin of the hæmorrhage; therefore, two possible explanations to discuss. It would be natural to turn first to the infection as the actual cause of the bleeding, as it is a well-known fact that infectious nephritis can cause even considerable hæmaturia. But I believe that such a hypothesis must be abandoned if we take into consideration (1) that the tissue of the kidneys showed no sign of nephritis either macroscopically or microscopically; (2) that the operations were followed by immediate and complete cure, whilst, in case of inflammation, it would be more probable that the extensive vuleneration of the kidney would give rise to a new and severe inflammation.

If we now consider the other pathological condition, the displacement of the kidney, we shall at once find an argument in its favour in the excellent effect resulting from the operation. In both cases the kidney was replaced and fixed in its normal position, and the circumstance, that the bleeding ceased at once, directly after the kidney was replaced, is a clear proof, that it was in some way or other, due to displacement.

How can this be explained? I believe in two ways, each represented by my cases: (1) Torsion of the pedicle with its vessels may cause a venous stasis in the kidney and rupture of small veins; this, I feel assured, was the cause of the bleeding in Case II. (2) Bleeding from the walls of the pelvis by retention (intermittent acute hydronephrosis). It is a well-known fact that bleeding from the bladder may arise, if the bladder is suddenly emptied after retention, and many experiments made upon animals have proved to me that ligation of the ureter always results in rupture of vessels and formation of ecchymoses in the parts of the mucous membrane

lying immediately above the ligature. Something similar can be imagined as taking place in cases of movable kidney, where a bend or twist of the ureter suddenly stops its passage, and where after retention and dilatation of the pelvis for hours or days, the pelvis is suddenly emptied. This is the explanation which seems to me most probable in Case IV.

Albarran, in 1891, reported some cases of hæmaturia, the pathogenesis of which was doubtless of this nature, and, as I have mentioned, a displaced kidney has been found in a number of the cases published as "neuralgic hæmaturia" or *hémophilie rénale*. I, therefore, believe, that the bleeding in these cases had the same origin as in my own.

Although there is, in my cases, no reason to ascribe any importance to the infection as a cause of hæmorrhage, still it is probable that a sudden invasion of the kidney by a great number of microbes may give rise to a passing hæmaturia without other effects. I have also in my last book described several cases of bacteriuria commencing with a single hæmaturia. At all events, before diagnosing "hæmaturic neuralgia," it would be well to exclude the possibility of infection by careful bacterioscopic examination.

My Case I seems to me to illustrate the risk of diagnosing angioneurotic bleeding after Klemperer's example. My patient quite answered to the description generally accepted as typical in cases of neuralgic hæmaturia: she was a slightly built, exceedingly nervous girl with a frequent change of colour and varying humour; she had during the last few years several times had attacks of bleeding, between which the urine was quite normal; but the operation, which was made necessary by the last serious bleeding, showed the real cause of the bleeding to be the traumatic effect of the stays, the superior pole of the kidney having been pressed between the liver and ribs.

As I have never seen this alteration of the kidney mentioned among the sequelæ of lacing, I will call your attention to this fact as a hitherto neglected and perhaps frequent cause of renal hæmorrhage of apparently mysterious origin.

Case III has yet to be mentioned. Here I must admit that I have not been able to find the slightest cause for the bleeding, neither for the cure, which immediately followed the nephrotomy; but I can see no satisfaction in calling such hæmaturia "angioneurotic," still less in calling it "bleeding from a healthy kidney." First, it is not at all certain that the bleeding was from the kidney and not from a vessel in the pelvis or the ureter, and further it is possible that a small diseased part of the kidney might have been unobserved during the nephrotomy.

The diagnosis of these "neuralgic bleedings" should, according to Klemperer, be easily formed (1) by excluding the usual causes of hæmorrhage (stone, tumour, tuberculosis); (2) from the patient's nervous constitution; and (3) *ex juvantibus*, that is, if the bleeding ceases after hydrotherapeutic treatment. Klemperer therefore declares that exploratory or curative operations are not permissible in cases of this kind.

