and a quarter in circumference, when laid open. Above the stricture, the bowel measured four and a half inches. The connective tissue around the stricture was full of pus.

CASE XLVI. Syphilitic Stricture of the Rectum and Fistula: Phthisis of the Apices: Ulceration of the Cecum: Amyloid Degeneration of the Liver, Spleen, Kidneys, and Stomach.—Jane J., aged 26, admitted on January 5th, 1876; died on February 14th. She was a charwoman; had had one child four years before, and one miscarriage. She had been very healthy until three years before admission, when she had rheumatic fever; five months since she had uterine inflammation, and three weeks ago her knees began to swell. When admitted, she had an oedematous face, and a red raised eruption on the neck and forehead. The urine was of specific gravity 1009, and albuminous. On January 26th, diarrhoea supervened; and the patient died from vomiting and diarrhoea on February 14. At the necropsy (No. 71), the whole of the small intestine was found extremely lardaceous; the large bowel less so; the cecum contained three large ulcers. The parts about the uterus were matted together by inflammatory material of some date. An abscess behind the uterus communicated with the bowel, and contained grape-stones, etc. The rectum at this spot was dilated, and its mucous surface ulcerated. Lower down, an inch and a half from the anus, the bowel was so narrowed by cicatricial contraction as only to admit the tip of the little finger. There was no evidence of ulceration at the part.

CASE XLVII. Syphilis: Stricture of the Rectum: Recto-vaginal Fistula: Old Ulceration of the Colon: Gummata in the Lung: Amyloid Viscera.—Amelia T., aged 28, admitted on November 2nd, died on November 26th, 1877. She had been married at the age of 16, but had had no children; had never menstruated; had had syphilis. She had had stricture of the rectum one year, which had been treated with boggies. She was readmitted with amyloid viscera and vomiting. The necropsy (No. 408) revealed thrombosis of the cerebral sinuses; the arteries were sound. Gummata were softening down in the lungs. The greater part of the large bowel was contracted, evidently from old ulceration. The contraction was more marked towards the rectum. About one inch above the anus, there was puckering of the stricture from old ulceration; but all the parts had now healed. The viscera were lardaceous.

CASE XLVIII. Syphilis: Ulceration of the Rectum: Periproctitis: Cellulitis of the Buck: Atheroma of the Aorta.—Amelia P., aged 50, was admitted to Guy's Hospital on March 2nd, 1883, and died on April 7th. She was a charwoman, and was admitted for diarrhoea and pain in the right hip. At the age of 20, she had had sore-throat and loss of voice, and had been ill five weeks. She had had no rash or other symptoms. She had otherwise had good health. In January, 1883, she fell on her right side, which caused local pain. She went to bed, and had not since risen from it. She vomited the day after the accident, and soon afterwards diarrhoea set in, which had continued. She lost flesh. On admission, she had pain behind the right trochanter. The right hip was sound; no pain was produced on the iliac crests being pressed together. There were symptoms of enteric disease. At the necropsy (No. 127), there were condylomata about the vulva. In the rectum, about five inches and a half from the anus, was a clean-cut ulcer, with rounded edge, of the size of a fourpenny-piece, which had perforated into the peritoneal cavity. Below this, the mucous membrane was congested and thickened; lower still, a large serpiginous ulcer existed, two inches and a half long. There was a second perforation. The rectum was dissected out by suppuration.

Conclusion.—From these data, I trust, therefore, you will feel no hesitation in accepting the proposition that both simple and syphilitic ulcerations of the rectum are most obstinate in healing, and that they, as a rule, lead on to stricture; and that, after colotomy, these ulcerations rapidly heal.

(To be continued.)

MEDICAL MAGISTRATE.—Dr. John Wardleworth has been placed on the Commission of the Peace for the borough of Bury, Lancashire.

