wool; left this four days; then removed the sutures. Union by first intention up to opening left for the drain. No fever; no sign of any putrefactive process. Drain-opening now closed."

I fear, gentlemen, my paper has been somewhat long and full of detail; but I hope the importance of the subject will warrant my occupying your attention for this length. At present, I fear my instrument is somewhat cumbersome, and it certainly occupies one person to work the bellows; but if, in an institution such as a large hospital, the hydraulic bellows used to work the organ, or the water-power used for the lift, could be made available, it would be an easy matter to have a pipe to each ward and to the operating-room, which would convey the desired current, ready to be attached to the machine wherever it might be wanted.

STATISTICS OF TEN YEARS' SURGERY AT THE WEST BROMWICH HOSPITAL.

Read in the Section of Surgery, at the Annual Meeting of the British Medical Association, at Worcester, August 1882.

By HENRY LANGLEY BROWNE, F.R.C.S.E., Surgeon to the Hospital.

THE West Bromwich Hospital has been open for ten years. It has hitherto contained twenty-five beds, but is now enlarged to make up fifty.

From 1872 to 1882, those twenty-five beds have been occupied by 2,297 patients, and the mean average of stay has been twenty-six days. The total number of cases of accident has been 1,406, of which 581 have been cases of fracture, and of these 133 have been compound fracture.

There have been 136 major operations, including amputations, 75; lithotomy, 27; herniotomy, 8; ligature of large arteries, 4; excision of spleen, 1; excision of joints, mamma, etc., 20; ovariectomy, 1; total, 136. A case of ligature of the subclavian and the carotid is still living.

On analysis of the amputations, one arrives at some very remarkable and interesting facts. They can be divided into two periods of five years each, during the first of which (1872 to 1877) amputations were performed not antiseptically; and during the latter (1877 to 1882), in which strict antiseptic precautions have been used. A comparison of the different results of the two periods may be made from the following tables.

Summary of Amputations from 1872 to 1877.

	No. of Cases.	Recovered.	Died.
Thigh	9	5	4
Leg	12	12	0
Shoulder-joint	2	2	0
Arm	9	8	1
Forearm	4	4	0
Both thighs	1	0	1
Thigh and shoulder	1	0	1
	38	31	7

This gives a mortality-rate per cent. of 18.42; but, omitting the double amputations, the death-rate of which Mr. Burdett states to be 80 per cent., it is reduced to 13.8—the average of sixty-one cottage hospitals being 17. The mean average stay in hospital was fifty-seven days. There were, besides, 25 compound fractures not requiring amputation, with a mean average stay in hospital of forty-six days.

Now, let us proceed to the second period.

Summary of Amputations from 1877 to 1882.

	No. of Cases.	Recovered.	Died.
Hip-joint	1	1	0
Thigh	6	6	0
Leg	12	11	1
Shoulder-joint	2	2	0
Arm	4	4	0
Forearm	10	10	0
Double of thigh and arm	1	1	0
Double of leg and forearm	1	1	0
	37	36	1

This gives a mortality-rate of 2.7 per cent. only. The average residence in hospital was forty-one days. There were 33 other cases of compound fracture, with an average residence of thirty-three days each.

Can anything speak more strongly than the above figures of the advantages of Listerism in general surgery in hospitals? It is true that the death-rate of the first five years was very low, notwithstanding

the fact that, towards the end of that period, there had been a few cases of erysipelas in the wards; but there have been no more under the happier rule of antiseptics.

Much has often been said about the increased cost of Lister's treatment; but, if it will reduce the average stay in hospital of amputations from fifty-seven to forty-one days, and of compound fractures from forty-six to thirty-three days, surely it must be much the most economical.

Last year, having seen so much of the splendid results of abdominal surgery, in Mr. Lawson Tait's practice, without antiseptics—results attributable in a great measure to absolute care in cleanliness—I was anxious to see whether the same results could be obtained in general surgery; and therefore made the following experiments.

A girl, aged 16, came into the hospital with acute suppuration of both hip-joints. The left joint was freely incised under the spray, washed out with carbolic acid, and drained and dressed antiseptically. When the dressings were removed, the wound had closed, and there was no further suppuration. At the same time, the right hip-joint was freely opened without the spray, was washed out with warm water only, drained, and dressed with dry dressings. It continued to suppurate for twenty weeks, and there is still a small sinus unhealed.

Again, after Ogston's operation for knock-knee had been several times successfully performed antiseptically, in one case I sawed off the internal condyle without antiseptics—of course taking every precaution to have clean instruments. The result was, acute inflammation and ankylosis of the joint.

There is only one more remark to be made with regard to the operations; and that refers to the cases of operation for strangulated hernia. In every case, although operated upon as soon as possible after admission to hospital, the bowel was either gangrenous, or approaching that state—consequently, seven cases out of eight died. This will continue to happen until cases are sent in at the earliest stage, and until the folly of waiting for symptoms of obstruction, and the use of any "taxis" whatever, are given up altogether. Surely, if a man who has been in the habit of returning his own hernia continually finds that he cannot do so, it would be infinitely better to operate at once than run the risk of "taxis" and delay. The invariable success of this plan in private practice proves how superior it is.

