on the date of each of my visits, by Dr. Williamson, the late, and Dr. Frazer, the present, resident physician.

"The right thorax is much contracted, and the apex-beat is displaced upwards and inwards under the left margin of the sternum. There are two fistulous openings on the anterior aspect of the right side, one three inches from the middle line of the sternum between the third and fourth ribs, the other three and a half inches from the mesial line between the fifth and sixth ribs. In each fistula there is a drainage-tube four inches in length, and from both openings there is discharged an ounce and a half of healthy pus in twenty-four hours. No respiration can be detected in the right lung, except from the area surrounding the fistula. There has been great loss of flesh; the weight being 8 st. 5½ lbs. The pulse is 84, respirations 25; and the temperature normal. The fingers are remarkably "clubbed", and the patient avers they had been even more so in the course of his illness. There is very little cough or expectoration. The appetite is good, the tongue clean, the bowels regular, and he sleeps well."

No communication was found to exist between the two fistulae; and ten inches of fresh drainage-tube were easily inserted into each, through which a greatly increased flow of matter was discharged. The surface was dressed with tenax, and a broad bandage firmly applied. He was ordered to have thirty minims of tincture of sesquichloride of iron in water three times a day, with full diet.

May 24th. The discharge is more abundant. He feels faint and weak, for which a cordial draught is ordered.

June 3rd. The discharge is decreasing. There is now no cough. He has a good appetite. Pulse 102, fuller.

June 7th. His weight is 8 st. 13½ lbs.; a gain of 8 lbs.

June 13th. He is ordered to inject the fistula daily with solution of boracic acid.

June 18th. He complains of debility. Ten minims of spirit of chloroform are ordered to be added to each dose of the iron mixture.

June 21st. His weight is 8 st. 12 lbs.

June 23rd. Much excoriation of the skin round the parietal orifices is noticed for first time. The part is to be dressed with a weak carbolic acid solution in linseed-meal poultice.

July 3rd. He is better; weight 8 st. 10¾ lbs. The medicine is now changed to half a drachm of syrup of iodide of iron three times a day.

July 11th. He is doing very well. The excoriation surrounding the fistulae has completely disappeared.

July 18th. The presence of an oesophageal fistula through the upper parietal orifice, although suspected, is for the first time demonstrated. Food, both fluid and solid, when "gulped", that is, swallowed in larger quantities than can readily pass through the cardiac orifice of the stomach, and so distending the oesophagus, pass through the breach in its wall. In this way, porter and milk, for instance, can be at once recognised, as also minute portions of solid food, which are often long delayed in transit, as is determined experimentally with the seeds of preserved fruit, and such like.

July 25th. The discharge is very profuse. A weak watery solution of iodine, in place of the solution of boracic acid, was injected. There is increased temperature with reduced discharge.

August 1st. The iodine injection was repeated with similar effect.

August 2nd. His weight was 8 st. 9¾ lbs.

August 5th. The iodine injection is repeated.

August 8th. He is not so well; complains of weakness. His appetite is bad. He is ordered De Jongh's cod-liver oil in a vinous solution of chiretta, and the following mixture:

R Acidi hydrochlorici dil. ʒiij; tincturae ferri muriatis ʒvj; liquor. hydrargyri perchloridi ad ʒiv. M. One drachm in a wine-glassful of water three times daily.

August 9th. He is very weak; has had an attack of vomiting.

August 19th. His general condition is now much improved. There is increased discharge from the upper fistula; both, however, are patent.

August 23rd. There has been sharp pain round the upper opening, relieved by an opiate poultice.

August 29th. The discharge is very heavy and fetid. He is ordered mixture of turpentine and senega.

September 5th. Discharge diminished. Fifteen minims of spirit of juniper were added to each dose of the turpentine mixture, on account of slight puffiness of the ankles.

September 7th. Still improving. The drainage-tube passes for the first time from the inferior to the upper opening.

September 11th. He is ordered two drachms of Parrish's syrup of phosphate of iron three times a day.

September 13th. Carbolic acid solution is ordered to be used for injection. His weight is 7 st. 11¼ lbs.

September 20th. He leaves the hospital at the urgent desire of his

friends to return home. The stomach is settled; his appetite is good; and the discharge is very much diminished in quantity and healthy in character.

We were subsequently informed that death occurred "very suddenly", probably from embolism of the pulmonary artery, on October 27th.

The remarkable variation in weight is not the least singular feature in this case, there being a gain at one period of eight pounds, and, at the date of discharge from the hospital, a total loss of sixteen and a half pounds. The general health at the same time improved, and there was only temporary elevations of the temperature after each of the injections of the pleural cavity.

PORTABLE REGULATING ETHER-INHALER.

By J. T. CLOVER, F.R.C.S.

In the BRITISH MEDICAL JOURNAL of July 15th, 1876, I described an apparatus for giving laughing gas and ether separately or combined. Experience in more than three thousand cases in which I have used it convinces me that the administration of ether may be made far less unpleasant to the patient, and equally effective and safe, by first giving enough gas to render the patient unconscious of its taste.

