tetanus, for a short time induces so much contracture on undrugged muscle that, after discontinuing stimulation, the muscle remains considerably contracted, and the trace much above the line of repose for half an hour or even longer. Sodium-bicarbonate makes the muscle too like the muscle of the snail (Richet, *loc. cit.*) and the muscles of the forceps of the cray-fish, which, after a single excitation, relax very slowly. The

Explanation of Fig. 5.—Sodium-bicarbonate solution given as described in text. A. Contraction with break-shocks, the coil standing at 20 and 15. B. A contraction excited with the coil at 0.

muscle of a snail, according to Richet, occupies an hour in becoming fully extended, and for the trace to recover its original position to the base-line; and he has seen fibrillary contractions in the snail-muscle follow a single excitation. Richet points out that the "secondary waves" and the contracture are not due to exhaustion, though any circumstance that causes exhaustion delays somewhat both contraction and relaxation. He finds it difficult to induce contracture in a fatigued muscle.

My experiments show that the fibrillary contractions with delayed relaxation in both normal muscle, and muscles treated with sodium-bicarbonate, are not the result of fatigue nor of exhaustion; that exhaustion, indeed, induced by repeated excitations, soon obviates fibrillary contractions, and hastens the relaxation. For instance, in normal muscle, and in muscles under sodium-bicarbonate, the induction of contractions, especially with a strong excitation, diminishes, and at last extinguishes, the fibrillary contractions, and the delay in dilatation.

And further, I many times destroyed the brain of a frog, and tied the heart; and, after several days' interval, when muscular contractility became very weak, I took muscle-tracings, but stimulation failed to produce either fibrillary twitches or delay in dilatation, or only to a scarcely appreciable extent.

Many animals, as the rabbit, have two kinds of muscles, white muscles acting quickly, red muscles contracting and dilating more slowly. Sodium-bicarbonate then reduces the rate of quick acting muscles to the level of red, slow acting muscles.

Richet finds that the muscle of the tail of the cray-fish contracts quickly, the muscle of the claw slowly.

Sodium-bicarbonate affects muscle just like veratria. Both agents produce fibrillary contractions; both cause delay in the muscular relaxation; both these effects pass away through repetition of excitations, but the influence of veratria is annulled much sooner than that of the sodium-salt. I never saw veratria produce contraction so prolonged as occurs under sodium-bicarbonate.

In conclusion, I wish to draw attention to the similarity of the effects induced in muscles by veratria, and by sodium-bicarbonate, and the effects which disease induces.

The fibrillary twitching of progressive muscular atrophy is exactly

like the fibrillary twitches induced in muscles subjected to the action of either veratria, or sodium-bicarbonate, or sodium-phosphate.

Again, the persistent contraction of the muscles, leading to persistent extension of the hind limbs, with extension of the toes, after the action of these salts, is a condition very similar to that spastic state of the limbs which occurs in lateral sclerosis, and likewise to that earlier condition termed muscular tension. In these morbid conditions, muscular contraction increases the persistent contraction; and so it is with muscles treated with sodium-bicarbonate or veratria.

Since these muscular conditions from sodium bicarbonate, etc., are not due to changes in the central nervous system, but to changes in the muscles themselves, or in peripheral nerves, I think it not improbable that tensions and spastic rigidities of the limbs in disease may be due, in part at least, to changes in the muscles, or in the peripheral nervous system; the changes themselves being induced, no doubt, by disease of the central nervous system.

Schiff's¹ experiments likewise show that tremors may arise independently of the central nervous system. Section of the hypoglossal nerve is followed by vibratory movements of the bundles of muscular fibres, which, however, do not move the tongue. Oscillation of the whiskers occurs in rabbits after section of the facial nerve. This fibrillary movement begins a few days after section of the nerves, and, at the end of the first week, gradually reaches its height, and then may persist for months or years.

In conclusion, I am glad to express my thanks to Dr. Buxton for much assistance in these experiments.

¹ Quoted by Ross. *Diseases of the Nervous System*, 1881, vol. i, p. 135.

LECTURES

ON

SOME IMPORTANT POINTS IN CONNECTION WITH THE SURGERY OF THE URINARY ORGANS.

Delivered at the Royal College of Surgeons, June 1884.

