The last case is one of Kamal Din, published in the *BARRISH MEDICAL JOURNAL*, July 15th, 1890, page 17.

These six cases, operated on otherwise than by litholapaxy, complete a series of 72 cases, being all the cases of stone in the bladder met with and operated on by me throughout the year 1890 without a death.

The series of 36 litholapaxies in 1891, taken with the 66 cases in 1890, completes a continuous series of 102 stones removed from the bladder since January 1890, without a single death.

The principal noteworthy feature in this series is that in four cases, three of them with phosphatic stones, an operation had been performed within a short period for removal of a similar stone. If all these had been previously operated on by the crushing process it would have made a strong case for those who hold that formation is very likely to recur after crushing, fortunately, however, two of them had been operated on by lateral lithotomy.

I am convinced that most of the cases in the district dispensaries were kept needlessly long in hospital by the native medical men in charge after the operation.

Case No. 75 illustrates how in an old man with a dilated bladder and a large prostate a small stone may escape detection by the most careful sounding in the usual manner; fortunately this man's previous experience made him positive

in his assertion that a stone existed in his bladder. In cases like this the best means of detecting a small particle is to pass an evacuating cannula and apply the aspirating apparatus, when the stone will be heard to click against the eye if too large to pass out through it.

No selection of cases was made, every patient who presented himself was operated on.

FORTY SUCCESSFUL CASES OF LITHOLAPAXY IN BOYS.

By G. H. D. GIMLETTE, M.D., M.Ch.,
Surgeon-Major Bengal Medical Service, Rewa, Central India.

THE advantages of litholapaxy in male children have already been fully demonstrated by Surgeon-Major Keegan, from whom it was my good fortune to receive my first lessons in the operation. The following series of consecutive cases, however, seems to me worthy of record, their uniform success affording another proof of the superiority of litholapaxy over other methods of treating stone in the bladder, even in the youngest children.

The condition of the small patients referred to in the ac-

Table of Dr. Gimlette's Cases.

Number.	Date.	Age.	Time occupied by the Operation.	Number of Times the Lithotrite was Used.	Composition of the Stone.	Weight of the Stone.	Number of Days in Hospital.	RESULT AND REMARKS.
1	1889. March 27	3½	—	—	Urates and phosphates.	36 grains	7	Uninterrupted recovery.
2	April 1	7	—	—	Uric acid, oxalate of lime, and phosphates	67 "	7	" "
3	" 20	4½	—	—	" " and oxalate of lime	60 "	5	" "
4	" 26	5	—	—	" " urates, and phosphates	13 "	2	" "
5	May 7	2	—	3	" " and phosphates	28 "	4	" "
6	June 4	12	—	—	" " oxalate of lime, and phosphates	44 "	12	Intermittent fever for a few days. Good recovery.
7	" 15	3	—	—	Urates	53 "	5	Good recovery.
8	July 2	5	—	6	Uric acid and oxalate of lime	90 "	7	Uninterrupted recovery.
9	" 19	3	—	1	" "	10 "	4	" "
10	" 26	9	1½ hour	5	" " urates, and phosphates	395 "	8	Intermittent fever the first two days. Good recovery.
11	Aug. 14	4½	1½ "	3	" " and urates	65 "	9	A very small penis. Lithotrite passed with difficulty. Good recovery.
12	Oct. 1	6	1½ "	3	" " and phosphates	260 "	11	Good recovery.
13	" 27	8	27 minutes	2	" " and oxalate of lime	30 "	5	" "
14	" 27	12	1 hour	2	Mainly phosphates; a small oxalate of lime nucleus	250 "	7	" "
15	" 27	3	¼ "	1	Oxalate of lime	6 "	10	A very small penis. Lithotrite passed with difficulty. Good recovery.
16	Dec. 2	7	20 minutes	1	Uric acid	82 "	4	Uninterrupted recovery.
17	" 23	8	1 hour	5	" " and oxalate of lime	105 "	7	Good recovery.
18	" 23	8	3 "	4	" "	229 "	9	" "
19	" 24	10	1½ "	5	" "	65 "	8	Uræthra of very small calibre. Operation difficult throughout. Good recovery.
20	1890. Feb. 3	5	½ "	2	" " and oxalate of lime	30 "	6	Good recovery.
21	" 9	16	1 hour	3	" " urates, oxalate of lime, and phosphates	245 "	12	Intermittent fever for some days. Good recovery.
22	" 9	9	20 minutes	1	Urates and oxalates	50 "	7	Uninterrupted recovery.
23	" 10	15	"	1	" "	16 "	5	" "
24	" 10	4	18 "	2	" " oxalate of lime, and phosphates	19 "	7	" "
25	" 15	6	50 "	2	Uric acid, urates, and oxalates	120 "	6	This patient took chloroform badly, and hence the operation was delayed. Good recovery.
26	" 15	4	66 "	6	" " urates, oxalate of lime, and phosphates	66 "	10	Much difficulty was experienced in evacuating the last fragments of this stone. Good recovery.
27	" 15	5	45 "	2	Urates and phosphates	103 "	6	This patient also took chloroform badly. Good recovery.
28	" 22	10	25 "	2	Uric acid and oxalate of lime	40 "	6	Uninterrupted recovery.
29	March 11	9	26 "	2	" " " "	50 "	4	" "
30	" 13	5	22 "	3	" " " "	20 "	4	" "
31	April 30	4	25 "	1	Urates and oxalate of lime	24 "	7	Good recovery.
32	May 15	5	20 "	1	" "	24 "	4	Uninterrupted recovery.
33	July 21	10	1 hour	4	Uric acid and oxalate of lime	140 "	8	Good recovery.
34	" 28	10	1 "	3	" " " "	105 "	15	" "
35	Sept. 2	4	1½ "	2	" " " "	17 "	9	Slight fever for two days. Good recovery.
36	" 22	3	4 "	4	" " " "	19 "	15	A very weakly child. Last fragments removed with difficulty. Slight fever for two days. Good recovery.
37	Oct. 13	8	65 minutes	4	" " " "	206 "	12	Good recovery.
38	Nov. 7	3	40 "	3	" " and phosphates	43 "	7	" "
39	" 21	8	36 "	3	" " and urates	93 "	14	" "
40	Dec. 12	5	50 "	4	Oxalate of lime and urates	26 "	5	" "

