and illustrating the sympathy between the nervous system and the organs of generation, might be cited urinary paraplegia. In arthritis from gonorrhoea and arthritis from leucorrhoeic dysmenorrhoea, the joints were symmetrically affected. Was this fact to be regarded as implying the intervention of nervous influence? 3. Certain signs were common to rheumatoid arthritis and to diseases of the spinal cord, and it seemed reasonable to refer them both to a common cause. These were muscular atrophy, and alteration in muscular contractility and in tendon-reflex. The muscular atrophy in rheumatoid arthritis resembled that in wasting palsy in the arm; the extensors were more affected than the flexors; in extreme cases, both were equally diminished; and the thenar eminences passed away. The wasting proceeded so rapidly as to dismiss the idea that it was due to disease, and the symmetrical arrangement would seem to point to a deeper cause. Inflammation of a joint might be followed by wasting of muscle. It seemed reasonable to assume that the cause of muscular atrophy was identical. In the case of progressive muscular atrophy, the lesions in the spinal cord were found to affect the grey matter of the anterior cornua, and apparently were sometimes negative. He was not aware that the spinal cord had been made the subject of careful examination in well marked instances of muscular atrophy in arthritis, and a large body of accurate evidence, when it could be obtained, would be a valuable desideratum. There was nothing unreasonable in assuming that a trophic centre might, in both cases, be implicated, and that the joint-trouble might be the starting-point. In both wasting palsy and in the wasting of muscles from rheumatoid arthritis, the muscles were less sensitive to the galvanic current, and it had been alleged that fibrillar tremors were observed in both. Fibrillar tremors he had observed only in a small minority of the latter cases, and of fifteen cases of wasting palsy in only three. The tendon-reflexes in atrophy consequent on rheumatoid arthritis were said to be exaggerated. His experience was not in harmony with that statement. The normal and natural tendon-reflex of each case had first to be settled; before it was thought to be increased in disease. He had observed muscular debility precede arthritis, and, on the other hand, muscular debility and wasting succeed the arthritis; the latter was in his experience more frequent. A case recently occurred to him where muscular debility and some wasting occurred first; arthritis in the joints of the hands succeeded. During the arthritis the wasting of muscles proceeded with a rapidity and to an extent almost incredible, leaving the arms practically useless. Improvement proceeded slowly and surely, which led him to believe that the atrophic condition was not progressive. As regarded the question whether rheumatoid arthritis did or did not succeed acute rheumatism, he believed it difficult to obtain accurate histories. He suspected, in many cases, the alleged acute rheumatism was an acute or subacute attack of rheumatoid arthritis; but that rheumatoid arthritis might follow acute rheumatism, his own experience confirmed. With regard to the heredity of rheumatoid arthritis, his experience led him to believe that the parents might suffer from gout or from rheumatism. Very frequently there was no antecedent hereditary history of either. His experience was negative as to the direct heredity of rheumatoid arthritis. It had been said to be a senile change and a process of decay. He had known it in a child three years old, without hereditary history of arthritic taint; and in a child two years old, with gouty ancestry. In its early stage, its progress might be arrested; the most that could be done for senile changes was to render them stationary. With regard to the association of fatty heart, he thought that the advanced age of the cases from which the necropsies were made might explain the circumstance. Something was said about a case of acute rheumatism succeeding a partially paralysed state of the limbs, and that this was probably due to the relation of acute rheumatism with the nervous system. Acute rheumatism affected fibrous tissue; and the coverings of the spinal cord might have been affected first, and subsequently the articulations. The structures affected by rheumatism made a community of origin in the embryo.

Dr. TAYLOR (Edinburgh) said that one of the most valuable side-rights for the elucidation of the subject was derived from the field of surgery. Even a perfectly healthy finger, if put up in splints and not used, would become ankylosed. There was nothing in those ankyloses of joints that partook of the character of rheumatism that differed, as far as he knew, structurally from ankylosis of a joint kept in position, and not used. The part which rheumatism played in the process, as it seemed to him, was to produce pain so as to make the patient avoid movement. He instanced the case of an old lady who had rheumatic gout in the finger, and whose threatening ankylosis was averted by her having the courage to submit to regular movement of the joints, notwithstanding the pain it caused her.