The arrangement of the apparatus enables one to cause the patient to breathe directly into and out of a bag, or partly, or entirely through a vessel containing liquid ether; and, even without gas, it is very efficient, inasmuch as it gives the power of varying and of sustaining the strength of the vapour. I have used it a great many times without gas, and find it as safe as any other way of giving ether, whilst the risk of coughing and sickness is much lessened.

The plan of excluding fresh air until insensibility has been induced, and admitting it very sparingly afterwards, has now been extensively tried in various ways, and, so far as I know, it is practically free from the danger of causing serious obstruction to the pulmonary circulation and overdistension of the right cavities of the heart. Of course, air cannot be indefinitely excluded, but the pulse and respiration give timely notice when air is required. A single artificial respiration of fresh air in these cases affords more relief than several such respirations when the apnoea has resulted from an overdose of ether or chloroform. The reason for this is, that in the former case the symptoms depend chiefly on the want of oxygen, and in the latter upon the presence of a substance which has not only entered the blood, but has penetrated the tissues of the body. If the apparatus be overheated, or if the ether be turned on too quickly, the ordinary coughing and struggling would, of course, be produced. The apparatus, however, requires a little more attention to temperature and other details, and is rather too complicated for general use. I have made several attempts to avoid the necessity of warming it. This can be effected by having the ether-vessel surrounded by a larger quantity of water at the ordinary temperature; but then the size and weight of the inhaler become objectionable. Better success attended modifications of the instrument having the ether-vessel placed close against the face-piece, so as to receive more warmth from the patient's breath and from the hand of the administrator.

I am greatly indebted to Messrs. Mayer and Meltzer for their patience and ingenuity in carrying out my ideas, and my present object is to call attention to a portable regulating inhaler made by them. Its advantages are these:—1. It has no valves; 2. It supplies the vapour so

gradually, that patients breathe quietly; 3. It produces sleep in two minutes; 4. It does not require fresh ether during the continuance of an operation; 5. The recovery from a short operation is more speedy than with most other inhalers; 6. It does not need to be warmed

before it is used; 7. No sponge or felt is required; 8. Ether left in the inhaler can be saved for another time.

The face-piece is edged with an air-cushion. The ether-vessel and water-chamber rotate upon the mount of the face-piece. When the instrument is first applied, the stopper should be towards the patient's forehead, and now he breathes in and out of the bag directly. As the ether-vessel is turned round, the air is obliged to enter the ether-chamber and pass through it before it reaches the bag; and, when the vessel is turned half-round, so that the stopper is opposite the patient's chin, all the air going in and out of the bag must pass through the ether-vessel. Two ounces of ether (specific gravity 735) are enough for a long operation. Usually, an ounce and a half is the proper charge. The opening for supplying the ether is arranged to prevent an excessive quantity being supplied; but, to guard against the possibility of a few drops escaping through the inner openings, there are two recesses made to catch them, and prevent the liquid ether from reaching the patient's lips.

The ether-vessel is spherical in shape, and one-half is surrounded by a closed water-compartment, to prevent the ether from becoming too cold. The bag need not be so much distended when in use as is shown in the woodcut, and can be kept on one side so as not to obstruct the light in operations on the eye. The instrument is intended for giving ether without gas; but, by connecting the bag with a supply of nitrous oxide, it forms a tolerably efficient substitute for the gas- and ether-inhaler above mentioned.

SEPTICÆMIA AFTER THE PROLONGED USE OF AN URETHRAL BOUGIE.

By THOMAS DRAPES, M.B., Enniscorthy.

As isolated instances of septic disease, occurring under apparently the most favourable external conditions (as regards health), are of more than passing interest, I venture to ask insertion for the following case, in the hope of eliciting from other readers of the JOURNAL any experience they may have had in similar or kindred cases.

Mr. A., aged 40, living in the country, a tall, well-built man, of good general health, had suffered from stricture for some years. It never occasioned him much annoyance, as he was always able to pass a fair stream of urine and the stricture readily admitted a No. 5 or 6 bougie. During the week preceding the illness about to be described, he had been practising gradual dilatation by gum-elastic bougies, under the direction of his medical attendant, Dr. Wood (with whose permission I publish the case). On more than one occasion, he passed a considerable quantity of blood *per urethram*, after the use of the bougie, and occasionally suffered from slight rigor.

On the night of December 1st, without the knowledge of Dr. Wood, he left a No. 8 bougie in all night; and, while at stool next day, he passed some blood, and at the same time was seized with excruciating pain in the urethra, so that he could not refrain from screaming out. This lasted for some little time, and then subsided; and he was apparently as well as usual during the rest of the day until 5 P.M., when he was attacked with a violent rigor, after which he felt extremely ill, and was obliged to retire to bed. His temperature rose rapidly to 103.5 deg., the point at which it stood when I arrived to see him in consultation, at 11 P.M., when his condition was as follows. The skin was frequently hot; the face flushed; the pupils rather contracted. He had very much the appearance of a patient in the commencement of typhus. The pulse was 120, extremely weak, sometimes could hardly be felt. The heart's impulse was *nil*, and its first sound very distant and feeble. The respirations were 36 in the minute, short, shallow, and noisy; and his chief complaint was a feeling of intense oppression in the chest. No lung-trouble was discoverable on clinical examination. The urine up to this was abundant and clear. The bowels were regular. Vomiting was frequent. We remained during the night, frequently noting the temperature, which sank steadily and rapidly to 99 deg., where it stood at 5 A.M.; the fall taking place without the occurrence of sweating. At 6 A.M. (December 3rd), it commenced again to rise, when he got ten grains of quinine in one dose. His only sustenance was brandy and soda-water, as he vomited everything else—beef-tea, milk, egg-flip, etc.

