FURTHER ACCOUNT
OF THE
EXTRACTION OF CALCULI
FROM
THE BLADDER,
WITHOUT THE USE OF ANY CUTTING INSTRUMENT.

By SIR ASTLEY COOPER, BART., F.R.S.

**SURGEON TO HIS MAJESTY, AND SURGEON TO GUY'S
HOSPITAL.**

Read Nov. 19, 1822.

IN a former of Volume of these Transactions, I had the honour of stating that an idea had occurred to my mind, that calculi might be extracted from the bladder by forceps introduced by the urethra ; and that, by the ingenuity of Mr. Weiss, Surgeons' Instrument Maker, I was provided with an instrument well calculated to carry my idea into effect. From the Rev. Mr. Buller, of Barnwell, Cambridgeshire, I extracted more than eighty calculi ; but I had not flattered myself with the hope that opportunities of using this mode of relief would often occur, and I have, therefore, received great additional gratification from being able so soon to

add three cases to my former account, for one of which I am indebted to my excellent and intelligent friend Mr. Brodie.

Saville Row, Nov. 10, 1822.

DEAR SIR,

I HAVE much pleasure in sending you the following history of a case, in which I was led to adopt a method of treatment which was originally proposed, and successfully practised, by yourself.

Your's truly,

B. C. BRODIE.

To Sir Astley Cooper, Bart.

A gentleman, seventy years of age, came to London in the spring of the present year, complaining of the following symptoms. He had frequent desire to void his urine ; the act of voiding it was attended with more or less difficulty, so that he sometimes required the introduction of the catheter ; he had a good deal of pain during and after each attempt to make water ; and, at different periods, he had passed several small oval calculi. He consulted Dr. Baillie, who referred him to me, for the purpose of having his bladder examined. On introducing a sound, some calculi were distinctly felt, previous to the instrument entering the bladder ; and on an examination being made from the rectum, a number of calculi were perceived in the situation of the prostate gland, apparently contained in one cyst, and sliding on each other, under the pressure

of the finger. In a consultation between Dr. Baillie and myself, it was determined that I should endeavour to extract the calculi, which seemed to be of a moderate size, in the manner which you have described in the XIth Volume of the Medico-Chirurgical Transactions. On the first introduction of a pair of forceps, made by Mr. Weiss, I removed two very small calculi only; but, in the second attempt, I was more successful, and as many as six or seven were brought away, of a larger size. The operation was repeated about ten or twelve times, at various intervals between the middle of June and the end of July; and, in all, about sixty calculi were extracted. These were of various sizes, a few not larger than a pin's head, a great number of the size of ordinary peas, but of an oval shape, and some of them considerably larger. The largest measured half an inch in one diameter, and five-eighths of an inch in the other, and had four sides and angles; and it was not until after two or three trials that I succeeded in removing it. In each of the unsuccessful trials some small fragments were broken off by the instrument, and it was in consequence of its being thus diminished in size that I was at last enabled to extract it. At the end of July, the symptoms were very much relieved, and no more calculi could be discovered, either with the sound, or with the finger from the rectum. There was, however, still some degree of irritation, which led to the suspicion of some concretions

being still left. Unfortunately our patient's private affairs prevented his remaining longer at this time in London, and he set off on his journey homeward. When he had travelled about thirty miles, he was seized with some difficulty in voiding his urine, which led him to return to London, and apply to me again. I discovered a calculus lodged in the membranous part of the urethra, which was readily extracted. It was of an oval form, about the size of a small horse-bean. On the following day, he resumed his journey.

On the 11th of August, he wrote to me from his own house, in the northern part of the kingdom, that he was again troubled with much sense of irritation, that he had a good deal of difficulty in making water, and that the urine deposited the same ropy mucus as formerly. In consequence, I recommended him to apply to an eminent surgeon at Liverpool, for the purpose of having it ascertained whether any calculi remained, and that those might be extracted in the same manner as the others. Since then, however, I have received the following communication from him, dated the 11th of October: " Since I last wrote to you, I have passed three very large round calculi, which, for some time, tormented me much. One of them was squeezed out of the urethra by the finger, the other two were passed in the same night in making water. I have, since that time (which was

nearly a month ago), been very much easier, and continue so, although I believe more calculi yet remain, which, in time, I trust, may pass off without my having again recourse to the instrument."

