no malignancy, the operation may be undertaken with hopes of improvement; in malignant cases, at this stage, it should not be urged.

5. In the advanced stage of complete obstruction, no matter what the cause be, the operation should not be undertaken, for the patient, if he survive the immediate shock from it, cannot live more than a few days, that are passed in increased discomfort.

Regarding the mode of performing the operation, surgeons differ, 1, as to the course of the incision; 2, as to the mode of attaching the stomach to the abdominal wall; 3, as to the time and mode of forming the fistulous opening.

Regarding the first, I do not think it makes much difference how the incision is made, provided it is just large enough, and so placed as to allow of the stomach being seized and easily drawn through the wound.

Theoretically, an improvised sphincter to guard the fistulous opening is a very desirable thing, but if the vertical incision renders the operation more tedious or difficult, I question if the practical advantages supposed to be gained by it will make up for that. The usual incision, and the one which I have practised, is the oblique, commencing a little below, and to the left side of, the tip of the ensiform cartilage. By this I believe the stomach is best exposed, and most easily secured. In carrying out this first step of the operation, the mistake is generally made of placing the line of incision too near the border of the costal cartilages. The finger's breadth that is usually recommended, looks, before operation, just sufficient for the purpose; but after the incision is made the upper flap is retracted and gets tucked up close to the ribs, rendering it impossible to pass the outer ring of sutures, should such be the intention of the surgeon. The incision should be begun about an inch below the tip of the ensiform cartilage, a little to the left of the middle line, and extended obliquely downwards and outwards, keeping at least fully two inches from the border of the costal cartilages. The minor details of this step of the operation I may pass over. There are also different methods practised of attaching the stomach to the abdominal wall. The ordinary one, by the single ring of sutures, although simple and expeditious, is not a secure one. There is great liability for the weak attachment to give way at points, and in this way subject the patient to the risk of extravasation into the peritoneal cavity.

I have seen Professor Dittel, of Vienna, practise a method that I thought a very good one. After incising the abdominal wall, he attached the parietal peritoneum to the skin by numerous points of fine suture. By means of a stout curved needle, in a needle-holder, he passed a circle of sutures, forming broad loops, through the outer circle of the stomach, and then through the whole thickness of the abdominal wall, about half an inch from the edge of the incision. By this means he brought a broad band of visceral and parietal peritoneum in contact. Between the large sutures he passed a number of fine ones, and in this way secured a close attachment of the stomach to the abdominal wall; this completely occluded the peritoneal cavity, and removed any risk of the passage of fluid into it. Should it be thought desirable to establish immediately a fistulous opening in the stomach, I think, however, the method practised by Verneuil and Howse, has most to recommend it; by it a broad band of visceral is brought into close and accurate contact with a similar one of the parietal peritoneum. This is accomplished by passing an inner and an outer circle of sutures, and secures accurate adaptation of the stomach to the abdominal wall.

The means recommended to accomplish this, namely, by passing a Liston's needle first through the abdominal wall, then through the outer coats of the stomach, then, again, through the wall of the abdomen, is not at all an easy matter to accomplish, especially when the tissues are thick and dense. A better way, to my mind, would be to have a suture, armed at one end with a curved needle, at the other with a straight one; the curved one should be passed, by means of a needle-holder, through the outer coats of the stomach, and then through the abdominal wall, about an inch from the edge of the wound; the straight through the wall nearer the incision; and the suture then tied in the usual manner over some suitable resisting medium. I believe this step of the operation could be accomplished in this way with both greater accuracy and ease.

