

melancholy. Should she be allowed to live alone in lodgings?

January 19, 1899. A. B., sent by Dr. J. M. Jackson, of Massachusetts General Hospital, single woman, twenty-five years old, formerly worked in a shoe factory, of late helped mother at home. Both parents and other children jolly and happy. Patient herself formerly always cheerful. She never had any serious illness. A year ago she suffered for some time from nervous dyspepsia and was despondent for a few days. For a long time she has had headaches, which have been severe of late. For about a week she has been very despondent and thoughts of suicide keep running through her head and she does not dare to read the papers any more. Such thoughts are present when she wakes in the morning and she does not dare to remain alone in her bedroom. She has eaten sparingly of late and slept poorly. She was asked to return in a week, but a month has elapsed since the first visit and we have not heard from her. Was it right to let her try to get along at home?

(To be continued.)

#### ADMINISTRATION OF ETHER AT THE BOSTON CITY HOSPITAL.<sup>1</sup>

BY J. B. BLAKE, M.D., BOSTON.

THERE is little doubt that proportionately more ether is used in Boston than in any other city in the world. A keen interest in ether administration always exists in this vicinity, and has for various reasons increased rather than declined during the past two years. This is probably true the world over, and is, in part at least, due to the work of Schleich in both local and general anesthetics, the recent statistics of Gurlt in Germany, and of the St. Bartholomew Hospital in London. It was thought, therefore, that a brief statement of the routine of etherization at one of the large hospitals of Boston might be of some interest to this Society.

At the City Hospital three things have combined to increase greatly the attention paid to the administration of ether as well as the personal interest taken in it by the house officers. These things are: (1) The establishment of the Burrell Ether Prize; (2) the visit of Dr. Bennett, a professional anesthetizer from New York; (3) the introduction of the ether chart.

The Burrell Ether Prize was established about one and one-half years ago. The interest upon a sum of money presented for this purpose is awarded by the superintendent and senior surgeon semiannually to the house officer who is considered by the Committee on the Ether Prize to be the best etherizer among the eligible candidates. The prize committee consists of three members of the surgical staff, who personally watch the administration of ether by all candidates as frequently as possible, and who take testimony from other members of the staff also. The names of the prize committee are not announced, since it was thought that in this way they might obtain a fairer estimate of the ability of the candidates. It does not improve the work of an average house officer to know that a prize committee man is watching his every motion.

<sup>1</sup> Read before the Boston Society for Medical Improvement, March 18, 1899.

Up to the present time six house officers have been eligible for the prize during each six months. These men are the three junior house officers and the three surgical dressers. There have been two awards thus far, and in each case the prize has been awarded to men who have given ether for twelve instead of six months. The decision of the committee has been made with much care, and is a task more difficult than might at first appear. The money value of the prize is of course but one of its attractions. In awarding the prize the committee consider safety, comfort, time and the amount of ether used.

Dr. Bennett, of New York, impressed all who saw him by the rapidity and the ease with which anesthesia was produced. He used the gas-ether apparatus, and demonstrated two cases at the City Hospital—patients who were about to be operated on when he arrived. One was an alcoholic case for perineal section, the other an old man for some minor operation. The production of anesthesia was so easy, so rapid, and apparently so pleasant to the patient that it could not fail to excite the admiration which it deserved.

The ether chart is modified from the one in use at Johns Hopkins Hospital. Its present form is at least partly experimental, and it will probably be further modified as time goes on, and in the directions which practical experience shall suggest. Its merits are many, its disadvantages few. The latter may be said to be exhausted in the expression not infrequently heard when it first appeared—that it increased the work of the etherizer. It certainly does increase the number and the accuracy of the observations which he must make upon the patient under his charge, and in this way it shows one of its very important advantages, which is that it helps greatly to concentrate the attention of the etherizer upon his task, and to prevent him from watching the operation or the surroundings. If it can teach the etherizer that his patient demands every bit of care and attention that he can bestow, the chart will have more than justified its introduction by its very first step.

Other advantages of the chart are the opportunity which it offers for a more careful study of cases, and particularly for the more accurate record of complications or emergencies, and their treatment; and, finally, it is of assistance to the operator, who by a single glance may get the general trend of pulse and respiration, in the same way that he gets the temperature record in the wards, and sees a series of consecutive observations instead of a single record. In a serious or long-continued operation this may be a very positive value.

The pulse is recorded every five minutes. At the bottom of the chart is a space for the record of respiration; at present this is made in figures and is also taken every five minutes, which seems unnecessary. A better arrangement would be to carry the lines of the chart lower, which would permit a point record of respiration, which would be similar to the pulse curve, and a ten or even fifteen minute observation of the breathing would probably be sufficient.

