preparation, I secured the co-operation of my colleague, M. Regnaud, who examined the sample, and found it to be nothing else but chloroform, which it also resembled in appearance and odour. I bought so-called chloride of methylene of our most respected chemical firms, but the result of its examination was the same. I then wrote to Sir Spencer Wells, who furnished me with the name and address of his purveyor, from whom I obtained a preparation which, neither from its odour nor otherwise, appeared to me identical with chloroform. M. Regnaud, after examination, declared that it was not common chloroform, but neither chloride of methylene, the boiling-points being different. The opinion which he formed, after subsequent careful analysis, is embodied in his paper read at the last meeting. I accept his conclusions, being incompetent to discuss the chemical part of the question, and the result of his analysis; but I feel bound to add that my clinical observations are at variance with the latter. This preparation has given me excellent results, far superior to those of the best chloroform.

After describing the apparatus and the mode of administration, M. Léon Le Fort continues.

"I have continually used the chloride of methylene since February last (1883) for producing anaesthesia in all my operations, and I beg now to state the result of my experience. At first, its action appeared to me less rapid than that of chloroform; but this I have to put on account of the manner in which it was given. I first propelled the air through the anæsthetic only at every fifth or sixth respiration of the patient. Since, however, I have become more familiar with the apparatus, and have gained confidence in the preparation, I have pressed the bellows at every inspiration, and thus produced narcosis as rapidly as when using chloroform. I found that the stage of excitement was of less intensity and shorter than with chloroform. Above all, there was no sickness. As regards the latter point, I was delighted with this preparation, whatever it be. I only once had vomiting; but in this case the patient had a hearty meal one hour before the operation. Patients narcotised in this manner never suffered from the *malaise*, headache, or nervous condition which generally follow for one day after the use of chloroform. One patient vomited during the night after the operation, which had been performed the previous morning; too long a time after the administration of the anæsthetic to make it answerable.

"It would be premature to draw scientific conclusions from my still limited experience, which extends only somewhat over three months. It needs comparing the effects of chloroform given in the same apparatus, the effects of chloride of methylene given in the manner in which chloroform had been hitherto usually administered—viz., without Junker's apparatus. I ought to compare, with the assistance of my colleague M. Regnaud, the effects of the English preparation with those of the mixture of chloroform and methylic alcohol propounded by the latter. Before all, I shall have to compare the pure standard chloride of methylene with the spurious preparation. This will require time; and my present remarks are only elicited by M. Regnaud's paper. I have full reliance on chemical evidence, but still chemistry fails sometimes in explaining what we occasionally succeed in appreciating without her aid—viz., the difference between the bouquet of Chamberlin and Pomard. It may be that in the English compound, whatever it may be, some subtle changes take place, which chemists cannot point out, but which benefit our patients. I conclude by asking my colleagues to join me in my researches and experiments with this preparation, which I have found superior to the best chloroform. I shall certainly use the mixture of chloroform and methylic alcohol prepared according to M. Regnaud's formula; but in the meantime I shall continue with the chloride of methylene, because I have had no vomiting caused by it, and it has given me far superior results than the best of our chloroforms. (Parcequ'avec lui je n'ai pas encore rencontré de vomissements; et qu'il m'a donné des résultats de beaucoup supérieurs à ceux que me donnent les meilleurs de nos chloroformes.)"

In his reply, M. Regnaud reiterated his evidence that the English preparation, of which he analysed two kilogrammes, supplied to him on two different occasions, was not pure chloride of methylene, but was a compound of four parts of chloroform and one of methylic alcohol by measure (or of 7:1 by weight), to which the term bichloride of methylene and the formula CH_2Cl_2 was misapplied. He does not wonder at the good effects of this preparation, as the methylic alcohol, discovered by the eminent chemist M. Dumas, who was present at this meeting, also possesses narcotic properties.