In every case possible, compound fractures were treated by Mr. Gamgee's method.

REPORT OF A SUCCESSFUL CASE OF OPERATION FOR STRANGULATED INGUINAL HERNIA AT SEA.

By ULICK A. DALY, B.A., M.B.T.C.E.,
Surgeon Peninsular and Oriental Steamship *Kohilla*.

AN operation for the relief of a strangulated hernia is always a cause of considerable anxiety to a surgeon; not, indeed, on account of any great danger in the operation itself, but of the exceedingly dangerous condition that demands it. The numerous difficulties one has to contend with in carrying out any surgical operation at sea must, I fancy, be obvious to all, though none but those who have had to do so can fully appreciate the many unavoidable impediments to surgery on board ship. Want of a proper place to operate in is one of the chief difficulties. In this case, the place chosen was a clear space about six feet square, on the main deck, opposite a large gangway-port, in order to obtain the best supply of light. In the centre I had the carpenter's bench placed, which was the best operating table to be had. I then had a canvas screen stretched from one bulk-head to the other, thus cutting this space off from the rest of the deck. This formed our operating theatre.

With these few preparatory remarks, I will now give a brief account of the case.

The patient was a negro, a native of Zanzibar, about twenty-six years of age. He was a very strongly built man, of great muscular development, and had been for some years a coal-trimmer on board different Peninsular and Oriental steamers. By his own account, he had been ruptured for some years, but it gave him very little trouble. About two years ago, he said, the rupture came down, and was returned without difficulty by the surgeon of the ship in which he then was. Personally I knew nothing of his previous history, as he did not belong to our crew, but was only taken on board as a passenger at Penang. He came on board the steamship *Kohilla* on September 15th, 1880, apparently in good health. The following morning, at 10 A.M., he was carried to my surgery in great agony. On examination, I found that he was suffering from an immense scrotal hernia, with evident signs of strangulation. As nearly as I could learn, the hernia had been down for about

eighteen hours; but, with the usual native stupidity, he did not seek assistance until the pain grew unbearable. In this case, I was most fortunately situated in being able to have the benefit of a consultation with so eminent a surgeon as Surgeon-General W. A. Mackinnon, C.B., Army Medical Department, who was then on his way to Malta from Hong Kong. The patient was at once placed in a hot bath, and gentle taxis applied for a few minutes, but, as we anticipated, without success. The symptoms becoming more urgent, he was placed under the influence of chloroform, and the taxis again unsuccessfully applied. Everything being ready, the operation was commenced without delay.

The usual incision was made over the neck of the sac, and the soft parts carefully dissected down to the peritoneum. The seat of stricture was then felt for, and discovered by Surgeon-General Mackinnon to be near the internal ring, and was carefully divided by him. At this stage, it was quite evident that the constriction external to the sac was not the sole cause of strangulation, but that it was in a great measure due to the neck of the sac itself, and the condition of its contents. This being the case, it was clear that the only chance to effect safe reduction was by opening the sac, and satisfying ourselves as to the condition of its contents. On opening the sac, we found that it contained about two feet of intestine. There was a good deal of serous effusion into the sac; the bowel was enormously distended with flatus, greatly congested, and in some places of a deep purple colour—though the natural glistening aspect of the surface was still to be observed. So greatly was the bowel distended, that reduction by gentle manipulation could not be effected. Such being the case, Surgeon-General Mackinnon suggested puncturing the peritoneal coat of the intestine with a capillary trocar. This proved very effectual, and the entire hernia was easily returned. The operation was then completed, and the wound carefully brought together by sutures. Carbolic silk was used for the deeper ones, and for tying one or two vessels; silver wire for the external wound. A compress of several layers of lint, saturated with carbolic lotion, was then applied, and over that a layer of cotton-wool—the whole being kept *in situ* by a spica bandage. The patient was then removed to a cabin that I previously had prepared for him. I administered a full dose of opium, which procured him some sound sleep. At six o'clock that evening, his temperature was 100° Fahr., and he said that he felt quite easy and free from pain.

I may mention here that the temperature of the cabin in which he was averaged between 86° and 90°. This high temperature was due to having the ports shut, as we were going against a head sea. He passed a quiet night, complained of very little pain, and slept a good deal.

Space will not permit me to give an account in detail of the progress of this case towards convalescence. Suffice it to say, that he made a wonderfully rapid recovery. On one occasion only did his temperature exceed 100° Fahr., this increase occurring on the fifth day after the operation, and then it only reached 100.5°. With this slight rise in temperature, there was also a sudden increase in the abdominal pains. As, up to this, there had been no indication of any discharge from the wound, the dressings had not been disturbed. These unfavourable symptoms now coming on, we thought it advisable to satisfy ourselves as to the state of the wound: we therefore removed the dressings, and were very pleased to find that primary union had taken place—there not being the slightest trace of any purulent discharge. The silver sutures were then removed, and the carbolic dressings renewed. Hot turpentine stupes were applied to the abdomen, and a full dose of opium administered. By these means the pain was soon allayed, and that evening his temperature was down to normal. The next morning, there was a decided improvement in all the symptoms, and our fears of peritonitis were quite allayed. Up to this, there had been no action of the bowels; but now he felt that a motion would make him feel easier. A small dose of castor-oil was administered, which acted in a couple of hours, and had a very beneficial effect.