companying table varied very much on admission. Some were the plump offspring of well-to-do parents, but the greater number were underfed and emaciated children of poor villagers from remote and malarious districts. Some of the children were suffering from fever on arrival, and, in such cases, operation had of course to be deferred. Nine times out of ten, however, it was of necessity performed on the morning following the arrival of the patient.

The variation in the calibre of the urethral passages was remarkable. The fact of this variation has already been pointed out by Surgeon-Major Keegan. Thus, the urethra of the boy aged 5, Case 20, admitted a No. 7 lithotrite, while in Case 19, that of a boy aged 10, only a No. 6 could with difficulty be passed.

In the very great majority of the cases the operation was followed by immediate relief, without anything more than a trifling rise of temperature. The boy, if allowed, would be up and playing about in two or three days. In a few some fever ensued—always of an intermittent type, never high, and yielding readily to quinine.

I append notes of the few cases occurring during the same period in which I found litholapaxy impracticable.

CASE I.—A boy, aged 3. The smallest lithotrite at hand (No. 6) could not be passed in this case; lateral lithotomy was therefore performed, and two stones, weighing together 153 grains, were extracted. The patient did well.

CASE II.—A boy, aged 3½. In this case also the smallest lithotrite could not be passed. Suprapubic lithotomy was performed, and two stones, weighing together 256 grains, were extracted. The patient did well. Urine commenced to pass *per urethram* on the sixth day, but the fistula was not entirely closed until the thirty-eighth day.

CASE III.—A boy, aged 4½. Nothing larger than a No. 3 catheter could be passed into this child's bladder: suprapubic lithotomy was therefore performed. Failing a proper india-rubber bag a sheep's bladder was used to distend the rectum. He was a fat child, and the dissection down to the bladder took some little time. While it was going on some of the water leaked from the sheep's bladder, which was suddenly expelled from the rectum by the child's straining. As the bladder had been reached when this happened, it was thought better to proceed with the operation without delaying to reintroduce the bag. Shortly afterwards the peritoneum appeared in the upper angle of the wound; it was kept out of the way by a forefinger, and the operation completed, a stone weighing 109 grains being extracted. The patient did well, and was discharged on the twenty-third day after the operation. The case afforded a striking illustration of the value of distension of the rectum in suprapubic lithotomy.

CASE IV.—This patient, a boy, aged 12, had suffered from stone for many years, and when brought to the hospital was in a worn-out and emaciated condition. For four or five days previously he had been in great agony: the urine, voided in drops with much difficulty, was stinking, the respirations were hurried, and the pulse feeble and quick. The stone was found to be a very large one. His condition precluded a long operation lasting two or three hours, and consequently the choice lay between suprapubic and lateral lithotomy. Bearing in mind the accident that happened in the preceding case, and being still without a proper bag, I unfortunately decided on the latter. The stone proved too large to be extracted by the perineum, and attempts to break it failed; it was therefore removed through an incision above the pubes as rapidly as possible. The patient never rallied, and died the same night. The stone was an enormous one considering the age of the child: it measured 3 inches by 2 by 1½, and weighed 2,010 grains; its composition was pure ammonio-magnesian phosphate, and it was of extreme hardness.