By SIR HENRY THOMPSON, F.R.C.S.,

Surgeon Extraordinary to His Majesty the King of the Belgians, Professor of Surgery and Pathology to the Royal College of Surgeons, Consulting Surgeon and Emeritus Professor of Clinical Surgery to University College Hospital, etc.

LECTURE VI.—THE RESULTS ATTAINED BY LITHOTOMY AND LITHOTRITY IN GREAT BRITAIN DURING THE PRESENT CENTURY: WITH AN ANALYSIS OF MORE THAN EIGHT HUNDRED CASES BY THE AUTHOR, PRESENTED THEREWITH.

[The lecturer commenced by observing that, before entering upon the question of results of treatment, there were two considerations to be dealt with, demanded by the great fact of modern practice, namely, that lithotomy is almost universally applicable to the cases of adult calculous patients.]

The first consideration is, that it is essential to determine, and, if possible, to define, what is to be understood henceforward by the term "a stone in the bladder."

The second is, that, in estimating the value of treatment for calculous cases, the result of a single operation for stone can no longer be regarded, as it invariably was until a few years ago, as a fact of the highest importance, and as synonymous, or almost so, with the history of a calculous case; since such an operation may now be only a single incident, and not always a very considerable one, which may be repeated, sometimes on several occasions, in the course of such a history.

The importance of these statements will appear as we proceed.

We will first consider what is in future to be regarded as a definition of the term "stone in the bladder."

When a calculus was removable only by lithotomy—a period, moreover, which was anterior to the discovery of anaesthesia—the magnitude of the operation almost invariably prevented the surgeon from proposing it, or the patient from accepting it, until painful symptoms had been endured for a considerable period of time, and the stone was, at any rate, no longer small. Indeed, among the operators of the eighteenth century, it was considered not always desirable to attack a stone when first discovered; but rather that, if small, it should, to use a term then in vogue, be allowed to "ripen"—in other

words, to increase in size somewhat before the operation was performed. Again, it was very rare to operate on the same individual twice. A man who had once passed through the ordeal of a cutting operation was, if he had the misfortune to form another stone, not lightly advised by a cautious surgeon to undergo a repetition of the process; and was himself naturally reluctant to submit to it. Now and then an individual was operated on twice; but it was a rare occurrence. One or two histories are on record of fortunate patients who survived a third operation; but such an event was one of the extremest rarity.

The result of these conditions was, that a great number of calculous patients died of their malady, relieved, it is true, for a time, by medicines, but not subjected to any operation. I am quite sure I am within the limits of truth if I say that, regarding the class of elderly calculous patients, probably not more than one in fifty during the last century was submitted to operation. The stone, although present, was often not suspected to be so, much less was it sought for; and its symptoms were mostly attributed to "strangury," a term which formerly covered several forms of urinary disease, not then distinguished. If a search were made, it was often fruitless, because the instruments were faulty, and the experience, as well as the tact which comes from it, were small. In the country districts there were few men who could or would undertake the operation; and the conditions of locomotion at the period referred to rendered a journey well-nigh impossible for most of the suffering patients. Hence it was that the itinerant lithotomist supplied a pressing want in times gone by. Then the dread of the operation itself, and of its dangers, deterred a majority of those sufferers who were within reach of aid from invoking it. The result of these various circumstances was, that a very large proportion of calculous patients were children, who, unable themselves to exercise any will in the matter, and being known by their relatives to incur comparatively less risk than their seniors, were without difficulty placed under the care of the operator.

You will see, then, that in all the past experience of calculous disease, anterior to, and terminating with, the year 1830 or thereabout, an operation for the stone was necessarily a very important fact; and was almost invariably the culminating point of a long history of suffering in the individual affected. The event was looked forward to as demanding great courage on the part of an adult patient to confront, not only the torture of the operation, but the chance of a fatal result. Hence, a list of the several stone operations which a surgeon had performed was equally a list of all his stone patients, and of their entire histories; and the number corresponded with the number of his cures and of his failures.