As regards the manner of forming the fistulous opening in the stomach, I agree with those who advocate the small one. In the last case I operated on, I found the following method of making the opening an admirable one. While the exposed portion of the stomach was held well forward, I passed a tenotomy-knife obliquely through its coats, making a small opening. I then slipped along the blade of the knife, as a director, an ordinary silver probe, bent to a right angle, about an inch from the point. I next removed the knife, and intro-

duced another probe, similarly bent. Then, finding out the course of the muscular fibres, and pulling at right angles to them, I thus secured an opening that easily admitted a No. 9 catheter. After food was administered, and the catheter withdrawn, the opening closed, and effectually prevented any regurgitation. For the first three or four occasions, it may be necessary to use the probes till the fistulous opening becomes sufficiently patent to allow the passage of the catheter. The little fluid, not more than a few drops, that escapes at the moment of the withdrawal of the point of the catheter from the wound, can be safely guarded against by a little roll of absorbent wool, placed round the opening. I have seen the thermo-cautery used for making the fistulous opening; and those who fear hæmorrhage from the stomach-wall, will find it a safe and effectual means.

The time for opening the stomach should vary with the requirements of each case; in some, it should be done immediately; in others, the full period of four or five days may be allowed to elapse, as recommended by Mr. Howse.

In cases that are very much reduced and feeble through inanition, and especially in malignant cases, I think it is most injurious to defer the final stage, as the increased depression from want of food, aggravated by the shock of the operation, subjects the patient to far greater risk than the chance of setting up inflammation from extravasation into the peritoneal cavity. After a carefully conducted operation, such as those practised by Dittel and Howse, the risk is almost *nil*. In non-malignant cases, where the operation is likely to result in a permanent benefit to the patient, and in the very early stages of malignant obstruction, Howse's method of dividing the operation into two stages is the more preferable, as by it a more permanent and accurate attachment is more likely to be secured all round the fistula; besides, the patient is in a better condition to be subjected to such treatment.

As the result of the great strides lately made in the field of abdominal surgery, gastrostomy holds a prominent position. Like all novel operations that hold out even the most slender prospects of success in what has hitherto proved a most fatal disease, it has been too freely practised. Its indiscriminate application may possibly endanger its usefulness as a means of treating suitable cases; for most medical men, seeing the high rate of mortality attendant on the operation as at present practised, may be deterred from recommending it in suitable cases. Hence it is the duty of the surgeon to exercise a wise discretion in the selection of the cases he submits to the operation; and, while he is firm and decided in recommending early operative interference where he finds palliative measures not likely to succeed, let him be equally firm in declining to operate in extreme conditions. Notwithstanding the importunities of patient or friends, I do not think I can more fittingly close my remarks than by quoting the words of Professor Billroth on a kindred subject. He says: "It is now the task of the present day to recognise and define still more clearly the class of cases in which surgical measures are of use. If we have here and there pushed the limits of surgical benevolence somewhat too widely, we may, without discredit, retract them a little as our experience extends, but at the same time fix them upon a still firmer basis. If the surgeons of to-day will not fancy themselves to be such all-powerful fellows, but will be content to follow with modesty the example of their brethren the physicians, indefatigably investigating and combining, we may yet succeed in bringing cure, or at least temporary relief of their troubles, to still more unfortunate sufferers. This is, and always will be, the ultimate aim of our common scientific and humane endeavours, and the real end and object of our noble calling."

OBSTRUCTION OF THE OESOPHAGUS TREATED BY GASTROTOMY.

Read in the Section of Surgery.

By C. MACNAMARA, F.R.C.S.,
Surgeon to the Westminster Hospital.

J. E., a tailor, aged 51, married, was admitted into the Westminster Hospital on May 5th, 1884. The patient stated that she had been unable to swallow anything during three weeks before coming into hospital. She had had constant pain in the back of her chest, and had fallen off very much in flesh.

The patient had had no serious illness before that from which she now suffered. She had been pregnant five times, and had had two miscarriages. Many years ago she had a rash over her skin and a sore throat, with falling off of her hair. Her family history was good, giving no indication of hereditary disease. Three years ago the patient first found that she had some difficulty in swallowing solid food.