The following case is in part detailed from the patient's account of his symptoms, and in part from the statement of Sir Gilbert Blane, who is the patient's physician.

CASE II.

SIR WILLIAM B——'S ACCOUNT OF HIS CASE.

"Sir William B. is in his sixty-seventh year: he suffered much at times from long and severe attacks of gout from about his thirty-fifth to his sixtieth year; since which period, the attacks have been much less frequent, much mitigated, and of short continuance. He thinks he first perceived red gravel or sand to come from him occasionally; soon after a long fit of the gout, about seven or eight years since, but did not suffer much inconvenience from it. About four years since, he passed pieces of gravel at different times, and has continued occasionally to do so ever since, sometimes larger than a pea, but generally of an oblong shape. When they occasioned any stoppage in the passage, he used a hot bath at 94°, and drank plen-

tifully of some diluting drink, which, after a little time, succeeded. In the summer of the year 1820, having had occasion to use a great deal of walking exercise in London for three or four days, he was much surprised on passing, first, a considerable quantity of very dark stuff, nearly like coffee grounds, and afterwards, a considerable quantity of what appeared chiefly blood. He did not experience any pain of consequence with this, and, by the following day, his urine was as clear as before. Upon going into the country, he found that if he rode fast at any time, it brought on the passing of the dark stuff, and afterwards, if persisted in, of blood. By degrees he gave up riding, and finally ceased to ride about Christmas last; and finding the same effects to arise, in a slighter degree, from walking much, he has very much given up that also for the last six months. Sir Astley Cooper and Sir Gilbert Blane attended him for these symptoms in June and July, 1821, when he left London for Ireland. Whilst there, he continued to experience the same inconvenience as before, with but little pain, and the same on his return to London. Early in June last, he called on Sir Astley Cooper, to say he was going again to Ireland, and wished to have some conversation with him, when Sir Astle Cooper advised his being sounded, which he then was, and it was ascertained that there was a stone. As it appeared to Sir Astley Cooper to be a small one, he proposed trying to extract it, and, on the fourth trial, with intervals of a week or

so between them, a stone weighing seventeen grains and a half was extracted on the 18th of July. About three weeks after, Sir William, having some fears that there still remained some stone behind, again applied to Sir Astley Cooper, who, upon sounding, found that such was the case ; and on making at that time, at his own house, an attempt to extract, he brought it part of the way, but found it too large to bring forward, and therefore returned it ; and as soon after as the parts would permit, he commenced enlarging the passage by bougies, which he continued at intervals for nearly a fortnight, and then extracted a stone weighing fifty-four grains, on the 28th of August, 1822."

Sir William B. suffered pain in making water, swelling of the corpus spongiosum at the scrotum, with considerable urethral discharge, until September 23d, when the symptoms subsided under the application of fomentations and poultices.

When the size of the stone is observed, it will not excite surprise that I had considerable difficulty in extracting the larger, which weighed fifty-four grains, and which I have sent for the Society's inspection. It was in that part of the urethra near the glans that the chief impediment was found ; and if I had thought it proper to do so, I could have easily removed it from thence by incision, but I

preferred completing the extraction without occasioning a wound; yet I am now disposed to believe that, in a stone of equal magnitude, it would be better to make a small incision into the urethra anteriorly to the scrotum, than employ force for the extraction of the stone through this narrower part of the urethra.

A. C.

Sackville Street, 11th Dec., 1822.