And when we come to analyse the work of the old masters, you will see how the remarks which have been made respecting the vast importance to an adult patient of an operation are warranted, from the fact that almost all their cases were those of children. And this, too, explains the large proportion of recoveries which some of their lithotomy records present. Indeed, compared with our experience of to-day, an operation for stone was rare indeed among elderly men—not that stone was less frequent then, but that, on grounds already referred to, it did not come to the operating table. Now, in order not to expend time unnecessarily, I shall adduce but one illustration of this fact, taking it from the figures of our great English master, Cheselden. The well known record which he published at the end of his career, amounted to 213 cases of operation, of which 135 were under ten years of age, with 3 deaths; only 14 were above fifty years of age, and of these 6 died. By way of marking the contrast which the records of to-day furnish, the cabinet of my own calculi there contains the cases of 595 male patients of that age alone, out of a total of 812, or more than forty times his number.

But the great fact of to-day which marks the difference between this age and the past is, that we are able now to remove a stone, even of considerable size, from the bladder of the elderly adult with a risk to life which, in most instances, is very small, and which is serious only in cases of exceptional character. The consequence is, that a moderate sized calculus is generally disposed of at once as soon as it is discovered, because uncontrollable dread of a dangerous operation is no longer an occasion for delay. At the same time, it is equally the aim of the surgeon, and the interest of the patient, that a calculus should be discovered as early as possible, in order that it should be removed when small. It follows further, and this is a matter of the highest importance, that if the calculus recurs, the operation is easily repeated, whether it be a new product of uric acid, or of oxalate of lime, which has recently descended from the kidneys, or a renewed accumulation deposited from decomposing urine in an incompetent bladder which has long been emptied by the catheter. In either case, lithotripsy is available time after time, if need be, to afford relief; and a patient's life, which formerly depended on the result of a single formidable cutting opera-

tion, is now indefinitely prolonged for many years, on easy terms, by an occasional recurrence to the lithotrite. I repeat, therefore, the statement that the record of a single calculous operation, and the history of a calculous patient, are now very far from being synonymous terms.

Hence I desire to place on record the following deduction, as most important in the interest of accuracy in reporting and in observing results—namely, that a computation of the results of lithotripsy is not possible by the numerical record of cases only, and by the bare exhibition of a list of so-called "cures" and deaths; but that the entire record of the calculous patient's history—its commencement, the number of operations, the quantities of *débris* removed, and the incidents of the subsequent history, so far as they can be obtained—are essential in order to furnish evidence in regard of the treatment employed, and to render the case useful as a contribution to surgical experience. And it follows also that, in speaking of a "stone"—which no longer necessarily means a considerable product of accretion during years, such as that for which a patient was formerly cut—a certain understanding ought to exist among surgeons in order to indicate some limit to the meaning of the word. At any rate, it is now necessary in all cases that the composition and weight should be recorded; while it might be convenient to apply the terms "stone" or "calculus" only to such aggregations of material as attain a certain amount of size or weight. I think, however, it will be generally agreed that, when a bladder is found, for the first time, to contain a calculus, whether urate, oxalate, or phosphate, which is too large to be expelled by the natural efforts, the crushing and removal of it (together with others, if such be present), so as to empty the bladder, necessarily constitutes an "operation for the stone" whether it (or they) be large or small. If a small stone only be present, the patient is fortunate in having it detected, because it would inevitably have become larger had it not been discovered, and the operation is then attended with a corresponding increase of risk. Some patients will produce with great frequency a small acid calculus, so that every two or three months or so, during several years, a small pisiform body, usually uric acid, drops into the bladder, and, if too large to be expelled, remains there. Such a patient may most advantageously avail himself of lithotripsy every two or three years during a considerable portion of adult life. Nevertheless, be it remarked that, in five cases out of six, he may, by well chosen diet, speedily overcome the tendency to produce superfluous uric acid, and cease to form these calculi. But there is another type of patient who rapidly forms calculus, more rapidly even than the preceding. I refer to the patient who passes all his urine by catheter, and is the subject of phosphatic urine. In a certain proportion, happily small, of these cases, a healthy acid condition of the urine is not attainable, and small phosphatic calculi are formed with surprising rapidity. I have had several patients under my care whose bladders require clearing by means of the lithotrite and aspirator as often as once or twice a year. On the very first occasion, perhaps, a phosphatic calculus of considerable size has been removed, and again in two or three years another; and these are fair examples of "stone," regarding the sense in which it has been customary formerly to employ the word. But at length the chronic condition described above is reached; smaller calculi are rapidly produced; and now the result of each operation has no right to be so regarded, if we maintain in future the idea hitherto associated with the term "stone." Hence I have in practice termed these small and recurring bodies "concretions," in order to draw a needful distinction between these and the large primary formations. I have removed at least 200 or 300 of these small bodies without placing them in my list of stone-cases. But there is no recognised rule to this effect, and it is confessedly not easy to construct one; and I have long felt how open the door is to error unless one is careful to avoid misrepresentation in regard to this matter. That such small concretions have been made to do duty in augmenting the figures which represent cases of stone, I have good reason to know. By way of suggesting a limit, I think that, after the first phosphatic calculus has been removed from a patient, no subsequent phosphatic formation of the kind described weighing less than about a drachm should be permitted to rank as a second stone, but should be described as a concretion.