Against this opinion of Klemperer I must protest most strongly, because (1) if operation is not performed in such cases we never can exclude the most serious of the usual causes of hæmaturia, the presence of a malignant tumour in the kidney. It is by making an exploratory incision in all cases of obscure hæmaturia from one kidney that we have in latter years succeeded in making a number of cures by an early extirpation of malign renal tumour. (2) My cases prove that even if the usual causes of hæmorrhage can be excluded, another unexpected and more rare cause may in most cases be discovered and remedied by operation. It may be supposed that in a great number of apparently obscure bleedings, a displacement with torsion of the pedicle and bending of the ureter, or a traumatic injury of the kidney from the stays is the cause. (3) Exploratory lumbar incision is attended with so few dangers that it cannot be compared to the risk run by leaving the patient with the possibility of malignant tumour.

When we add to this the circumstance that exploratory incision, even when no disease can be found, causes the almost immediate and definitive cessation of the hæmaturia, which in many cases—three of mine—is extremely dangerous, it seems to me that in spite of Klemperer, we must consider it our ab-

solute duty to examine the kidney carefully by means of an operation in every case in which hæmorrhage from a single kidney has been proved without any cause being discovered which could indicate medical treatment.

REFERENCE.

¹ *Traité des Maladies des Reins*. Paris: t. iii, p. 357-434, 1841.

MEMORANDA:

MEDICAL, SURGICAL, OBSTETRICAL, THERAPEUTICAL, PATHOLOGICAL, ETC.

ACETANILIDE IN SUNSTROKE.

ON August 21st, during the period when in London the thermometer registered 128° in the sun, I was called to see a boy, aged 16, who presented typical symptoms of sunstroke. There was intense pyrexia, loss of power over the sphincter muscles, and difficulty in swallowing and in articulation. The temperature was 106.8° F., the pulse 130, of a jerky character, and the breathing hurried.

The usual treatment laid down in most of the textbooks was adopted, including the cold douche, ice to the head and spine at intervals. On account of the severe pains experienced in the head antipyrin was given, gr. xii, every four hours during the day, to reduce the high temperature, with the result that after three days the temperature was 105° F. During the use of the drug the cerebral pains were less acute; but when once or twice I ventured to give quinine gr. v, this trouble increased, and no marked diminution in the fever took place. Delirium of an active character having set in, I resolved to administer cautiously antifebrin, gr. v, in powder every six hours, guarding against the supervention of cyanosis by ordering 6 oz. of port wine in the twenty-four hours. Before the administration of the first powder at 11 A.M. the temperature stood at 105.4°, and on my evening visit, one hour after the second powder had been taken and 4 oz. of the wine, I found the temperature reduced to 98° F., or practically 0.4° below normal. No bad symptom appeared through the rapid decline of the pyrexia, and no inconvenience was experienced by the patient, with the exception that he felt the feet rather cold, a matter promptly corrected by a hot water with mustard foot-bath and wrapping the feet in flannel.

The recovery stage extended over six weeks, and whenever the temperature rose to 100° F. or over it was promptly reduced by administering from 2½ gr. to 5 gr. of antifebrin. The boy is now at the All Saints Convalescent Home, Eastbourne, greatly emaciated after his prolonged illness, but free from any sign of paralysis or mental aberration.

My object in writing these few notes is to bring forward the merits of a comparatively little-known drug in reducing temperature in a disease which usually claims its high mortality of 50 per cent., from the excessive pyrexia set up by some obscure form of vasomotor paralysis. Acetanilide (antifebrin), in my opinion, is a good and safe antipyretic when given in small doses with port wine or brandy.

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THE APPLICATION OF HYDROCHLORIC ACID IN SCIATICA, ETC.

THE following is an account of cases in which hydrochloric acid was applied over the course of the sciatic nerve or to the heels and feet, for the relief of pain in these parts.