Dr. MYRTLE (Harrogate) said he found rheumatic gout becoming

more and more frequent among his patients, and real gout and true rheumatism less and less so. He frequently had letters from medical men asking his opinion in cases in which they could not say which element predominated. He was, therefore, he thought, quite entitled to think that there was really and truly a distinct mongrel form of disease here. Another thing which he had to observe was that the symptoms were not so amenable to treatment as were those of the other two conditions. The principal cases were found among women, and they could easily understand why it should be so, seeing that women were more subject to depressing influences, and much more given to the consumption of tea. He looked upon the enormous consumption of tea as one of the principal elements in inducing this condition. The cases he had met with had presented features differing both from rheumatism and from gout in this way, that they had very much less pain, but a great deal more weakness. He thought that weakness and irregular soft swellings of joints were the principal features of this condition in the wrists, knees, and ankles.

Dr. DYCE DUCKWORTH was obliged for the kind criticism bestowed on his communication. The subject was a very large one, and could not be discussed from all points in one meeting. He felt that the views he had endeavoured to set forth had not been fully met in the debate. It was easy to point out, on a series of dead bones, lesions which appeared to indicate the ravages of rheumatoid arthritis, but this was not always unequivocal evidence of the existence of the disease during life. Thus, with reference to remarks of Professor Gordon and another speaker, changes in the nutrition of joints ensuing from prolonged disease and other causes could not rightly be called rheumatic in any sense, and he would again direct attention to the fact that coincidence of pathological change by no means indicated identity of process leading up to it. The clinical features must be known and recognised, and the personal factors in each case be brought out. He would venture to accentuate the conclusions at which he had arrived respecting the disease, that it was a specifically true rheumatism, occurring in persons of a rheumatic habit of body; that it could be set up indiscriminately in all persons; that it undoubtedly occurred as a sequel of true rheumatic fever in a small percentage of the cases; and that the conception of it as a mixture of rheumatism and gout, or a hybrid malady, was for the large majority of cases an unwarrantable error. He was firmly convinced of the existence of a rheumatic habit of body, and accepted the view that gout and rheumatism were both evolutionary manifestations in persons of the arthritic diathesis. Dr. Duckworth exhibited a hand taken from the body of a woman who presented marked examples of Heberden's nodes, believed to be rheumatic during life, but shown to be, as he believed, solely due to gouty and uratic arthritis.

FIFTY CASES OF COMPLETED OVARIOTOMY, WITH BRIEF NOTES OF NINE OTHER CASES OF ABDOMINAL SECTION.

By W. A. MEREDITH, M.B., M.C.,

Surgeon to the Samaritan Free Hospital for Women and Children.

THE accompanying record, which includes the whole of my ovariectomy work up to the end of March 1884, offers, I think, some points worthy of note in view of the advances recently made in this department of abdominal surgery.

All the operations, with the exception of one of the fatal cases (No. 14 in the series), were performed with strict antiseptic precautions, including the use of the carbolic spray; and I cannot but feel that the success attained has been largely due to the consistent employment of Listerism.

It has not, as yet, fallen to my lot to witness the alarming results which have been stated to follow occasionally upon the free use of carbolic acid in peritoneal surgery; and this, after a considerable experience of antiseptic operations, now amounting to more than five hundred cases, exclusive of my own work in this department. That both difficulties and dangers are to be met with in the application of the method, is by no means to be denied; but, with care and experience in its use, these may be surely overcome or avoided; and, for my own part, I would far rather incur such risks as there may be than leave any loophole open for what I firmly believe to be the far more real dangers of septic influences.

With regard to the spray, I still consider it an essential part of the antiseptic method, believing that its use enables us to dispense with drainage in many cases where, but for this safeguard, such a procedure would be deemed advisable, even after an operation in other respects strictly antiseptic. The chief objection to it lies in the fact that it

I.—Table of fifty cases of completed Ovariectomy.