About six months ago the difficulty appeared to increase suddenly, so that it was only after great exertion that she could manage to get anything into her stomach; after she had taken food, it was vomited up in the course of ten minutes or so. All attempts to take solid food were given up some time ago, and, during the last three weeks, she could not even take the liquids, and had been fed entirely by means of nutrient enemata.

On admission into the Westminster Hospital, the patient was greatly emaciated, with a sallow jaundiced skin. She complained of deep-seated pain in her chest and throat. There was increase of pain on deep pressure over the supra-sternal notch. No tumour could be felt in the neck, or any other part of the body. The heart-sounds are clear but weak; there was no dyspnoea or alteration in the voice. The patient's lung-sounds are healthy; but, on deep inspiration, the breath-sounds were heard less clearly over the back of the right than over the left side. The abdomen appeared normal, the large intestine containing numerous hard lumps of feces, which disappeared after a large enema.

An attempt was made to pass œsophageal bougies, but they were stopped at a point about twelve inches beyond the lips, and some bloody mucus was found attached to the end of the bougie when it was withdrawn. As the patient was rapidly failing, it was determined by Dr. H. Donkin and myself that gastrotomy should be performed as soon as possible.

On May 24th, I made a curved incision about three inches long, from the median line, parallel to the border of the ribs. After the bleeding had been arrested, the peritoneal cavity was opened to the extent of the wound, which subsequently was extended by means of curved scissors. The stomach was seen beneath the liver, and a fold of its anterior surface was seized and drawn through the wound. This fold of the stomach was then transfixed by a needle and thick silver wire; this latter was secured to the skin of the chest so as to retain the fold of the stomach outside the wound. The edges of the wound in the abdominal walls were then brought together with sutures, excepting that part of them through which the fold of the stomach protruded; this fold was about the size of half a walnut.

The stomach was not stitched to the walls of the abdomen, but, in order to prevent the traction on the silver wire cutting through it, a harelip pin was thrust through the protruding fold of the stomach. The pin transfixed the fold, and rested, on either side of it, against the chest and abdominal walls. A small fold of lint, smeared with the oxide of zinc ointment, was laid over the wound. No antiseptics were employed; in fact, no dressing besides that referred to; and the patient's temperature, from the time of the operation, never rose beyond the normal point.

On the fourth day after the operation, the silver wire loop was removed, but the harelip-pin was retained. On the seventh day, a very small opening was made through the protruding fold of the stomach into its cavity, and through this opening a No. 7 elastic catheter was passed. The harelip-pin was not removed until the twelfth day after the operation. After that time the patient was entirely fed through the tube which had been introduced into her stomach. At the end of a month she was able to get up and move about the ward, a small fistulous opening remaining through which a properly applied tube was fitted, and through which she was able to inject her food. She passed natural motions, and her health had so much improved that she passed from my hands into those of my colleague, Dr. Donkin, under whose care she had been when admitted into the hospital.

Dr. EDWYN ANDREW (Shrewsbury) said that the operation was generally too long delayed, from the opposition of patients, which not only caused great debility, but prevented enemata from having their full nutritious effect, as it was known, in starvation, that the lacteals had much diminished action. In the operation, the incision should be rather far from than near to the ribs, owing to the contraction of the muscles which took place, drawing the peritoneum under the ribs. As the colon had been opened by good operators, instead of the stomach, he would mention a very ready test; that was, that the external coats were much thicker over the stomach, and might be readily pinched up by the finger and thumb; so that, if they were once felt in the dead body, this mistake could not occur. In a case operated on, four sutures were introduced in connection with the peritoneum, and one suture to show the central part of the stomach exposed, and pointing out where an opening could be safely made; as, owing to the contraction which took place, the position of parts became much changed. Although death occurred in this case, he considered it due to not having completed the second part of the operation, from fear that the adhesions were not sufficiently strong; and the knowledge gained would induce him to urge an operation in a similar case.