The patients, 26 in number, were in hospital and under careful observation during the course of treatment. Sixteen were affected with sciatica, which in most instances had defied every other kind of treatment. Of these, 2 were completely cured, 11 were considerably relieved, and 3 were no better. The remaining 10 patients were suffering from intractable pain in the heels and plantar region, the sequelæ of acute rheumatism, often gonorrhœal. Of these, 4 were quite cured, 1 was very much relieved, and 5 were no better. The average number of applications was for all the cases 15, and for those cured 19. The duration of the treatment varied from one to five weeks.

The method of procedure is simple, bedtime being the most

suitable for making the applications. The strong acid of the *British Pharmacopœia* is painted on the skin, by means of a glass brush, in a series of lines about 2 or 3 inches long over the tender spots in the thigh and calf. After being allowed to dry the limb is enveloped in cotton wool and loosely bandaged, and is then left in this condition till the morning, when the patient may be allowed to get up as usual. No vesication of the skin is produced, and the application is not attended with any pain.

The acid may be applied every night or every other night, according to the effect produced on the skin, but it should be discontinued directly there is any sign of redness or irritation of the parts.

It is extremely difficult to understand how it acts, and of course the number of complete cures in the above cases (23 per cent.) is not very large; but when it is taken into consideration that the patients selected were those that had previously been subjected to practically every known form of treatment and to no purpose, it seems to me that in hydrochloric acid we have a useful addition to our stock of remedies for the relief and cure of sciatica and other troublesome pains of a rheumatic character.

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INTESTINAL ANTISEPTICS IN DIABETES.

MORE than twenty years ago, while Surgeon to the Wallace, or Riverton, Hospital, N.Z., some cases caused me to reflect that if diabetes mellitus is curable it should not be by further impoverishing the system through withholding necessary carbohydrates, nor by destroying the assimilating processes with opium or codein, but rather by seeking means to check the fermentative changes into glucose or grape sugar. In furtherance of my idea I experimented with sulpho-carbolate of soda, and was so far successful that several patients were discharged apparently cured. At all events I never saw them again. I afterwards took charge of the hospital and clubs at Reefton, and found a middle-aged club member suffering so acutely from diabetes that he was emaciated, decrepit, dim-sighted, had ulcerations about the joints, and was losing ½ lb. per diem. The specific gravity of the urine was 1048, and he had been reduced from over 13 st. to 8 st. 3lb. With the exception of forbidding oatmeal porridge, and asking him to do without sugar, I did not limit his diet, but persevered with the sulpho-carbolate in varying doses. When I left that district about eighteen months afterwards his weight was 12 stones and upwards. He was able to do half a day's work with the spade, and the specific gravity of the urine was 1030 with very little sugar. Under other treatment he declined, and died a few months afterwards.

I subsequently had several cases at and over middle age, and found they were equally benefited, but without absolutely losing the trace of sugar. It is now about fourteen years ago that my son, a lad of 12 years of age, suffered from diabetes mellitus, set up, I think, by mental anguish. He had all the pronounced symptoms, loss of weight, feebleness of sight, and ulcerations at the wrists. He passed large quantities of sugar in his urine. His loss of weight was from 3 lbs. to 4 lbs. in the week. The full details of his treatment were published in the *Australasian Medical Gazette*.

With this patient the sulpho-carbolate treatment had very little effect, and time being too valuable to waste I altered it to boracic acid (at that time not mentioned in the *Pharmacopœia*), modifying the doses to suit the symptoms. He was cured, and so completely that, although he has since spent an adventurous time in British New Guinea exploring, pearly, gold mining, and trading, as well as occupying active official positions, he has had no recurrence since boyhood.

I have since treated a single lady, aged 26, who was placed under my care after she had lost, through diabetes, 2 stone weight in six months. The sulpho-carbolate with her checked the loss of weight and diminished the urinary sugar, but failed to do more. She has since recovered completely from all trace of sugar, and has regained her normal weight under treatment by boracic acid. There was a peculiarity in the last case, inasmuch that inosite (muscle sugar), which was excreted at first at a rate the grape sugar vanished, also showed