No.	Condition.	Age.	Date of Operation.	Place of Operation.	Length of Incision.	Adhesions, etc.	Weight of Tumour.	Result.	Remarks.
1	M	29	1881. January	Hospital	4½	Parietal and pelvic (uterine), much enucleation	1bs.	Recovered	
2	M	27	February	Nursing home	4½	Parietal	14	"	Child in September, 1883.
3	M	37	April	Hospital	4	None. Two perfectly distinct unilocular serous cysts encapsuled in right broad ligament with adherent ovary and tube	39	"	
4	M	33	June	"	3	None	16	"	
5	M	48	July	"	6	Very extensive parietal and intestinal	21	"	Had been tapped four months previously.
6	S	27	August	"	4½	Extensive parietal; very close pelvic connection	36	"	
7	M	33	October	"	5	Semi-gangrenous cyst filled with old blood-clot. Deep enucleation from right broad ligament	11	"	
8	S	34	"	"	4	Very firm parietal, and intestinal	25	"	Acute bronchitis after operation.
9	M	50	"	Nursing home	4	None	11	"	Died a year after, of uterine cancer.
10	S	26	November	Hospital	4½	Very close pelvic (uterine). Deep enucleation	8	"	Married six months later. Child in 1882.
11	M	38	December 1882	"	4½	Semi-solid tumour with broad and very close uterine connection	11	"	
12	W	53	January	"	3½	None	34	"	
13	S	48	February	"	4½	Extensive parietal and omental. Semi-solid tumour	17	"	
14	M	41	April	"	6½	Suppurating cyst (twisted pedicle); universal adhesions: parietal, pelvic, intestinal and omental	14	Died 4th day (septicæmia)	Temperature 103° before operation. Cyst contained 13 pints of putrid pus.
15	S	54	"	"	4	Parietal, intestinal and pelvic (uterine). Extensive enucleation	47	Died 5th day (exhaustion)	Had been tapped. Bronchitis at time of operation. Death due to general pulmonary oedema?
16	S	27	May	"	3½	None	11	Recovered	
17	S	47	"	"	4	None	9	"	
18	M	40	"	"	4	None	9	"	
19	M	36	June	Private house	4	Omental	8	"	
20	M	30	July	Hospital	5	Extensive parietal; omental and intestinal. Semi-solid tumour	38	"	
21	S	40	August	"	5	Two large cystomata with a good deal of solid material	25	"	Both ovaries removed.
22	M	62	"	"	6	Very extensive parietal and omental. Semi-solid cysto-sarcoma	47	"	Had been tapped three times.
23	S	38	October	"	4½	None	10	"	Both ovaries removed.
24	M	24	"	"	4½	Parietal (twisted pedicle)	5	"	Child in 1883.
25	S	29	"	"	4	None	16	"	
26	S	54	November	Nursing home	5	Very firm and extensive parietal; vesical	67	"	Attack of temporary insanity on returning home, lasted six weeks. In excellent health, bodily and mental, March, 1884.
27	M	54	December	Hospital	4½	General parietal and pelvic. Extensive enucleation	83	"	
28	M	53	"	"	3½	None	37	"	
29	S	50	1883. April	"	6	Pelvic and uterine. Double cysto-sarcoma; both tumours semi-solid	18	"	A large umbilical protrusion and two hernial sacs, situated one above the other in the middle line, were excised.
30	S	30	May	Nursing home	4½	Pelvic	15	"	
31	M	33	"	Hospital	4	None	13	Died 7th day (septicæmia)	Septic infection from the sponges used at the operation.
32	M	39	"	"	4	None	11	Recovered	
33	S	53	"	Nursing home	4	None	5	"	
34	M	51	June	Hospital	4½	None	5	"	
35	S	23	"	Nursing home	3½	None	9	"	
36	M	54	"	Hospital	4½	Extensive parietal, omental, and intestinal	17	"	
37	M	40	"	Nursing home	4	None	7	"	
38	M	64	July	"	5	A very thin walled rotten cyst. 5 inches of fat in the abdominal wall	30	"	Patient enormously stout; had been bedridden for over two years; suffering from general anasarca at time of operation. Seen in good health, March, 1884.
39	S	27	August	"	4	None	11	"	
40	S	37	October	Hospital	5	Very close and extensive omental and intestinal. Suppurating cyst, (twisted pedicle)	24	"	
41	M	41	"	"	6	Pelvic and uterine. Very extensive enucleation. Semi-solid tumour (? malignant)	26	"	
42	M	48	November	"	5	Firm parietal, omental, and intestinal	21	"	Drainage-tube (48 hours). Acute bronchitis.
43	M	37	December	"	4½	General parietal and pelvic; omental and intestinal. Very rotten cyst with much solid material	13	"	
44	S	53	"	Nursing home	4½	A soft, nearly solid, tumour (malignant); a good deal of free fluid, and a greatly enlarged liver	12	Died 3rd day (exhaustion)	Patient had been twice tapped. Drainage-tube used.
45	M	45	"	Private house	4	Omental	14	Recovered	
46	S	55	"	Nursing home	4	Parietal and omental	17	"	
47	M	36	1884. January	Hospital	8	Very extensive parietal; omental and intestinal. Semi-solid cysto-sarcoma, (twisted pedicle)	39	"	
48	S	35	February	Nursing home	4	None. Both ovaries removed	9	"	
49	M	48	March	Hospital	4	Very firm parietal, (twisted pedicle)	15	"	
50	M	39	"	Nursing home	3½	None. Both ovaries removed	4½	"	