EPIDEMIC DYSENTERY.—A telegram from New York, through Reuter's agency, announces the outbreak of a fatal epidemic from some remote counties of South-west Virginia and some adjoining parts of Kentucky. Drought having dried up the ordinary wells, the inhabitants drank the water from some surface wells, which produced a dysenteric disease as deadly as cholera. Several entire families are said to have perished, the effects of the disease being terribly sudden. The mortality is variously estimated from 400 to 800. Few of those attacked recovered, the proportion of fatal cases being from 60 to 80 per cent. The whole district is reported to be in a condition of great destitution.

ANÆSTHETICS, AND THEIR ADMINISTRATION.

Read before the Medical Society of London.

By WOODHOUSE BRAINE, L.R.C.P. Lond., F.R.C.S. Eng.,
Lecturer on Anæsthetics to Charing Cross Hospital.

In considering the subject of anæsthesia, the first and principal point to be determined is, which of the numerous anæsthetic agents now in use shall we choose?

For my own part, I unhesitatingly answer that, for all short operations, we should give nitrous oxide gas for all general operations. The best plan is to commence with nitrous oxide, and continue the effect with ether. I am pleased to see present many of my brother anæsthetists who give other anæsthetics; and you will have the benefit of hearing from them which they prefer, and their reasons for liking them.

We have yet to discover an anæsthetic which will not prove fatal at times; but, if some of those we now use may destroy life in two ways, while others only do so in one, I think we should accept the single risk, and use the latter, and avoid the double risk by refusing the former.

Anæsthetics, when they produce a fatal result, may practically be divided into two classes. 1. Those which produce death in the double manner, through the circulation as well as through the respiration. In this class must be included chloroform, bichloride of methylene, dichloride of ethylene, bromide of ethyl, ethylic methylic ether, and many others of the chlorine series. 2. Nitrous oxide and ether; in which the fatal result, when it does occur, is due to cessation of the respiration only, the heart's action continuing for some time after the respiration has entirely ceased.

I do not wish you to think that the fatal effect of chloroform and other drugs in the first class takes place as frequently through the lungs as through the circulation; for, in the very large majority, death begins at the heart, and is instantaneous. Those cases which recover, after causing the greatest trouble and anxiety to all concerned, are those in which death is commencing at the lungs. Let a heart once thoroughly stop, and death always ensues; but let a patient entirely stop breathing for a minute and a half or two minutes, even then full and forcible artificial respiration, as a rule, produces a happy result.

The three factors you must consider, to enable you to choose your anæsthetic judiciously, are: 1, the nature of the operation; 2, the amount of insensibility necessary; and 3, the length of time required.

For instance, in ovariectomy, I very often give bichloride of methylene by means of Junker's inhaler; for in this operation, after the first incision, there is very little, if any, pain until the final sutures are put in; and during the whole remaining time the smallest degree of anæsthesia suffices, patients often being able to answer questions, and to open and close their eyes when directed to do so, and being totally unconscious that at that very time the hand of the surgeon is in the abdominal cavity breaking down adhesions.

I shall be glad to hear from those who have used this drug as to the amount of sickness which follows its administration; and I fancy the general practitioner who watches the case will be able to afford more genuine information than the administrator, or the operator himself; inasmuch as the former often does not receive the information, and the surgeon, at his first visit after the operation, is more occupied by the condition of the patient, and the state of the part operated on, than by any little sickness which may, by that time, have passed away.

After-sickness is often a question of degree, for I have frequently asked two different people about the same patient, and have been told by one, "Oh, there was no sickness at all," and, by the other, "The patient was very sick for some time."

The sickness following ether is very different from that following chloroform, the former being accompanied, and often caused by, large quantities of flatus; and, as it generally takes place very suddenly and forcibly, it is always advisable to stand behind the patient when holding the basin. Chloroform-sickness, on the other hand, is preceded by much more faintness and nausea, and takes place more quietly.

Hiccough following an anæsthetic is most quickly stopped by the administration of a very small cup of green tea, without milk or sugar; and, should this prove ineffectual, by small doses of dilute hydrocyanic acid.