DEAR SIR,

In compliance with the wish which you expressed that I would state what I knew concerning the case of Sir William B., the interesting subject from whom Sir Astley Cooper had extracted, by the urethra, the largest calculus which had ever been removed from the bladder in that manner, I have consulted my notes concerning it. I find that I have, at various times, attended that gentleman for more than twenty years. He states himself, from memory, that he had been subject to gravel for seven years, which accords with my notes, the first appearance of the complaint having been in July, 1815. He found speedy and effectual relief from a short course, consisting of two scruples of subcarbonate of potash twice a day, half neutralized with lemon juice and combined with hemlock and extract of poppy*. He had returns of it in

* See this method of cure fully detailed in an article in the Third Volume of Transactions of a Society for the Improvement

the three following years, all of which were removed by the like means, except that in one of the attacks, magnesia was substituted for the potash. After this, he remained nearly free from the complaint for two years, but it returned in the month of May, 1820. The same remedies were had recourse to, but without the same success, for after several weeks' trial, the symptoms were rather aggravated. I then found that I had not been sufficiently vigilant in examining the colour of the sand; for though it was red at its re-appearance on this occasion as it had been on all the former occasions, I now found, on inspection, that it consisted of sand of white colour. This accounted for the want of success from the alkaline medicines, and immediately the muriatic acid was ordered in the dose of seven minims, combined with seven minims of vinum opii, three times a day, duly diluted. Sensible relief was experienced in the course of nine days, and, in fourteen days, he was free from complaint. In the course of the following year, in place of sand, small *calculi* were passed, after pretty severe pains in the region of the kidneys. These calculi were red internally, and white on their external parts. But having passed great part of his time in Ireland in the course of this year, the history of the treatment is not well ascertained; but the history of the symptoms is very distinctly related by

of Medical and Chirurgical Knowledge, 1812, by Sir Gilbert Blane. Also in an article in Select Dissertations by the same author, Lond. 1822.

himself, till the period of the operations detailed by Sir Astley Cooper.

The history of this case, will, at first sight, suggest doubts unfavourable to the character of the remedies that have been employed in the treatment, for it cannot be denied that, in spite of them, concretions had formed, of such formidable magnitude, that had it not been for the new method so happily conceived and so skilfully executed by Sir Astley Cooper, the patient would have been subjected either to the sad sufferings of the stone, or to the pain and danger of lithotomy. But in answer, let it be remarked, first, that the relief from the remedies was so speedy and so frequent that no doubt can be entertained of their efficacy; and if the prosecution and seasonable repetition of them had not been interrupted by his frequent and long residences in Ireland and on the continent, there is good reason to believe that the cure, in place of temporary, would have proved permanent and radical, as I have observed it to be in similar cases which had been perseveringly treated in this manner. Secondly, much suffering was prevented by the imperfect use of these remedies; for upon questioning him, he says, that he never had any real pain in the bladder, but only an uneasiness, and that the only suffering deserving the name of pain was in the kidneys, and, on one occasion, in the urethra, from the passing of a stone, the only one that had a rough surface. It is no small recom-

mendation of these remedies, that by preventing additional accretions, the stone becomes smooth, and gives little or no pain, as was eminently exemplified in the case of Lord Walpole, related by Dr. Whytt, about seventy years ago, when the caustic alkalies, soap and lime water, were first introduced. In this case the freedom from pain was such for several years before death, that the stone was supposed to have been dissolved ; but a pretty large one, with a smooth surface, was found after death.

Though there may be occasional failures, therefore, in the full effect of these remedies, such as are incident to all remedies, let us not undervalue the new resources which have recently been devised by chemistry and surgical skill, for the relief of one of the most painful, and, hitherto, untractable maladies incident to humanity. Mankind is deeply indebted to Dr. Wollaston, for the clear light in which he has placed the diversity in the composition of urinary concretions, upon which is founded a corresponding diversity, and even contrast, in the quality of the remedies. Nor does the world owe less to Sir Astley Cooper, for this new method of extracting *calculi* of such size by the urethra, by which, in innumerable instances hereafter, the most severe suffering and dangers may be averted ; and this method has this advantage over internal remedies, that it is applicable to *calculi* of every composition, whereas there are certain species of them, such as those composed of oxalite of lime, upon

which neither alkaline nor acid medicines produce any effect.