Dr. ARNISON (Newcastle-on-Tyne) said his personal experience had been limited to one case; but he had seen six or seven others in the hands of his colleagues in the Newcastle-on-Tyne Infirmary. All were sooner or later fatal, with the exception of the last, under the care of Mr. Page. In that case, in which the operation was done a few weeks ago, the patient survived in an improved condition. The stricture was believed to be non-malignant. The patient was not much reduced at the time of operating; and the incision was made through the thickness and in the direction of the fibres of the rectus muscle, with the view of getting a kind of sphincter-action.

OAKUM AS A SURGICAL DRESSING.

Read in the Section of Surgery.

By ROBERT ESLER, M.D., Belfast.

OAKUM is made from old ship's rigging which has been soaked in tar, and then reduced to its original state of flax or hemp. This is done to some extent by the sailor during his leisure time, but more extensively in gaols, workhouses, and penitentiaries, where oakum-picking is imposed upon the inmates as an occupation of profit.

During the American war, oakum was very extensively employed in the field-hospitals as a surgical dressing. The first account I can find of its use in this country is from the *Lancet* of 1870. At that time it was used in Great Ormond Street Children's Hospital, and in St. George's Hospital. During 1870, Professor Lister put the antiseptic qualities of oakum to the test. His observations are recorded in the *BRITISH MEDICAL JOURNAL* of January, 1871.

About eight years ago, I commenced to use this substance in the Children's Hospital; and in October, 1877, published my observations in the *Dublin Journal of Medical Science*. Since that time, oakum has been in use in all the hospitals in Belfast, and at the present time is considered by some of us as absolutely indispensable. In the old Charitable Society's hospital, I have been using it in the following class of cases: burns; erysipelas; ulcers; abscesses; and vaginal displacements; and in this substance I think we have a better dressing than in any other ready-made agent we possess. One of its most obvious advantages is that it effectually keeps down any offensive odour. The serum from a wound is drained as it is discharged, and flows freely into this porous substance; and on opening the dressing the pleasant tarry smell is a great contrast to the offensive odour which is common in connection with dressings of surgeons' lint.

In amputations, it forms a soft and comfortable pad for the stump, and is a good vehicle for the application of carbolic acid spirit lotion or other antiseptic. In the treatment of abscesses, it takes the place of a poultice by dipping it in warm water and covering with waterproof tissue; and its application, after opening an abscess, permits the easy discharge of pus, and is certainly conducive to quick healing. In all cases of erysipelas, I envelop the part in oakum, and am so satisfied with the result, topically, that I do not at present seek any other agent.

As a dressing for burns and scalds, I look upon oakum as invaluable. It may generally be applied to the granulating surface with impunity, and is more easily detached than almost any other dressing. I account for the fact in this way. When a fibre of dry cotton is placed under the microscope alongside a fibre of linen, you will perceive that the cotton is round and smooth, while the linen is sharp and angular; but, on the application of water, their behaviour is different. The cotton-fibre is found to twist in a spiral manner, while the linen fibre remains unmoved. It is a popular theory that cotton is not so good a dressing as linen; and this hygroscopic difference may account to a large extent for the difference in their behaviour when applied to moist surfaces, and the ease with which linen can be removed, as compared with cotton.

In uterine and vaginal affections, oakum can be turned to good account. The healthy effect of the application of this tarry substance, when applied to the mucous surface of the vagina, is most marked. Unhealthy discharges are absorbed, and a tonic effect produced. In cases of prolapse and other displacements of the uterus, when it is difficult or impossible to get pessaries to relieve, you can secure twenty-four hours' respite to your patient by filling the vagina with oakum; and, by dipping your first plug in glycerine, you gain immensely in cases of subinvolution, from the quantity of fluid extracted from the parts.

To briefly sum up. Oakum is a clean, handy, healthy, and cheap dressing. It is easy of application, and I think it is antiseptic in the sense of forming a barrier to the ingress of germ-life to the part to which it is applied. Tar is in itself a good wholesome agent, a substance of