Of all the anæsthetic agents, the quickest and the safest, but the

most difficult to administer to obtain a really good result, is nitrous oxide. Some consider that this gas produces congestion of the face and head. With this opinion I do not agree, for the following reasons. Most of you have doubtless seen in the faces of some people a small capillary plexus on the cheek, in which the vessels are arranged in a stellate form. Upon minute examination of these vessels during the administration, it will be noticed that the first effect is a slight reddening of the whole area; then the capillaries appear more distinct from the intermediate portions becoming paler; and, finally, the vessels themselves will be seen to diminish in calibre, assuming, at the same time, a darker tinge, this darker colour being due to the dark coloured blood circulating in the capillaries, and not to any enlargement or congestion of the vessels themselves.

One is often asked, Why does not the administration of nitrous oxide produce the same excitement it used to do when given at chemical lectures? The answer, I think, must be found in the fact that the dose of laughing-gas now given is much larger, and the surrounding circumstances do not tend so much to excitement as when it was given before an audience; and those who took it knew that they were expected to do something or other out of the common. The admixture of air, as suggested by some, may have something to do with the production of excitement; but I have over and over again given gas and air mixed, or first one and then the other, without the smallest excitement being produced; and, in fact, you cannot keep any patient for more than two minutes thoroughly under the influence of the gas, without the admission of a certain quantity of air.

In those few cases in which there has been struggling, it has rarely taken place during the administration, but has usually come on during recovery; and most of the patients have been more or less addicted to alcohol, and have had their facial capillaries dilated. In patients with red faces and dilated capillaries, struggling may be looked for; but that it does not simply depend on the presence of alcohol is proved by the fact that nitrous oxide has frequently been given to partially intoxicated people without producing the least excitement.

Another possible cause for the excitement may be that, at one particular time during the administration, the sense of hearing is rendered morbidly acute, all sound being greatly magnified. Finding, by experimenting on myself, that this was the case, I endeavoured to make out whether sounds, inappreciable under ordinary conditions, would become audible under nitrous oxide, or whether the effect was simply sound magnified. Having, therefore, seated myself in a very quiet room, I placed a watch at such a distance that I could only just hear it ticking very faintly. I then inhaled some gas, and found that the sound became quite distinct, as if the watch had been brought to within a short distance of my ear. The watch was then placed just out of earshot, and gas inhaled as before, but I never succeeded in making the sound audible.

The two practical points to be gathered from these experiments are, first, to keep the room as quiet as possible during the administration of nitrous oxide; and, second, not to make any communication to another person, even in a whisper, which you do not wish your patient to hear; and this caution holds good during the recovery of the patient; for, in cases where several teeth have been extracted, I have known patients, who have felt nothing, repeat remarks they heard made previously to the extraction of the last tooth. I am, therefore, perfectly clear on the point that patients recover the sense of hearing before they become alive to the sense of pain.

To get the full effect of nitrous oxide, it must be given pure, all air being rigidly excluded; and if the patient wear a beard, it had better be wetted, or, what is more effective, have a little soap rubbed on it.

Deep snoring, and an insensitive conjunctiva, are good signs of insensibility, but the most trustworthy one of all is subultus tendinum of the fingers. I have known both the former signs deceive an administrator, but the latter never.

Pregnant women, even as far advanced as eight months, take nitrous oxide well. I may here mention the case of two patients, who were suckling, and in whom the shock from the extraction of a tooth, without the gas, stopped the secretion of milk; subsequently, having to undergo a similar operation, under like circumstances, they determined to take the gas, and in neither instance did any derangement of the function of lactation occur. Children with chorea, and people who have had hemiplegia, take the gas well. In phthisical patients, if the mischief be extensive, some caution is necessary; as in these cases the anaesthesia deepens after the removal of the face-piece, so that it is neither necessary nor advisable to start with any deep amount of insensibility. It is perfectly safe to administer this agent to epileptic patients. I have met with several cases where the extraction of a tooth, without

gas, has produced an epileptic attack, but I have never seen one occur when gas has been given.