Since the publication of my paper, and the cases in which I gave Regnaud's anæsthetic mixture (BRITISH MEDICAL JOURNAL, July 21st, 1883, p. 211), I have had, through the kindness of my friend Dr. G. Granville Bantock, the opportunity of administering the latter: four parts of chloroform and one part of methylic alcohol by measure,

in twenty cases, both in the Samaritan Free Hospital and in private practice. Of these, fourteen were abdominal sections for the removal of one or both ovaries and of myomas of the uterus; three were operations for ruptured perinæum, two for the removal of fungous growths in the uterine cavity by means of the curette, and in one case a bundle of enlarged and infiltrated glands was extirpated from the axilla, subsequently to an amputation of the breast.

The ages of the patients ranged between 23 and 69 years. In all these cases, the heart was free from any affection; the pulse at the commencement of the anæsthesia varied; owing to the different degrees of nervousness, which always prevails more or less before an operation, it became quiet when full narcosis took place, and ranged, after the operation, from 68 to 90. The rhythm of the respiration remained normal. The pupils dilated during the first stage of the anæsthesia, but became either normal or slightly contracted after complete narcosis had taken place. Muscular excitement, sickness during and after the narcosis, were absent in every case. The complexion was either unaltered or slightly flushed, never haggard or cyanotic; the skin moist from gentle warm perspiration. The patients appeared as if in normal sleep, and awoke to full consciousness soon after stopping the administration of the anæsthetic mixture.

I submit a table, showing the quantity given and the time required to produce full narcosis in each individual case, and the quantity given and the time from the commencement to the termination of the administration. According to mean calculation, $1\frac{1}{2}$ drachms produced complete narcosis in 6 minutes (36 drachms, 120 minutes), and $8\frac{1}{2}$ drachms were given in one hour (172 drachms in 20 hours).

	Age.	Operation.	Complete Narcosis produced by		Amount given.	Duration of Administration.
			in	dr.		
1	42	Ovariectomy	1	5 m.	4 drs.	30 m.
2	28	"	1	5 "	8 "	1 h. 45 m.
3	45	Removal of fungous growths from uterine cavity (curette)	2	7 "	10 "	46 m.
4	32	Perineal operation	1	4 "	6 "	40 m.
5	38	Ovariectomy	2	5 "	10 "	2 hours
6	42	"	1	5 "	5 "	45 m.
7	32	Removal of fungous growths from uterine cavity (curette)	1	5 "	5 "	40 m.
8	60	Ovariectomy (double)	2	9 "	12 "	1 h. 35 m.
9	44	Removal of myoma (laparotomy)	2	5 "	16 "	2 h. 20 m.
10	32	Perineal operation	2	10 "	6 "	40 m.
11	28	Ovariectomy	2	5 "	6 "	40 m.
12	38	"	2	4 "	6 "	31 m.
13	46	"	2	7 "	10 "	1 hour
14	69	"	1	5 "	8 "	1 hour
15	28	"	2	8 "	11 "	55 m.
16	49	"	2	8 "	5 "	35 m.
17	23	"	1	7 "	13 "	1 h. 33 m.
18	30	Perineal operation	2	5 "	14 "	1 h. 30 m.
19	30	Extirpation of glands from axilla	3	8 "	7 "	40 m.
20	43	Ovariectomy (double)	1	5 "	10 "	1 h. 15 m.
			36	120	172	1200

NEPHROTOMY FOR OBSTRUCTIVE SUPPRESSION OF URINE.

By BENNETT MAY, F.R.C.S.,

Surgeon to the Queen's Hospital, Birmingham.

I HEARTILY concur with Mr. Clement Lucas in regarding the case published by Mr. T. Wilmot, in the JOURNAL of November 24th, 1883, as one eminently suggestive of the propriety of operative treatment in this disease.

As Mr. Lucas, in his letter of December 1st, refers to a communication I made on the subject after his address on Renal Surgery, at Liverpool, I shall be glad of this opportunity of expressing, in a more precise and extended form, the suggestion I then made for operative measures in these cases.

In anuria from impacted calculus, urine does not ordinarily accumulate in the loin to any appreciable degree. Dilatation only takes place where the obstruction is partial in degree and of long duration. Where it is sudden and complete, no dilatation occurs, because the secretion is arrested directly the pressure is equalised; and, under these circumstances, not more than half an ounce of urine will be found in the pelvis of the kidney (*vide* case by Dr. Roberts, *Lancet*, June 1870); though ultimately, as the experiments by Strauss have shown, the organ may become converted into a cyst. The usual seat of impaction

of a calculus is near the bladder, or so far down the ureter as to be quite away from the possibility of dislodgment.