It is strictly in accordance with the plan thus advocated, that I have treated from the very first all the cases of my own which are now exhibited in the cabinet before you. It consists entirely of my own cases, and of all those cases without exception. Each number in the catalogue, from No. 1 onwards, denotes, not a mere operation, but a separate individual, who has been operated on either by lithotomy or by lithotripsy; so many numbers, so many individuals. To each number is added his name, age, and a record of the one or more operations he has submitted to, with the result; and as much

of the subsequent history as, in a good many cases, I have been able to obtain. I shall merely add now that the number of individuals is 716; and that the total cases of operation, embracing both lithotomy and lithotripsy, are 812 in number; for I have to submit for your consideration some very interesting matter in connection with the chief statistical records which precede my own in date, for the purpose of estimating the results of operations for stone, not merely by lithotomy alone, but also during that transition-period which intervened between what may be called the two epochs, respectively, of lithotomy and of lithotripsy. For it will appear, if we recall the brief retrospective sketch, given at the last lecture, of stone-operating during the present century, that its history is naturally divided into three chief stages.

i. The era of lithotomy pure and simple, when the operation was applied to cases of every description.

ii. The era in which lithotripsy, having appeared, was adopted for a certain proportion of patients for whom the crushing was believed to be better than the cutting operation, which latter, on the other hand, was preferred on certain grounds for other patients; the relative numerical proportions submitted to the two procedures differing in the practice of different operators, but approximating more or less to equal moieties of patients to each method.

iii. The era which appears now to be established, in which lithotripsy may be regarded as applicable to all adult cases as the rule—the exceptions of any kind, besides the cases of children, being extremely few.

1. Now, as an example of the first period, or that of lithotomy pure and simple, I cannot adduce a more complete or trustworthy record than that which exists in the archives of the Norfolk and Norwich Hospital. During the first sixty years after the establishment of that hospital, where the best provincial experience in our country was to be found, 704 cases of all kinds and ages were operated on. The period referred to commenced about 1770, and ended about 1830.

Of the 704 cases, 35 were females, with two deaths; 343 were male cases below twenty years, with twenty-seven deaths—a mortality of one in thirteen cases, or 8 per cent.; 326 were male adults, with sixty-four deaths—a mortality of one in five cases, or 20 per cent.

Among these, there were only 75 males over sixty years of age, among whom the deaths were 22; or one death in every $3\frac{1}{2}$ cases, or 30 per cent.

2. We now consider the transition period, which may be roughly regarded as commencing in this country about 1835, and ending between 1860 and 1870. The experience of two well known operators will admirably illustrate the results attained during this epoch by the nearly equal division of adult male cases between lithotomy and lithotripsy. I am happy in being able to present to you, first, the exact and complete experience of my old friend, Dr. Keith, of Aberdeen. He left it to me to utilise at such time and in such manner as I thought best. I have before casually referred to it in general terms; and I think I cannot now more worthily commemorate the work of that kind-hearted and excellent man, and most able surgeon, than to record it first fully here in our College. Keith operated chiefly between 1835 and 1868. He recorded all his facts with great care and attention to detail, his own manuscript notes being in my possession, and I have made the following analysis of them.

Dr. Keith operated on a total of 304 cases at all ages.

Of these, 4 were females:

Lithotomy	...	2	} No death.
Lithotripsy	...	2	
23 were children:			
Lithotomy	...	19	} One death.
Lithotripsy	...	4	

—, leaving 277 adult males.