A little time ago I accompanied a surgeon to a case of circumcision, on a boy, about 2½ years old. On entering the room I found the patient lying on the floor, in a very severe epileptic fit. In a short time he became partially awake; and, not seeing any good reason for waiting, I anaesthetised him there and then; and, after the operation, he recovered in the usual way.

Great age is no bar to the administration of nitrous oxide; my oldest patient, a lady, having reached the age of 94.

An anaesthetist is often asked, by the surgeon, what time in the day will suit him best? Now, as regards our own special province, our reply should be, "As early in the morning as you can manage it, 8 or 8.30 if possible;" for patients at that hour require less of the anaesthetic to produce insensibility; and their stomachs, being naturally empty, they do not experience any of the faintness that is produced by missing a meal. Long before Sir James Paget gave up operating, he was in the habit of choosing this time; and I have frequently met him, far on the other side of London, at 8 and 8.30 o'clock. The nervous system of the patient, at this hour of the day, is in its best condition; for there has not been time, since the patient awoke, for the distressing effects of fear and anxiety to have made themselves felt.

Although I am a great advocate for having the stomach entirely empty, the patient must not be allowed to become faint for want of food. Should the operation take place before 9.30 A.M., no food of any kind should be given; but if it be the usual custom of the patient to take a cup of tea or cocoa about 7, this may be allowed; for, having become a habit, it will be missed, and faintness be produced by its omission. If the operation be between 11.30 and 2, let a light breakfast be taken about 8, if that be the patient's regular hour; but if no meal be usually taken till 9.30 or 10 o'clock, then let breakfast be omitted altogether, and a small cup of soup or beef-tea be given three hours before the time of operating. Never allow the breakfast to be given earlier than the usual time; for in this case digestion does not take place, and vomiting always follows the operation. Should the surgeon fix on the afternoon, let an ordinary breakfast be taken, and the soup or beef-tea be given at 12. On no account let the patient become faint; any tendency in this direction should be combatted by the administration of a small quantity of brandy and water.

The organs of respiration and circulation should always be examined prior to the administration; for, putting on one side your ability to answer in the affirmative, the inevitable question at an inquest is, "Did you thoroughly examine your patient before you commenced?" the examination enables you to get on good terms with your patient. It is quite true that he has to be made insensible, no matter what your examination discloses; but it may be taken as an undisputed fact that, when a serious operation is necessary, there is less risk from the use of the anaesthetic than there is from the shock and after-shock of the operation.

By the term after-shock, I mean that peculiar condition from which some patients, who have not been anaesthetised, suffer at times during the first week of their recovery, when they suddenly remember the pain through which they have passed, and become more or less faint in consequence; and as this excitement of the nervous system generally comes on when the patient is just getting to sleep in the evening, it is not unfrequently the cause of a bad night's rest.

I believe the examination does good in two ways. In the first place, it gives confidence to the sufferer (for no patient ever yet took an anaesthetic who did not think that his own case differed materially from all others preceding it). This feeling of confidence imparted to your patient means a certain increase of cardiac power, and a general quieting of the nervous system. This not only adds greatly to the comfort of the patient, but often saves you a vast amount of trouble and anxiety; for the patient, feeling that all is well, does not struggle, and, breathing freely, does not hold his breath, thereby avoiding that terrible sense of suffocation of which patients sometimes complain. Secondly, the examination gives you an insight into the condition of the nervous system, enabling you to ascertain whether it is advisable to administer the anaesthetic rapidly or not. For instance, with some very nervous people, who, on being told to take a full breath of air, only take about the fourth of an inspiration, it is a good plan to allow them to breathe pure air only through the inhaler for half a minute or so; as, if you began at once with the anaesthetic, they would hold their breath, and thus produce that feeling of suffocation which you wish to avoid.

Patients frequently ask, "Shall I keep my eyes open or shut?" I think it is better for the eyes to be open; for then, if you see any signs of fear, a little friendly nod or a kind look will often restore that

confidence which they occasionally lose when they cannot see what is happening around them; and, on the other hand, if they be told to keep their eyes shut, they frequently think some mean advantage is about to be taken, and that you have some particular object in wishing them not to see.