A question arises on a collateral circumstance in the history of this case, namely, whether or not the great and long-continued alleviation of the gouty complaints may be attributed to the use of the alkaline remedies?

I am, dear Sir,
with great regard,

Your most faithful and obedient Servant,
GILBERT BLANE.

*To Dr. Cooke,
President of the Medico-Chirurgical Society.*

CASE III.

Mr. William King, aged sixty-six, mariner, residing at Rochester, was sent to me by Mr. Newsom, surgeon, of Rochester, on account of his having symptoms of the stone.

He came to London on the 29th of October, 1822, and on the 30th, he visited me. I sounded him, and found that he had, as Mr. Newsom supposed, calculi in the bladder. I passed the urethral forceps into the bladder, and, in a few minutes, extracted four calculi; and although I could still perceive that some remained in the bladder, I did

not chuse to risk the production of any considerable degree of irritation, but advised him to come on November 1, to have the operation repeated.

On the 1st of November, I extracted three calculi ; on the 4th, five more ; on the 7th, twelve calculi ; on the 11th, two ; and on the 13th, three more. I then examined the bladder with care, but could not perceive any more stones, and even before the removal of the last, he had experienced considerable diminution of the pain in making water, and difficulty in passing it.

It is delightful to hear the expressions of gratitude which this patient pours forth for the relief which he has experienced from these operations, under which he has suffered but a slight degree of pain, and has never, for a moment, been confined from whatever exercise he was disposed to take.

Some years ago he passed red sand (uric acid), but for several months before he had symptoms of the stone, he has not perceived any.

From Mr. Brodie's patient two other calculi have been since extracted by the same means : and I have lately removed from a young person, a patient of Mr. Rutherford in Radcliffe-highway, of

the name of Errington, a calculus of moderate size, and enabled two others to pass by withdrawing the instrument in its dilated state, and thus extended the urethra in such a degree, that the stones passed, in the afternoon of the same day, in a copious discharge of the urine.

I have heard that it has been stated that there was no novelty either in this idea or in the instrument. To this I have only to observe, that if the idea had previously occurred to any individual, he had so far buried it in his bosom, that I had never heard of it; and as to the instrument, I am quite sure that Mr. Weiss consulted no musty volume for its formation, for so soon as I mentioned my wish he should construct a pair of forceps by dividing a sound in its middle, and giving it a joint two inches from its end, he, without quitting me, observed, that he should make them to open in the mode which the plate in the former volume represents. Mr. Weiss has a strong and ingenious mind, and does not use petty artifices to obtain employment or character. But let us for a moment suppose (what I do not believe), that the idea had occurred to others, and the instrument had been made centuries ago, what are we to say of the apathy of those bright ornaments of their profession, Cheselden, Pott, Hunter, Cline, Home, Blizard, &c., who, if they had heard of such an instrument, had never employed it?

A. C.

*Result of the Analysis of the Calculi, made by
Dr. Prout.*

THE largest of these calculi, when entire, weighed fifty-four grains, the other, seventeen grains. They are both of the same composition, and consist essentially of lithic acid; they also contain ammonia, a little fixed alkali, very minute quantities of the phosphate of lime and triple phosphate of magnesia and ammonia, and, probably, still more minute quantities of the oxalate of lime. The presence of oxalate of lime, however, is rather to be considered as inferred than demonstrated; such calculi, when analysed on a larger scale, being generally found to contain more or less of this principle. The ammonia and fixed alkali exist of course, in union with the lithic acid, and the fixed alkali was, very probably, derived from the medicines which had been exhibited during the promotion of the calculi. Both these alkaline principles, as well as the phosphates, are chiefly confined to the paler coloured laminæ with which the calculi are stratified.

The nuclei of both calculi resemble each other, and consist, as is usual, of a congeries of highly-coloured nodules, or masses of lithic acid, loosely agglutinated together, and which, as the stone dries, contract, and crack into several portions. Hence, the nuclei of such calculi usually drop out, or fall to pieces, when they are cut through, as was particularly the case with that of the smaller of the present two calculi.