may exercise a sensibly depressant effect in prolonged operations, unless due precautions be taken to avoid unnecessary exposure and chilling of the patient. But, in connection with this subject, there is a fact which appears to me to be often insufficiently appreciated—namely, that, in abdominal operations entailing much interference with deeply seated parts, the amount of shock produced is constantly in inverse

ratio to the profoundness of the anæsthesia. I have frequently observed that a patient, who is incompletely anæsthetised, at once shows signs of heart-failure when extensive adhesions are being dealt with in the immediate neighbourhood of the large sympathetic plexuses; and this condition, if taken as an indication for withdrawal of the anæsthetic, may readily deepen to a dangerous extent, leading sometimes to fatal

II.—Table of other operations.

No.	Condition.	Age.	Date of Operation.	Place of Operation.	Incomplete ovariectomies.	Result.
1	M	30	1882. November	Hospital	Suppurating cyst, universally adherent, containing 15 pints of very offensive pus—incised and drained. Patient had been tapped three weeks before	Recovered.
2	M	35	1883. March	Private house	An extremely multilocular semi-solid tumour of very rapid growth, universally adherent and closely connected with intestine. The patient had been tapped six times. She died before the operation was completed	Died (shock)
Removal of the uterine appendages.						
1	S	38	1883. March	Nursing home	Operation performed on account of profuse and persistent hæmorrhage from a moderately enlarged fibroid uterus. Both ovaries showed early cystic changes; the right one was adherent in Douglas' pouch	Recovered
2	M	26	October	Hospital	Very severe dysmenorrhœa of six years' standing, with constant intermenstrual pain, entirely incapacitating the patient for marital or household duties. Both ovaries diseased and adherent in Douglas' space. Uterus normal in size and position	"
3	S	20	November	Hospital	Operation performed on account of extreme dysmenorrhœa of five years' standing, with scanty and irregular menstruation, preventing the patient from earning a livelihood. Both ovaries cystic, the right one enlarged to twice its normal size	"
Removal of uterine tumour.						
1	S	33	1882. March	Hospital	Partial hysterectomy for rapidly growing fibroid tumour with profuse hæmorrhages. Kœberlé's serre-nœud applied to cervix. Both ovaries removed. Weight of tumour six pounds	Recovered
Exploratory operations.						
1	M	61	1882. July	Nursing home	Exploratory incision—16 pints of free fluid removed. No disease of uterus or ovaries. No enlargement of liver. Peritoneum somewhat thickened, but otherwise healthy	Recovered
2	S	42	1883. July	Hospital	Exploratory incision—24 pints of free fluid; general papillomatous disease of the peritoneum	"
3	M	52	1884. February	"	Exploratory incision—24 pints of mixed ascitic and ovarian fluid, due to presence of sprouting masses of papilloma, from a small ovarian cyst which had been tapped. Peritoneum extensively infected	"

collapse. On the other hand, if complete anæsthesia be carefully and uniformly maintained throughout, recovery from even the most severe operations, without any evidence of shock, is the rule, and convalescence is proportionately facilitated.