We arrived at Point de Galle that evening; and the next morning I had him carefully removed to the Civil Hospital, to complete his convalescence, which was now fairly established. Surgeon-General Mackinnon had a letter afterwards from the colonial surgeon at Galle, informing him that the patient had been discharged from hospital in three weeks, perfectly cured; and he was of opinion that a radical cure had been effected.

On my return to Galle, about three months afterwards, I heard that he had resumed his old work as a coal-trimmer on board one of the Peninsular and Oriental ships.

My object in making this case public is twofold. 1. The enormous size of the hernia, the amount of surgical interference that was necessary under the circumstances, and the unusual rapidity of the recovery, were remarkable. 2. I think it is a striking example of the unsusceptibility to inflammatory changes that exists in the negro and Indian races; and which, I fancy, is in a great measure due to the un-

stimulating nature of their dietary. I could mention several other cases in which wounds in these men have healed with a rapidity that surprised me, especially as circumstances rendered it impossible properly to carry out antiseptic measures.

In conclusion, I must express my thanks to Surgeon-General Mackinnon, for his kind and valuable assistance in the operation; and it is only fair to say, that the success achieved in this case was in a great measure due to his skill.

A CASE OF PORRO'S OPERATION: RECOVERY.

By T. SAVAGE, M.D., M.R.C.P.Lond., F.R.C.S.Eng.,

Senior Surgeon to the Birmingham Hospital for Women; Consulting Obstetric Surgeon to the Kidderminster Infirmary.

DR. CLEMENT DUKES of Rugby sent for me on July 12th, 1882, to see with him a patient whom he had been attending, and had seen a few hours previously in consultation with Dr. Heslop of Birmingham. The case was an urgent one, and it was considered that it would be necessary to give some relief of a surgical nature, and that without much delay. The following are the notes which I took at the time. Mrs. H., aged 25, was married on January 4th, 1882. Her catamenial history before marriage was normal; she had three periods after marriage, the last one ending on March 18th. Soon after this, she had vomiting and constipation.

She first consulted Dr. Dukes on June 30th, having pain on lying down, and a slight blood-discharge. He examined her the next day, and found a tumour on the right side of the abdomen, of pyramidal shape, and most prominent between the umbilicus and the iliac crest. It was very hard, dull on percussion, and non-fluctuant. It extended also well over into the left side. Neither the patient nor her husband had noticed any enlargement until shortly after menstruation had ceased in March; and they then thought it was to be attributed to pregnancy. She had had no rigor, nor rise in temperature, but had been a good deal troubled with painful micturition.

When I saw her, I found the condition as above described. Her face was flushed; temperature normal; pulse 108. The tongue was white (aphthous?). She had been taking morphia for the pain, which had been very severe, and was increasing in intensity. She had no rest nor sleep, and for some days had been almost constantly vomiting. Her face had the aspect of much suffering, and she was becoming thinner daily. The tumour was very hard, and rose to the level of the umbilicus. It was very prominent on the right side, having almost the appearance of an abscess that wanted to be opened. It was dull and non-fluctuant. It gradually flattened over on to the left side. The prominent part of the tumour was very tender indeed, especially on its right side. Both flanks were resonant; and the tension of the abdominal wall was most extreme. Through the vagina, the cervix was felt very high up on the left, soft, and a little open. On the right side, through the vaginal roof, the swelling projected downwards, and was felt to be in direct relation with the abdominal tumour; and it was quite immovable. The uterus appeared to be quite distinct from the tumour; there was a sulcus between it and the cervix, and pressure from above did not affect the cervix.

In considering the diagnosis, hæmatocele and pelvic abscess were excluded; but it seemed likely that it might be an extra-uterine gestation, a myoma, or an ovarian tumour with the addition of intra-uterine gestation. It was quite clear that relief of some kind must be afforded to the patient without delay; and one of two courses seemed open for that purpose. The first was, to induce abortion; this would relieve the tension, and therefore the pain, though only to a very slight extent, not enough to be of much service, and would still leave the tumour, the cause of the trouble, untouched. The operation itself would also not be unattended with risk. The second course would be to make an exploratory incision, with a view, if possible, of removing the tumour. After taking into account the hardness and the rapid growth of the swelling, as well as the intense pain of the last fortnight, the inability to take food, and the emaciation, it was agreed to recommend an abdominal section, to which both the patient and her husband assented, after having had explained to them the objects and risks of the operation.

On the following morning therefore, Dr. Dukes giving ether, I made an incision nine inches long, the upper portion extending nearly two inches above the umbilicus. The tumour was found to be a large solid fibro-myoma growing out, and forming part of the right side of the uterus. The cavity of the uterus was found to contain a foetus, and was pushed upwards and to the left. The right ovary and Fallopian tube were in front of the tumour, and almost black from compression between it and the abdominal wall.