The temperature during the day oscillated between 102 deg. (maximum) and 100.5 deg. (minimum). He had a good deal of troubled sleep. His intellect was always clear, but there was a disposition to lethargy. Nutritive enemata of beef-tea, egg, and brandy were given during the day, and four ten-grain doses of quinine, each of which he retained about two hours and a half. There was almost total suppression of urine, hardly

a wineglassful in twenty-four hours. In the evening, great restlessness and jactitation came on, which became extreme about 8 P.M., when he hardly remained quiet for one instant, tossing his limbs about in all directions. The breathing was very short and shallow, 43 in the minute, with frequent loud gasps, as if unable to fill his lungs satisfactorily. At the rare occasions when he would drop off asleep for five minutes or so, it assumed as well marked an "ascending and descending" character as I have ever seen in advanced cases of fatty heart. The pulse was writhed, 132. At this time, we had very great fears for his life, the prostration was so extreme. Ten minims of Battley's solution producing no effect, one-fifth of a grain of morphia was given subcutaneously. This had a very salutary effect in quieting him, and he soon fell asleep for a considerable interval, there being no return of the great restlessness.

December 4th. All his symptoms were improved. The temperature was normal from 8 A.M. Pulse 100. Respirations 28, quiet and calm. The renal secretion was re-established and abundant. The vomiting was the most distressing symptom. It occurred every two hours, and consisted chiefly of a quantity of glairy grass-green fluid. The bowels were constipated. He was taking iced soda-water and brandy, milk and lime-water, and beef-juice. The nutritive enemata were continued. Five grains of calomel were given. A sinapism was applied to the epigastrium, followed by laudanum stupes.

December 5th. He was better. The temperature continued normal. Pulse 96.88; respirations 28.24. The stomach was quieter. The green vomiting continued at intervals. He had three scanty stools after the calomel. The same dose was ordered to be repeated.

December 6th. He was much better. The vomiting had ceased. A profuse herpetic eruption had appeared on both ears, with considerable oedema (to this he was occasionally subject). The eruption was also at the occipital region of the scalp, and at the side of the nose. The mouth, throat, and gums were very sore, which was apparently due to a similar condition. There was no salivation; on the contrary, there was extreme dryness of the entire buccal mucous membrane, so that he could hardly speak without first taking a sup of water to moisten it. The tongue was red and fissured. This state of things continued for two or three days; but from this point his convalescence was uninterrupted.

REMARKS.—This case at first was somewhat puzzling. At the commencement, we were uncertain as to whether his condition did not depend on some transient but profound disturbance of his nervous system, consequent on the pain produced by the bougie. But, after a little consideration, we came to the conclusion that the continuous pressure of the bougie during the night before his illness, on a highly congested urethra (as shown by the free discharge of blood), produced some slight abrasion or ulceration of the mucous membrane, allowing the absorption of a small quantity of septic matter. That the wound (if such existed) was of a transient nature, was shown by there being not the least return of pain during micturition, after the severe seizure at stool; and this fact had probably not a little to say to his recovery, as on it no doubt depended the smallness of the dose. The stress of the poison appeared to fall at once, and chiefly on the heart (more correctly speaking, perhaps, in the first instance, on the nervous system and through it on the heart), as shown by the rapid and extreme prostration, and the respiratory embarrassment, without any concomitant lung symptoms. His intellect was perfectly clear all through, and there was absence of delirium from beginning to end; the higher nerve-centres not appearing to be involved in the least. Another interesting point is the total absence of sweating, with a rapid defervescence, and, after the severe initial rigor, there was no return of that symptom. The vomiting (which became more copious and persistent as the severe symptoms declined), and the herpetic eruption, look as if the stomach and skin were specially selected by the poison as routes for its elimination. The only remarks bearing on this case, which I can discover in any publication at my disposal, are to be found in the *Practitioner* of November, in a paragraph giving Dr. H. C. Wood's views "On the Nature and Mechanism of Fever".

... "Although such fevers as pyæmia may be hæmic in origin, there is no certain proof that they are not due to the action of a poison on the nervous system; while such fevers as urethral fever must be due to changes of the nervous system, and not to the blood. In one case, which he quotes, the introduction of a catheter four days after the rupture of a stricture, was followed by rigor, high temperature, and death in less than thirty hours..... The initiative fever which follows a local irritation is probably due to reflex weakening of the inhibitory heat-centre; but probably this is not the only method in which fever is caused. In pyæmia, the inhibitory heat-centre is only weakened, and not paralysed; for if it were, the temperature would rise much higher than it does."