The number of completed ovariectomies recorded is fifty; and to these I have appended a second table, which includes brief details of nine other operations—namely, two incomplete ovariectomies; three cases of removal of the uterine appendages; one partial hysterectomy, with removal of both ovaries; and three cases of exploratory incision. I shall again refer to this table later on.

Of the fifty completed ovariectomies, forty-six recovered, and four died—a mortality of 8 per cent.

Thirty-five of the patients were operated on in hospital; thirteen in nursing-homes; and two in private houses.

In every instance, the pedicle or pedicles were ligatured and returned, the ligature employed consisting of the pure silk known as "Chinese twist," prepared by immersion in 1-20 carbolic lotion previous to use. A finer thread of the same description was invariably employed for adhesions; but, in addition to this means, the application of strong liquor ferri perchloridi was occasionally found useful for the arrest of extensive oozing from torn parietal or pelvic surfaces.

In twenty of the cases, no adhesions were found; but in the remaining thirty the tumours were all more or less adherent, and in twenty-one of these cases the adhesions were of a nature to seriously increase the risks of the operation.

Four of the cases had been tapped without antiseptic precautions previous to operation, and of these two died.

The drainage-tube was employed three times.

One of the main arguments prominently brought forward against Listerian ovariectomy some years ago was to the effect that hyperpyrexia due to poisonous absorption of carbolic acid was a not uncommon sequel of the operation. My impression at the time was that the facts advanced in support of this statement were fallacious, and my own experience has since tended to confirm me in this opinion. Thus I find, as the result of a careful examination of my notebooks, that in forty-two of the fifty cases (that is, in 84 per cent.) the fever following operation never exceeded 102° Fahr., the estimated average highest temperature for the number mentioned being exactly 100.8° Fahr.; only in the remaining eight cases (16 per cent.) did the temperature ever exceed 102°, and in this group are included my four fatal cases, of which the details are here given.

The first one (No. 14 in the series) was that of a married woman, 41 years of age, the mother of ten children, who was admitted under my care at the Samaritan Hospital ten weeks after confinement. She was

then very ill, suffering from hectic fever, with a temperature ranging between 101° and 103°. The abdominal tumour, which had rapidly developed since her delivery, was very fixed and tender, suggesting a suppurating cyst with twisted pedicle—a diagnosis subsequently confirmed. The operation proved exceedingly difficult and tedious. The cyst, which contained thirteen pints of putrid pus, was quite rotten and universally adherent, requiring separation inch by inch over its entire surface. The pelvic tissues were all so matted and infiltrated by inflammatory deposit, that it was quite impossible to feel the other ovary, or, indeed, to make out the exact condition of the uterus. A glass drainage-tube was inserted before closing.

The patient's temperature—103° before the operation—had fallen to 100° immediately afterwards; but it at once began to rise rapidly, and within eight hours reached 105°. The ice-cap reduced it to 102° in the course of the next twelve hours; but it never fell below this, and she finally died of well marked septicæmia on the morning of the fourth day after operation.

On looking back to this case, it is evident that my wiser course would have been to content myself with evacuation and drainage of the cyst *in situ*; but, an attempt having been made to separate it from the abdominal parietes, I was induced to go on and get it away. The operation was in no wise an aseptic one. In the first place, the patient was previously suffering from evident septic infection due to the putrid contents of the cyst; and, in addition to this fact, the spray broke down during the removal of the tumour, and was not again available. I do not, however, believe that this misfortune could have, under the circumstances, in any way influenced the final result.

My next case (No. 15) also terminated fatally. A single woman, 54 years of age, had been tapped without antiseptic precautions two months previous to admission. The abdomen was greatly distended, and she was suffering from chronic bronchitis. This operation was also a very tedious and troublesome business, owing to extensive adhesions—abdominal, intestinal, and pelvic. The tumour, which had a very broad and close uterine connection, requiring deep enucleation from the left broad ligament, weighed 47 lbs. after removal.