CASE V.—A boy, aged 9. The bladder in this case was sacculated, a diverticulum existing at the upper part, and extending to the right of the middle line; its outline could be plainly seen when the bladder was distended. The stone was tightly impacted in this sac. An attempt was first made to crush it, but one end only could be reached by the lithotrite, and it was decided to proceed to suprapubic lithotomy. The patient, a very weakly and malaria-stricken child, is so far doing well.

CASE VI.—A somewhat similar case to the above was a wretched-looking emaciated boy already worn out by suffering. On examination the stone was found embedded in a sac, and could not be grasped by the lithotrite. Further interference was postponed, and the child died a few days afterwards unoperated on.

OBSERVATIONS ON LITHOTRITY, WITH A SERIES OF FORTY CONSECUTIVE CASES.

By F. SWINFORD EDWARDS, F.R.C.S.,
Surgeon West London Hospital and St. Peter's Hospital for Stone.

LITHOLAPAXY AND LITHOTRITY.

I BRING forward here a series of forty cases of lithotrity at a single sitting, or, as Bigelow its originator calls it, litholapaxy, though I agree with Mr. Buckston Browne in preferring to limit the use of this term to the removal of stone from the bladder without first crushing, using only an evacuating tube with aspirator, which methods may often be employed with

success in cases of small stones, such as weigh from 1 to 5 grains. By lithotrity I mean the complete evacuation of the bladder at one operation.

In the accompanying table I have included several cases in which the *débris* of the stone only weigh a few grains, and therefore should not, according to Sir Henry Thompson's views, be called cases of stone in the bladder at all, but rather instances of gravel or concretion. It seems to me a matter of small importance what we call them so long only as the weight is correctly stated, together with the methods adopted for their removal. Many cases of small calculi weighing considerably less than 20 grains entirely resist all natural efforts to expel them, and may cause as much and even more suffering than large stones. Should they be capable of being dealt with by litholapaxy, it follows that the patient runs less risk than he does after the instrumentation necessary to, and attendant upon, lithotrity. These small stones or gravel, if allowed to remain, will assuredly grow, and so necessitate a more prolonged and serious operation. Not that there is much difference in the risk between lithotrity for a stone of 10 to 20 grains, or for one of a drachm or less. The risk to the patient does not depend upon the size of the stone—speaking of comparatively small calculi—so much as upon the condition of the soft parts in which it lies. Again, it is all to the credit of the surgeon to find these small calculi—by no means always an easy thing. I would recommend sounding an empty bladder, and, if nothing is discovered, though the symptoms point to stone, that a small Bigelow's evacuating cannula and bottle should be used. If manipulated with gentleness, this will cause no great inconvenience to the patient. If a small stone is present and loose in the bladder, the water rushing into the tube will bring the stone up to its eye with a click easily felt or heard, and if small enough it may pass through, thereby verifying the diagnosis and ridding the patient of his trouble.

CASES.

I pass now to a short consideration of my four fatal cases, and will also say a few words about two of the more interesting of the remaining cases, commencing with the latter.

CASE II.—Mr. H., an old and feeble man, was sent to me by Mr. Treves, of Margate. He was suffering from severe hæmaturia and frequent micturition, and had passed several calculi at times. Under ether, given by Mr. Lloyd, and assisted by Dr. Fairweather, of Wood Green, I crushed a small stone of 11 grains, and washed away at the same time many villus-like processes, which led me to suspect that the bleeding was chiefly due to a villous tumour of the bladder. After the operation I injected a solution of iodoform, and prescribed hazeline by the mouth, with bromidia at night; the bladder to be washed out daily with Condyl's fluid. The following day he was in no pain and his pulse good. There was only a slight rise of temperature. I saw him again rather more than a fortnight afterwards on account of urinary fever, produced probably by the catheterism he was undergoing. He was passing no blood at this time. I have not seen nor heard of him since.

CASE 25.—Mr. M., seen in consultation with Mr. Chittenden, of Wheathampstead, on December 21st, 1889. He was 72 years of age, and had suffered from enlarged prostate and other urinary troubles for some time. On sounding him I found a calculus, evidently a large one. On December 28th, Mr. Lloyd having administered chloroform, I endeavoured to perform lithotrity with an ordinary fenestrated lithotrite, but with this I was unable to grasp the stone, so having one of Bigelow's large instruments with me I tried to pass it, after having incised the meatus, but was unable to get it through the prostatic urethra. Two courses were now open to me, as I excluded lateral lithotomy, namely, suprapubic lithotomy and median cystotomy combined with crushing. I selected the latter, believing it to be the safer operation of the two, looking to the patient's advanced age. Cystotomy having been performed, I found a large stone lodged above the pubes, and this I promptly attacked with Bigelow's largest lithotrite, though even with this powerful instrument I found it very laborious work, nor did I succeed in crushing the whole of it, but had in the end to remove a large fragment, amounting almost to one-third of the whole, with forceps, the rest of the *débris* being removed with either scoop or