My suggestion is to establish a fistulous opening in the loin (by nephrotomy) for the escape of the urine; and if the operator be so fortunate as to light on the stone at the upper end of the ureter, so much the better prospect of obtaining a satisfactory result.

The first question anyone contemplating the operation would need to determine is, on which side to operate. I think the symptoms are usually sufficiently marked to settle this easily, as, for instance, in the following case. A publican, aged 50, apparently in good health, ceased to pass urine on the morning of October 31st, 1882; and, from that time till the evening of November 7th, when he died, he excreted no urine whatever. He suffered considerable pain in the right loin, with some nausea, but there was no perceptible swelling, and but little disturbance other than the anuria. I think there can be no doubt he had a calculus impacted in the right ureter; but this would not have caused complete suppression unless the other kidney were previously destroyed; and in evidence of this was a history of severe and continued pain in the left loin about three years before. I saw him a few hours before his death, in consultation with his medical attendant, who had made out every feature of the case, and supplied me with the facts. Circumstances did not permit an operation; but, if I had again an opportunity of seeing an identical case in an early enough stage, I should certainly consider the advisability of an exploratory incision in the right loin.

The case of Mr. Wilmot presents several peculiarities. In the first place, there was the rare condition of complete absence of one kidney, though this fact only brings it to a state of matters parallel to what ordinarily exists in complete suppression.

Then the stone, though at first blocking the ureter, was practically in the kidney, on the tissue of which it had for a long time been exercising its disorganising effects. For the first two or three days of the fatal attack, while the patient was calm and composed, with clear intellect, without headache, sickness, or fever, the symptoms were those of obstructive suppression simply; but when rigors supervened, with swelling and resistance over the region of the kidney, there was the obvious complication of suppuration in or around the organ. As Mr. Wilmot remarks, the immediate cause of death was abscess, not uræmia. I concur with him in saying that the man would not have derived lasting benefit from aspiration alone, though I think information of some value would have followed its use. The stone would probably have been detected or the abscess evacuated. But I strongly support Mr. Lucas in his remarks on nephrotomy (obviously misprinted nephrectomy) as a means of treatment in this case. An incision in the loin made before the symptoms of suppuration set in, would have led to the removal of the stone, have relieved the suppression, and probably have averted the fatal damage to the kidney.

If the principle of operation be accepted as applicable to these cases, there still remains to decide when such should be performed. A previous history of suppression, with pain on the same side, or previous attacks of nephralgia, would point to the presence of a calculus lodged in the pelvis of the kidney or in the upper end of the ureter, and would indicate an operation for the double purpose of removing the stone and relieving the suppression; and, as the further retention of the stone must lead to destructive disorganisation of the kidney, I agree with Mr. Lucas's view, that the surgeon is justified in operating early under these circumstances. Swelling and resistance in the loin, with rigors and fever, point to suppuration, and really demand the very simple proceeding of an incision down to the kidney, though it is doubtful whether it would not now come too late.

In a first attack of suppression, and without previous nephralgia, the decision may be more difficult, because spontaneous relief is not uncommon. One such recovery, after twenty days' complete anuria, is recorded by Dr. Russell (*Medical Times and Gazette*, 1879). I believe the average duration of life is from six to eight days, death usually terminating the scene rather suddenly, and without uræmic symptoms. I know that a patient can live five whole days without a particle of renal tissue in the body, and suffer very little obvious disturbance (*BRITISH MEDICAL JOURNAL*, September 1st, 1883). But I think the surgeon would be justified in operating almost at any time, for he can do very little harm, though he might receive the blame of an unavoidable death in case of failure to relieve.

In conclusion, my apology for occupying so much valuable space must be found in the remarks with which Mr. Wilmot closes his interesting paper, viz., "The usual treatment was followed in this case." Undoubtedly such was the fact, and, let me add, it was followed by the usual result—death. Whether the proposed departure from the usual treatment will ever lead to any other result, time and experience must determine.