Of these 277 adult males, 161 were by lithotomy, with 38 deaths: one case in $4\frac{1}{2}$, or 24 per cent.; 116 were by lithotripsy, with 7 deaths: one case in 17, or 6 per cent. A total of 277 adult males, with 45 deaths: one case in $6\frac{1}{2}$, or 15 per cent.

It will be in the recollection of most of us, that in the year 1865 Sir William Fergusson, occupying the chair which I have now the honour to hold, presented the sum total of his experience to the College. His cases were fewer in number than those of the list just given, and they included a larger number of children.

Sir William Fergusson operated on a total of 271 cases at all ages. Of these, 52 were children, all lithotomy, with 2 deaths: one case in 26, or 4 per cent.; leaving 219 adult cases. Of these 219 adult cases (comprising a few female cases, number unknown), 110 were by lithotomy, with 33 deaths: one case in $3\frac{1}{2}$, or 30 per cent.; 109 were by lithotripsy, with 12 deaths: one case in 9, or 11 per cent. A

total of 219 adult males, with 45 deaths: or one case in 5, or 20 per cent.

3. We now enter on the third epoch, or that in which lithotripsy is the manifest rule of practice for the adult, and lithotomy the occasionally necessary exception. And this may be illustrated by my own cabinet of calculi, now before you, which was commenced shortly before 1860. A small early portion of it may, perhaps, be regarded as almost belonging to the period just passed by; but as, at the outset, I aimed at accomplishing as much as possible by lithotripsy, it belongs in reality to the present epoch.

In this country, lithotripsy was, before 1860, as we have already seen, slowly becoming responsible for a large share of the work in the hands of the leading operators. In most parts of the kingdom, however, it was still employed only for exceptional cases. But I was strongly of opinion that it was not sufficiently appreciated in this country, and that it ought to be much more widely employed, and I persistently urged this view in my earliest writings.¹ Accordingly, among my first 200 cases of adult males, only 48, or not quite one-fourth, were submitted to lithotomy. The proportion of cutting operations then gradually diminished, henceforward, to about one case in seven or eight. But, in the end of 1878, I commenced to employ lithotripsy at a single sitting, doing so extensively at the commencement of 1879. Since that date, I have performed 196 cases by this method solely, that is, during a term of five and a half years, and only 15 lithotomies—in all 211 cases, the mean age of the entire number being upwards of sixty years. But, taking my last 125 operations up to the present date, on adult calculous patients, only four have been treated by cutting: all the others, namely, 121, were cases of lithotomy at a single sitting.

The total result of all my operations, by carefully adapting the two procedures during a period of about twenty-five years, is as follows.

I have performed 812 operations on cases of all ages. The number of individuals on whom these operations have been performed is 716; some of the lithotripsy patients having, of course, been operated on more than once, as will be stated hereafter.

Of these cases, 13 are adult females: 10 by lithotomy, with one death, and 3 by lithotripsy; 15 are children: 12 by lithotomy, with one death, and 3 by lithotripsy.

Then two operations (one a suprapubic lithotomy) for foreign bodies recently introduced.

There remain 782 cases of operation on the adult male. Of these 782 adult male cases, 110, or one-seventh of the entire number, were by lithotomy, with 39 deaths—one case in almost 3, or 35 per cent.; 672 were by lithotripsy, with 43 deaths—one case in $15\frac{1}{2}$, or under $6\frac{1}{2}$ per cent.; a total of 782 adult male cases, with 82 deaths—one case in $9\frac{1}{2}$, or $10\frac{1}{2}$ per cent.

It is worthy of remark that, among the adult males, no fewer than 595 individuals were upwards of fifty years of age at the date of operation.

I may now add that, of the 716 individuals, 61 were operated on a second time, at various intervals, when a second stone of considerable size was developed; evidence existing, in long continued absence of symptoms after the first operation, that the calculus was undoubtedly a new formation. Nine patients were operated on a third time; three patients a fourth time; and two as many as five times.

It is worthy of note that both the last named, the history of whose operations extends over a period of from twelve to fifteen years, are now living in comfort, one has passed more uric acid than any man I have seen, except the patient No. 62 in the series, from whom I removed four large calculi, at four different periods, in the course of about sixteen years. In both cases, each succeeding calculus of large size was a fresh deposit of uric acid, which each still continued to excrete largely, and not the mere accumulation of phosphates often so abundantly produced in a bladder incapable of emptying itself.