Of course, before giving any anæsthetic, you would always determine whether artificial teeth were worn or not. The best way is to make the patient open his mouth, and look for yourself; if you see that a plate is worn, ask for its removal; if there be no artificial teeth, take no notice of having looked into the mouth, and the patient seldom guesses the reason of your having done so. In private, many patients would be offended at the suggestion of their wearing artificial teeth; or, it may be that a friend is in the room whom the patient wishes to keep in ignorance of the fact. The smaller the plate, the greater the danger. In old people, who have lost all their teeth, and who wear a complete upper and lower set, especially if they be fastened together by springs, it is inadvisable to remove them, as then the gums come so close together that the flabby lips and cheeks act as a valve, and prevent the ingress of air. In these cases, the administrator should keep a little upward pressure on the lower jaw, to prevent the teeth from shifting; should they slip, there is no chance of their going down the œsophagus, owing to their large size, and there is no difficulty in withdrawing them from the mouth, should they be in the way. Before I adopted the plan of examining the mouth for myself, I had to anæsthetise a gentleman in the north of London; and, as he assured me he did not wear teeth, I commenced, and he had been well insensible for over a quarter of an hour, when I noticed his mouth moving in a peculiar manner, as if he were sucking his tongue. On introducing my finger, I came upon something of the size of a hazelnut, soft and loose in the mouth, and, on pulling it out, I found it to be a quid of tobacco.

Previously to applying the face-piece to the patient's face, the anæsthetist should always apply it to his own, to see that everything is in good working order, and that the patient can breathe through it with comfort. It is my invariable custom to do this; and, by so doing, I have sometimes detected little things, trifling in themselves, but which would have produced discomfort to my patient. In one case of ovariectomy at Marlborough, I saved the patient from having a great fright; for, on applying the face-piece of Junker's inhaler, the first rush of air brought with it a fine spray of bichloride of methylene, which, besides nearly choking me, made my face smart for a considerable time. Within the last two or three months, a fatal case has occurred in a London hospital, from an ounce of the anæsthetic being injected through the nasal tubes. While on the subject of these tubes, I should like to hear from those advocating their use the special advantages they claim for them. I have used them, but do not like them, finding that quite as much can be done by putting the anæsthetic on the corner of a handkerchief or towel, always making it a cardinal point never to get in the way of the operator. Should the surgeon be operating on the nose, it is a good plan to place a prop between the patient's teeth to keep the mouth wide open, and to press the upper edge of the inhaler against the top front teeth; and, in this way, there is no difficulty in keeping up the ether for fifteen or twenty minutes.

In speaking of ether, I should like to mention the names of Mr. George Pollock and Mr. Warrington Haward. Had it not been for the persistent manner in which these gentlemen advocated its use, ether would never have been given as frequently as it is now; and it must be a great satisfaction to them to see it so much adopted at the present time, and to consider how much its introduction has diminished the number of fatal cases. The chief reason that ether was so long in making its way against chloroform, lay in the difficulty of its administration; this anæsthetic, in unpractised hands, always causing much struggling. It is the common practice in America, even to the present day, to hold the patient forcibly down on the table while the ether is being clouded on from a large cone, formed by a folded towel.

Some American surgeons who came over here to the International Medical Congress, and saw ether given at Charing Cross Hospital, expressed their great astonishment at the complete absence of movement on the part of the patient; and they acknowledged that, as regards ether giving, we were somewhat ahead of our American cousins. They also told me that in America chloroform was invariably given to patients who were the subjects of albuminuria, several deaths having occurred suddenly the day after the operation when ether had been given. In those few cases in which I have known albumen to have been present, the ether has not produced any untoward symptoms.

Occasionally you are required to administer an anæsthetic to a patient suffering from relaxed uvula, producing that troublesome cough characteristic of the complaint. In this case, directly the

patient lies down and begins to inhale, cough comes on, and you have to desist, or vomiting takes place into the face-piece. Under these circumstances the best plan to pursue is to make your patient sit quite upright, at the same time bending his head forwards; the uvula in this position swings freely backwards and forwards with the breathing, but not touching the pharynx it causes no inconvenience.