ABDOMINAL SECTIONS PERFORMED DURING 1883.

By THOMAS SAVAGE, M.D., F.R.C.S.,
Surgeon to the Birmingham Hospital for Women.

THE following remarks are based upon the work done by me in hospital and private practice during the year 1883. It comprises a total of 85 cases of abdominal section. Of the 85 patients, 83 were females, and 2 males; and of the females, 66 were married, or widows, and 17 were single.

I think the custom is a good one, which has now for several years been observed by some of those practitioners who are doing a large amount of abdominal surgery, of recording publicly the amount and results of their work.

It is due to the public, to the profession at large, and to ourselves, that some means should be known by the profession by which the results and progress of this branch of our art are capable of being tested; at all events for the present and the immediate future, during which much that is new, both in the nature and in the details of abdominal operations, is likely to occur.

Analysis of the Series.

Cases.	Deaths.	Cases.	Deaths.
Cystoma of ovary:		Hepatotomy for hydatids	1
One ovary	20	Hydatids of peritoneum	1
Both ovaries	4	Papilloma of peritoneum	1
Fibroma of ovary	1	Tumour of kidney	1
Parovarian tumour	4	Nephrectomy	1
Dermoid tumour	1	Enterotomy for obstruction	1
Removal of uterine appendages for:		Hæmatocele (opened and drained)	1
Chronic ovaritis	12	Pelvic peritonitis	8
Uterine myoma	8	Exploratory operation for:	
Metrorrhagia	1	Uterine myoma	3
Hydrosalpinx	4	Malignant tumour	3
Supravaginal hysterectomy	6	Pelvic tumour	1
Extra-uterine foetation	1		
Cholecystotomy for gall-stone	1	Total	85
			4

In 4 instances death occurred, I mean as a result, more or less directly, due to the operation. The cases were as follows.

1. A patient, aged 58, with a very large cystoma of the left ovary, with purulent contents and considerable adhesions. She had allowed herself to get as near to the grave as possible, and could certainly have lived but a week or two if not operated upon. In fact, I did it, at the urgent solicitation of a friend, with the idea of giving the poor creature just the chance which it afforded her of her life. Drainage was used.

2. A patient with double cystoma, referred to me by Dr. J. W. Taylor. The right tumour was full of pus, and universally adherent, having to be literally picked out of its bed. Here drainage was used.

3. A case of nephrectomy; kidney (right) very large and full of pus. A clamp was used to the meso-nephron. I think that, if I had used drainage here, the result might have been different.

4. A case of supravaginal hysterectomy. A large fibromyoma, eleven pounds in weight, was removed. The operation was all that could be desired. She died in less than forty-eight hours after the operation, with symptoms of apoplexy. *Post mortem*, there was found a large hæmorrhage, extending backwards from the external part of the right caudate nucleus, and rupturing into the right lateral ventricle; the peritoneum was healthy. She was a woman with dilated facial capillaries, and was subject to frequent attacks of bronchitis; aged 59.

During the year, I used drainage twelve times. Two of these were among the fatal cases. Although I cannot call to mind any of the other cases where I might with greater advantage have drained, but did not, yet I often think we might drain much more frequently than we do. It cannot do harm; it may do good.

None of the cases were performed under what would be styled "strict antiseptic precautions"—i.e., Listerism; but I was always very careful to pay the strictest attention to cleanliness. Having seen operations done under the spray, which is often used to cover a multitude of other deficiencies in the Listerian system, I have sometimes come away feeling that my own operations were at least as aseptic. The record of our work at Spark Hill, which is published in the annual report of the hospital, will disabuse the mind of anyone who is not prejudiced in favour of the necessity or even superiority of Listerism in abdominal surgery. Not one of the deaths mentioned above could be ascribed to its absence.

In one instance, death has occurred since the operation. It was a case of a young single woman with great emaciation and a very rapidly filling abdomen. It was thought likely to be either peritonitis or papilloma of the peritoneum. When the abdomen was opened, there