In analysing the results of the preceding table, it is unnecessary to say that it is not possible to make any comparison as to the relative value of lithotomy and lithotripsy. The position of the two operations towards each other is no longer one to invite comparison, but is that of complementary relation. Each accomplishes a part for which the other is less competent; nor, for the same reason, is it any longer possible to compare the results obtained by different operators in regard of employing either method, unless each operator is guided by the same principle in applying them, for it is obvious that the surgeon who adopts lithotripsy for the great majority of his cases, that is, for all but those which are the most difficult, necessarily obtains for his lithotomy only an unpromising residuum of exceptionally bad patients. And it is not to be forgotten, as Keith has remarked, that when an operator obtains reputation, he attracts the worst cases, and is com-

¹ Vide the *Lancet*, 1860, January 21st.

pelled to deal with some of the most unhappy examples of the disease, unless he refuses such applicants, a course which I have never pursued. During my entire experience, I have refused operation to six patients only, and in each instance because I thought the proceeding was either entirely hopeless, or impossible of performance. In one case I regretted my decision, for the patient lived long and suffered very severely. Hence the lithotomy of an operator who employs the knife only for the worst case in eight or ten, cannot be compared with that of the surgeon who applies it to a large proportion of his cases, and therefore to a considerable number of healthy and promising patients with not very large stones, such as I have always treated by lithotripsy.

It is the sum total of result obtained by employing the two procedures which is to be regarded as the measure of the surgeon's success. And I think I may say that a list of 782 cases in male adults, the mean of whose united ages exceeds sixty years, with 82 deaths, or 1 in 9½ cases, is a result which will be held to justify the selection and adaptation of the method to the case, which has been adopted throughout this series. I venture to say that it is a result which has not, certainly to my knowledge, hitherto been realised.

Thus we saw that Cheselden, with patients of this age, lost 6 in 14, or 1 death in 2.3 cases; that the Norwich rate for elderly adults was 1 death in 3½ cases; that Keith advanced to a rate of 1 death in 6½ of his adults, by both methods; that Fergusson, who had many bad cases sent him to King's College Hospital, lost 1 in 5 by both methods. But while the sum total of my whole work has been 1 death in 9½, the result of the last five years, since I have adopted the one-sitting operation, has been still better, namely, 1 death in 12½ cases (211 elderly adults, with 17 deaths), or 8 per cent. While, if I take my very last 125 cases up to this date, and already referred to as containing only 4 cases of lithotomy, I have to report 6 deaths only (of which 2 were from the cutting operation), making only 1 death in 20, or a rate of less than 5 per cent.

And I further beg you to observe herewith, that the clinical notes made at the time in every case are presented to you here: each patient with his own proper name, together with the name of the attending medical man, whom I met in consultation in each instance; and, finally, the calculus of almost every patient is presented also. In every single case, therefore, in the whole collection, I am responsible for every fact stated, and offer with it absolute guarantees of its accuracy. No labour has been spared to pursue this system throughout, and my satisfaction is complete at being thus enabled to offer to the College, if they will do me the honour of accepting it, a faithful record of one man's practice during five-and-twenty years, as complete and as elaborately reported as it has been possible to make it.

[The lecturer then proceeded to show that calculus was far more frequent in elderly men than in children; that the symptoms in the former were often very slight, and had been mostly overlooked, and that the great practical lesson from this fact was the necessity for discovering the calculus in its early stage, and for crushing it at once when the risk of danger in doing so was practically almost nothing.

[He then discussed the conditions which should determine the choice of operation when the calculus was extremely large; and concluded that only for such should lithotomy be employed in the adult, as well as for most of the cases in children.]