The patient suffered severely from shock, but rallied pretty quickly, and, for the first forty-eight hours, promised to do well. The chest-symptoms, which at first had abated considerably, then grew more troublesome, and both pulse and temperature began to rise. There was much bronchial irritation, with constant hacking cough; and, in spite of free stimulation, the sputa remained very scanty. On the fourth day, dyspnoea became urgent, and she was evidently fast losing ground; the face dusky, and large rales audible all over the chest. She gradually sank, and died with symptoms of general pulmonary oedema

early on the fifth day—the abdominal condition apparently remaining satisfactory to the last.

In reviewing the case, I cannot but regret that I did not attempt to relieve the chest-complication by aspiration of the tumour a few days before operating. Had I done so, it is possible that the patient might have fought through the lung-complication, and have recovered, always provided that there was no sepsis present, due to the tapping previously to her admission; and of this I cannot feel absolutely certain, as no *post mortem* examination was obtainable.

My third fatal case (No. 31 in the series) was a very unfortunate one. The patient, a married woman, aged 33, was admitted under my care, in the Samaritan Hospital, in May 1883. The tumour, an ordinary multilocular cystoma of the right ovary, was non-adherent, and its removal presented no special difficulty of any kind. Shortly after placing the patient in bed, my suspicions were aroused that something had gone wrong with the sponges; and, on investigation, I discovered that, before being immersed in carbolic lotion for the operation, they had been left exposed during some hours in close proximity to an open jar, containing a putrid specimen (uterus and ovaries), removed *post mortem*, a week previously, from a patient who had died in the hospital of undoubted septicaemia. No one had called my attention to this fact, and I operated in complete ignorance of anything having gone wrong.

The patient showed no signs of the mischief during the first forty-eight hours, with the exception of constant sickness; but, on the third morning, both pulse and temperature suddenly rose, and the ice-cap was at once applied. From that time until her death, which occurred five days later, the case presented all the ordinary features of septicaemia of an infective type.

The following notes of the *post mortem* examination, for which I am indebted to my colleague, Mr. Doran, are quite typical, as far as they go; the lining membrane of the pericardium, heart, and large vessels was not, however, specially examined. "*Thorax*: Both lungs were congested, the bronchial tubes being universally engorged. There was no fluid in the pericardium; the heart-substance appeared healthy; there was no valvular disease; the right cavities were filled with soft dark clot. *Abdomen*: There were no signs of general peritonitis, but the serous membrane was injected in patches near the pelvis. There was no effusion of any kind, with the exception of a drachm or two of blood-stained fluid at the bottom of Douglas's pouch. The intestines, mostly flaccid, were quite free from adhesions, old or recent. The liver was pale and bile-stained, its substance soft and greasy. The spleen appeared fairly normal. Both kidneys showed evidence of recent congestion. The uterus was somewhat enlarged; the ovarian pedicle, about equal in size to a cob-nut, was secured by a double silk ligature, and capped by a very soft dark clot. The left ovary was small, and atrophied."

Looking back, I now very much regret that I did not, on discovering what had occurred, at once re-open the abdomen, and insert a tube. Had this been done, I think it just possible that the patient might have pulled through; at all events, drainage would have afforded her an opportunity of getting rid of the poison gradually, and thus have given her some chance of life.

My fourth and last fatal case (No. 44 in the series) was that of a patient aged 53, the subject of a rapidly increasing abdominal enlargement, first noticed four months previously to my seeing her. She had been twice tapped during that period, the fluid withdrawn being considered as ovarian. At the operation, I found a very soft semi-solid tumour of the left ovary, surrounded by a considerable quantity of free fluid; the liver was greatly enlarged, extending downwards to well below the level of the umbilicus. The tumour, which, on examination after removal, proved to be malignant, was extracted with some difficulty, owing to its size. A drainage-tube was inserted before closing.

The patient, who was suffering from extensive anasarca, and in all ways a most unfavourable subject for treatment, did badly from the first. There was never any great rise of temperature, but the pulse-rate mounted steadily from the evening of the operation. In forty-eight hours, she became semi-comatose, with muttering delirium, and death occurred on the third day, apparently from exhaustion. No *post mortem* examination was obtainable.