In many operations, especially those on the eye and the ear, perfect stillness on the part of the patient is essential; but it sometimes happens that, owing to a little tenacious mucus hanging about the fauces, the respiration is rendered jerky, causing the head to move at each expiration, although the patient is most completely insensible, and there is not the slightest reflex action on touching the conjunctiva. The difficulty is easily overcome by introducing your forefinger into the pharynx, and rubbing it over the back of the tongue, pillars of the fauces, and epiglottis. This makes the patient go through the act of deglutition, thus getting rid of the mucus, and the breathing at once becomes easy.

My usual practice is to produce complete insensibility by means of nitrous oxide, and then to quickly change the face-piece for the Ormsby or Dublin inhaler. This must be done very rapidly, so that the nitrous oxide which the patient gets rid of by the first expiration, passes through the sponge, and becomes charged with ether vapour for the first inspiration. This first inspiration is seldom a full one, the glottis taking cognisance of the pungent character of the vapour; but, in a few seconds, this irritation appears to subside, respiration becomes normal, and the patient sinks to sleep without any struggling whatever.

There is one precaution to be taken in using an Ormsby's inhaler when the patient is lying on his back; and that is, to hold the edge of the India-rubber bag between your finger and thumb, so that it does not become completely distended during expiration; because, if this take place, any ether that is on the bag runs at once through the sponge into the patient's eyes and mouth.

The cold produced by the rapid evaporation of the ether is often so great, that the sponge on which it is poured becomes frozen into a hard solid mass; and, when in this condition, it only gives off a very small quantity of ether-vapour. This is best prevented by warming the inhaler before using it, by placing in it a napkin, or large sponge, wrung out in hot water. If this plan be pursued, the ether-vapour comes off rapidly, the patient gets under its influence quickly, so that a small quantity of ether suffices, and the patient having little to get rid of, nausea and vomiting are frequently absent altogether.

After having thoroughly anæsthetised a patient, the sponge may be removed, and insensibility prolonged by allowing the patient to breathe into and from the India-rubber bag of the inhaler, admitting fresh air only when the patient appears to require it. In this way I have kept a patient insensible for twenty-one and a half minutes, the anæsthesia being maintained by the ether which was circulating in the system at the time of the removal of the sponge; the patient, in this way, being allowed to get rid of the ether in the slowest manner possible.

It may be urged against this method that the patient rebreathes the carbonic acid of his own expired air, and this is true; but from the length of time I have employed this plan, and from never having seen any deleterious results from it, I do not attach any importance to the objection.

It is clearly the duty of the anæsthetist to administer the anæsthetic to the patient in any position which the surgeon prefers; but I think the most comfortable one for the patient is lying on the side, with one hand and forearm under the pillow, the shoulders being slightly raised, and the neck a little bent, so that the saliva, which is always secreted in large quantities, may run from the lower corner of the mouth, and not be swallowed. This salivary secretion readily takes up ether vapour, and, if swallowed, is sure to produce vomiting. After an operation, if there be any faintness, of course it is most essential that the patient's head should be kept low. I must crave the indulgence of my hearers for mentioning these apparently trifling particulars; but let us remember it is said that "trifles make the sum of life;" and they most certainly do add greatly to our comfort.

The easiest way to remedy any faintness coming on after the patient's return to bed is to raise the lower end of the bedstead, supporting it on the end of a sofa or chair, thus making the head and shoulders the lowest part.

Those practitioners are the most successful ones who succeed in getting their patients insensible the most quickly; and I consider two minutes and forty-five seconds rather over than under the average time it should take to produce complete insensibility. There is no fear of giving ether-vapour too rapidly, or of the ether-vapour being too pungent, so long as the patient breathes easily.

Occasionally a patient breathes very slowly, and holds his breath, apparently for a long time; but if you breathe synchronously with him, and do not suffer any discomfort, you need be under no anxiety regarding him, no matter how long the time appears.