He then continued:

There is unquestionably a growing expression of dissatisfaction among surgeons, especially abroad, with the lateral operation for stones of unusually large size. I have for some time fully shared in that feeling. No incisions can be made in the region which belongs to that operation through which a calculus of three ounces or more can be extruded. Laceration, either avowedly made by instruments or but half concealed under the name of gradual distension, invariably takes place, and that affecting very important structures, often to a large extent. Hence it is that the suprapubic operation has always invited consideration when the stone is exceptionally large; but the conditions sometimes met with, especially in corpulent subjects, have often presented peculiar difficulties and dangers, which indicated that, if Scylla has been avoided above, Charybdis appears to be equally dangerous below. A modification of the operation, however, has recently taken place—if not originated, at least first executed, by Professor Petersen, of Kiel, and described by him in 1880, which gives a new and improved position to the high operation. The improvement suggested consists in ensuring, to a degree not before attained, the raising of the bladder above the pubic symphysis, and the steadying it in that position during the operation. These objects are thus attained. The patient, lying on his back, and under the influence of an anæsthetic, the bladder is first distended with a weak

solution of boracic acid, in quantity from ten to twelve ounces if possible, which must depend on the condition of the organ. The penis is then firmly tied; nothing is better than an india-rubber tube for the purpose. Then a pear-shaped bag of india-rubber, tolerably stout, so as to retain that form, and capable of holding at least sixteen ounces of fluid, is folded longitudinally and introduced into the rectum. By the tube which forms its apex, and is supplied with a stopcock, water is forced in so as fully to distend the bag *in situ*. The outline of the bladder will now be traced above the pubic symphysis. The usual vertical incision is made, and dissection carried down to the bladder, with the usual precautions with which we are familiar. The ease and the certainty, however, which are ensured by the firm position of the bladder on this system render it much superior to the old one.

I have operated by the high operation twice only, and that before the introduction of the new method. Since that time I have met with no case which I have not been able to deal with satisfactorily by lithotripsy at a single sitting, of which several examples are placed before you—the calculi weighing from one to nearly three ounces. The next case which offers for which the knife is required, I shall almost certainly submit to the high operation, with Petersen's modification. And the only reason why I have not yet performed it is, that I have easily and successfully employed lithotripsy in cases precisely similar to those for which the French surgeons are at present adopting Petersen's procedure.

REPORTS OF SOCIETIES.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

JULY 4TH, 1884.

JONATHAN HUTCHINSON, F.R.S., F.R.C.S., President, in the Chair.
ANNUAL GENERAL MEETING.

THE report of the Council was read by the HONORARY SECRETARY, and adopted.

MR. J. F. STREATFIELD, the Treasurer, read his report, which showed that the financial condition of the Society was very satisfactory. The report was adopted.

Election of Officers and Council.—The list of officers and Council on the balloting-paper was balloted for and elected.

Alteration in Rules.—The alterations in the rules proposed by the Council were carried unanimously. The most important alteration was a limitation of the number of meetings of Council.

Library.—A series of regulations for the conduct of the library, drawn up by the Council, were adopted. Some conversation as to the right of provincial members to obtain books by writing to the librarian took place; and Dr. ABERCROMBIE (honorary secretary) pointed out that the provincial members had this right under the regulations. —The rules were adopted.—The PRESIDENT expressed the hope that the members of the Society would contribute more freely to the library than they had hitherto done.

Sympathetic Neuro-rectinitis.—Dr. W. A. BRAILEY showed a patient who stated that, on March 6th, her left eye was cut by a broken jug. Before this, there had been no symptoms of disease, either local or general. The wound passed in the antero-posterior direction through the ciliary region. Two weeks later, she had pain in the right eye, and the sight began to fail. She first applied at Guy's Hospital three weeks after the accident. Vision was then very imperfect ($\frac{1}{2}$); the optic disc was a little swollen; the margins blurred; the vessels pale, rather contracted, and in some cases edged with faint white streaks for a short distance into the retina. The vessels near the yellow spot were rather larger and more numerous than usual, and also somewhat tortuous. Vision had gradually improved up to $\frac{3}{4}$; but the optic disc had grown flatter and paler. The exciting eye (left) had caused no pain since the first week. He thought the case was an instance of a neuritis of the anterior part of the optic nerve, produced sympathetically.—The PRESIDENT observed that the case was probably the first well authenticated instance of optic neuritis occurring alone as a sympathetic affection.—Mr. ADAMS FROST referred to a case of optic neuritis occurring in the course of a sympathetic ophthalmia, where the inflammation of the media was very trifling.

Miners' Nystagmus.—Mr. SIMON SNELL read a paper on the cause of miner's nystagmus, and stated that he had long held the opinion, as the result of clinical experience, that the cause of the disease was to be found in the peculiar manner in which the miner performed his work, whatever secondary influences other surrounding circumstances might