Now, in reviewing the causes of the fatal termination of these four operations, from the stand-point of Listerism, I cannot myself feel that they in any way tend to diminish my faith in the efficacy of the method as applied to ovariectomy. Two of the cases died of undoubted septicaemia; but in both my antiseptic arrangements were at fault—in the one instance, owing to failure of the spray; and in the other, from septic infection of the sponges previous to the operation. Both the remaining cases had been tapped, without antiseptic precautions, before

coming under my care; and, although in both there were other causes than septicaemia sufficient to account for the fatal result, yet, admitting the possible existence of sepsis, its origin might well, in my opinion, have dated from these previousappings.

It now only remains for me to say a few words respecting the cases included in my second table (nine in number), all of which recovered, with the exception of one of the incomplete ovariectomies.

The tumour in this instance was of enormous size, having developed very rapidly in the course of the previous nine months. The patient, who had been tapped no fewer than six times during that period, was extremely feeble, and so reduced by constant vomiting that it was evident she had not many days to live, unless something were done for her relief. The operation, in these circumstances, was undertaken only at the earnest solicitation of herself and her friends. Adhesions were universal, and, although the main mass of the tumour was removed, a considerable portion of it, closely involving the splenic flexure of the colon and the neighbouring parts, was left perforce, owing to the alarming collapse of the patient. It was found impossible to revive her, and she died before the operation could be completed.

The details given in the table sufficiently explain the nature of the remaining eight cases; and I will here allude specially only to one of them—the last of the three exploratory incisions—because it serves to illustrate one of the many risks incurred through tapping ovarian cysts. The patient in question had been tapped four times in the course of eight months previously to operation. The abdominal cavity was found full of free fluid, due to masses of papilloma, which had sprouted through a very evident tapping-puncture in the wall of a small ovarian cystoma. The case was a hopeless one for further interference, as the pelvis was quite blocked by the growth, and the parietal peritoneum was extensively infected. I accordingly sponged out dry, and closed the incision. The patient returned home at the end of three weeks, but the fluid was then fast reaccumulating; and I have since learnt that she is now as large as she was before the operation.

ON THE PHYSIOLOGICAL AND CURATIVE INFLUENCE OF THE SALINE WATERS OF DROITWICH IN CERTAIN FORMS OF DISEASE.¹

By S. S. RODEN, M.D.,

President of the Worcestershire and Herefordshire Branch.

MEETING as we do to-day, on the site of the new baths of Malvern, it will be not inappropriate for me to address to you a few practical remarks on the physiological effects of the hot brine-baths upon the human system, and their bearing upon the relief and cure of various diseases.

I must preface my observations by stating that the brine is pumped up from the earth in a perfectly cold state; that it has a high density, and contains from 38 to 42 per cent. of saline matter; the latter percentage being the point of saturation; and at this strength, each gallon contains 22,212 grains; of this, 21,461 grains are chloride of sodium, 350 grains sulphate of soda, 300 grains sulphate of lime, and about 100 grains chloride of magnesium, with traces of iodine and bromine.

This brine, as may readily be supposed, is too strong to be swallowed undiluted; but, in the proportion of one part to six of common water, it can be easily taken. Hitherto, however, its internal administration has not been adopted.

For its administration in baths, the brine has to be conveyed through pipes in a cold state, being mixed with boiling water in, or immediately before passing into, the bath itself, and the temperature made exact by a judicious blending of hot and cold water with the brine. Any attempt to heat the brine itself would speedily cause precipitation of the salt, and clogging up of the pipes and valves. The brine and water are mixed in about equal proportions, giving the bath a density of 1080, or 1100.

The temperature varies from 84° to 104° Fahr., according to the effect required to be produced, and the constitution and temperament of the patient.

The hot bath proper ranges from 96° to 104° Fahr. The patient remains immersed from ten to thirty minutes. The sensation while in the bath is almost invariably one of great comfort, all pain being lulled for the time. As to the amount of perspiration that takes place in the bath, there is, of course, no means of judging further than the inference to be drawn from what is visible on the face and forehead. On emerging from the bath, the patient is enveloped in a sheet made

¹ Read at a meeting of the Worcestershire and Herefordshire Branch.