Dyspnoea occasionally arises from some thick tenacious mucus hanging about the fauces and epiglottis; and this is most easily got rid of by changing the position of the patient's head from one side to the other, or raising the head somewhat. If, however, the breathing do not improve, then open the mouth wide, by means of the tongue-forceps; and this, producing the act of swallowing, may put matters straight. If it do not succeed, then pull the tongue well out of the mouth, and cause the patient to make a forcible expiration, by sudden firm pressure on his thorax with your left hand and forearm. If this pressure be applied sharply, quite at the end of a natural expiration, such a full inspiration follows, that the mucus is forced from its position, and is either coughed up or swallowed.

The position in which the patient ceases to breathe must be the best guide as to the method of artificial respiration to be adopted, but the one great point to remember is, not to lose an instant, but commence the moment you see it must be resorted to.

Should your patient be anemic, you must watch her very carefully, more especially if the respiration be full and quick; for insensibility then sets in very rapidly, and, if it become too deep, great difficulty will be experienced in getting the respiratory muscles to act properly, owing to their want of tone.

One of the objections that has been urged against ether is, that it may cause bronchitis; but, when this does happen, I think it is a case of *post hoc, not propter hoc*; for the origin of it may generally be traced to an influx of cold air. In the only serious case I have seen, which occurred in a city hospital, I found, on investigation, that, while the patient was still on the operating table, the windows of the room were thrown open to get rid of the smell of the ether, and this, I take it, was the real cause of the bronchitic attack.

Great care should be taken that the body and extremities of the patient should be kept well covered and warm during the operation, as the anæsthetic generally produces a good deal of cutaneous action; patients often sweating profusely under the influence of ether, the under-clothing becomes damp, and any exposure to cold air tends at once to produce lung-complications. In these times of the spray, which rapidly lowers the temperature of any part on which it is allowed to play, we must be all the more careful to expose as small a cutaneous surface as possible.

In four cases in which the patients were full-blooded, though not plethoric adults, the mucus coughed up during the return to consciousness had a good deal of air and bright blood mixed with it, so that it resembled whipped strawberry cream. The first time I saw this I confess I felt anxious about the patient, and looked forward to a sharp attack of hæmoptysis; but in the course of twenty-four hours the blood gradually disappeared, and the patients all made good recoveries. Notwithstanding the delicate condition of a child's mucous membrane, I have never seen the expectoration the least coloured, even in infants, who take ether remarkably well. My youngest ether case was an infant aged five months, who never had any sort of bronchial irritation. In these cases the quantity used is very small; for generally the children cry during the administration, and, owing to the full inspirations that this causes, the little ones get very rapidly under its influence. In these cases, great care is requisite that the ether do not touch the skin of the face, for it is so tender that it blisters immediately; and to prevent any chance of this, I am in the habit of smearing some vaseline on a piece of paper, with a hole cut in it for the nose and mouth, keeping this between the facepiece and the skin, the vaseline side being next the face.

Ether has one very great advantage over those anæsthetics which tend to depress the heart's action; for in those operations in which it is given, secondary hæmorrhage is of very rare occurrence; for any small vessel, from which after-hæmorrhage might take place, bleeds so freely at the time that it never escapes the eye of the surgeon. In a conversation I had with Sir James Paget on this point, he told me he considered he had to tie 50 per cent. more vessels under ether than when chloroform was used.

In speaking of chloroform, there are one or two small points I should like to mention. In looking over the history of the recorded deaths from this anæsthetic, I have been much struck by the fact that many of them took place immediately after the addition of a small quantity of the anæsthetic. I think the explanation is that, when the face-piece is removed for the purpose of a fresh supply, even though the patient be quite insensible, the stimulus of the fresh air unloaded with vapour causes a deeper breath to be taken, and this being followed by a more complete expiration, the following inspirations are propor-

tionately deep ones; and on the face-piece being reapplied, more chloroform-vapour is inhaled than in any previous breath; and not only this, but it is drawn at once into the bases of the lungs. If this be the true explanation, then it clearly points out our line of practice, and shows us that we should never remove the inhaler, but pour chloroform on to it while on the patient's face; or, if we do take it away, it must never be replaced within an inch of the face for the first two or three inspirations, thus giving the lungs time to resume their old degree of expansion.

In the old days of chloroform, the pink mottled rash, which appeared in patches over the patient's neck and chest, used to be pointed out as the effect of the chloroform, pure and simple; but I have, always noticed the same rash with every anæsthetic that I have used with the single exception of nitrous oxide.

Should much pallor be present, or syncope appear imminent, a few whiffs of nitrite of amyl furnish the quickest means of restoring the heart's action; and the most convenient form for carrying it is in the little glass capsules, rolled in cotton-wool, and surrounded by silk, made by Messrs. Martindale. If one of these be dropped on the floor and stamped on, the fluid runs into the cotton-wool, and, on this being held opposite the patient's mouth the vapour is inhaled, and the heart at once begins to beat forcibly. I have never myself given this drug internally, nor do I intend to do so; but a friend in the country, finding his patient rather faint after an operation, gave one minim in water by the mouth, and, in less than an hour, he was sent for, and found the patient apparently moribund, his face, lips, and fingers being dark blue. Brandy, ammonia, and other stimulants being administered, the patient happily made a good recovery.

The anæsthetist's bag should always contain a pair of tongue-forceps, a Fergusson's gag, a scalpel, forceps, and tracheotomy-tube, and a few capsules of nitrite of amyl.

I much prefer tongue-forceps of the pattern shown to those ordinarily sold. As you perceive, they are in reality polypus-forceps, but, owing to their small size, there is seldom any difficulty in introducing them into the mouth, and their strength enables you to force a jaw open, while their serrated edges hold a tongue firmly, and do not allow it to slip. The Fergusson's gag often proves of great use to the surgeon in keeping the mouth open, but one should be chosen in which the handle is long, and the curve not too great. The scalpel, forceps, and tracheotomy-tube should never be absent from the bag; the mere knowledge that you have them at hand gives you a feeling of comfort and ability to cope successfully with unforeseen respiratory difficulties.

After the operation, the best directions to give the nurse, except in special cases of debility, are, not to administer food of any kind for three hours; and after that time to wait until the patient asks for some. Warm food often keeps up nausea, and it is better to direct that all nutriment should be given cold until the following morning; remembering that, owing to the stomach containing gastric juice and bile, milk, even when mixed with ice and soda-water, is to be avoided, and beef-tea or jelly substituted. There is no objection to fruit; and this, as a rule, is much appreciated by the patient; grapes and oranges being enjoyed the most.

If we wish to avoid sickness, it is of the utmost importance that the patient should not be shaken when being lifted from the operating-table to the bed; and if the operation have been performed on the bed, then the bedstead should be allowed to remain without being moved in the least for four hours, as the slightest movement is sometimes enough to start the vomiting.

Making a patient keep his eyes closed while recovering from the ether is a great aid in preventing sickness; for, owing to the patient feeling giddy, any object at which he looks appears to sway from side to side; and this, by itself, is sometimes enough to produce a feeling akin to sea-sickness, even in those who have not been anæsthetised.

To sum up, then: 1, I believe we shall do well to avoid all anæsthetics in combination, or by themselves, which tend to depress the heart's action; 2, for all short operations, nitrous oxide is the best; 3, for longer operations, except where it is advisable, to avoid any hæmorrhage, as in some eye-operations, and, when the cautery is used, ether can be made to fulfil all requirements; 4, the best time for operating is the early morning; 5, the nasal tubes are of little use; 6, nitrite of amyl is the best cardiac stimulant.

Anæsthetists closely resemble actors, inasmuch as, owing to their own engagements, they are very seldom able to see each other perform; and I feel that, instead of coming here this evening to afford you information, I am, in truth, present to hear the experience of my brother practitioners, and to receive from you such hints as may be useful in my future practice.