Until within six months Squibb's ether has been exclusively used at the Boston City Hospital. Recently Melinert's ether has been tried, and has given fair satisfaction; Squibb's is still preferred by most of the house officers.

A tin cone with a rubber mouth-piece is used through-

out the hospital, gauze or cotton waste being placed inside and saturated with ether. Since the substitution of the tin cone for the old cuff cone the amount of ether used has decreased, though the number of operations has remained the same or increased. With it the production of anesthesia and its continuation seem to be at least as easy as with the older forms.

The writer and others have on several occasions used the following apparatus with fairly satisfactory results. In cases involving operations upon the mouth, lips or face, the patient is etherized by the usual cone; a rubber catheter is then introduced into one nostril and is connected with an oxygen cylinder; in the wash bottle to which the gas is led after leaving the cylinder and before being inhaled by the patient, ether is substituted for water. The oxygen bubbles up through the ether and carries with it a sufficient quantity of ether vapor to keep the patient anesthetized, as a rule. The difficulty which sometimes arises is due to the fact that the patient is breathing air through the mouth all the time, and a rather rapid stream of gas must be forced through the ether to counteract this. No unpleasant results have followed.

The use of oxygen after ether has been given a trial at the hospital, and is now restricted to those special cases in which the color and respiration tend to remain poor after the operation is finished.

The use of nitrous oxide to produce anesthesia, which is to be continued by ether or the substitution of chloroform during ether anesthesia, or *vice versa*, is rarely employed at the Boston City Hospital, except at demonstrations to students.

Ether is given by the surgical junior house officer or by the surgical dresser. The junior is a regular house officer, having been previously an externe, and going on in succession to be senior house officer and house surgeon. He must therefore have finished, at least, three years of medical study, and have had six months' experience in out-patient work.

The surgical dresser holds an appointment for six months only. His duties are to make such simple ward dressings as may be assigned him by the house surgeon; the examination of urine under the supervision of Dr. Ogden, and the administration of ether at times when the junior is busy, or at the request of the visiting surgeon. Any medical student who has completed two years of study is eligible for this position. Any surgical dresser may at the end of six months make application for another term of service. It is thus to be seen that the administration of ether is entrusted, as in most other hospitals, to the youngest of the house staff.

The members of the surgical staff have always endeavored to give a certain amount of instruction in etherization to the house.

This instruction was formerly entrusted to two members of the surgical staff specially appointed for that purpose, who gave alternately two informal lectures to each new-coming set of juniors and surgical dressers, and then personally supervised each in one or more etherizations. At present this has been superseded by an arrangement by which each of the three surgical services appoints one of its own assistant surgeons to be responsible for the etherization and to instruct the etherizers in any way he thinks proper. It will probably be admitted that in etherization, even more than in most surgical procedures, actual demonstration and personal experience is of the first impor-

tance, and the difference between a surgical dresser who has given ether for six months and one who is about to give it for almost the first time is too obvious to need comment.

The etherizer is made to understand as foundation principles that the safety and comfort of the patient are of much more importance than the time required to put the patient under ether, or the amount of ether used. After having mastered the rudiments, it is of course desirable to reduce the time of producing anesthesia as low as is possible with comfort to the patient. Some of the house officers have had results in a series of cases which were surprising to the writer at least. One dresser etherized seventeen consecutive cases taken just as they came to operation in an average of about four minutes. Seventy-five charts taken at random from those made during January and February show about eight minutes as the time required to produce full anesthesia. This, of course, is actual elapsed time, not including transfer of patients.

The charts which are being circulated for inspection are the rough drafts, just as they appear at the close of the operation. They show various types of cases, and certain things which might not be expected. For instance, the initial rise of pulse rate with the beginning of anesthesia is not always present, even allowing for the fact that it is more difficult to make an accurate pulse curve during the production of etherization than at any other time. Several of the charts show that operations may at times be prolonged for two hours or more, with a pulse curve that is either approximately stationary, or even falling a little all the time. They show, also, that in certain long operations, such as herniæ or dissections of the axilla, the pulse may remain for a long time at precisely the same rate, instead of jumping up and down, as might have been expected. On the other hand, one or two of the charts show that it was best to end the operation with all possible speed.

There is no general rule in regard to administration of drugs before anesthesia. For a certain length of time  $\frac{1}{10}$  of a grain of atropia was given by mouth fifteen minutes before the ether. The writer is personally satisfied that if atropia in the dose of either  $\frac{1}{10}$  or  $\frac{1}{15}$  of a grain were given to every case, unless for some special reason it were contraindicated, the result would be decidedly beneficial, both in diminishing vomiting, reducing the amount of secretion in the mouth and large air passages, and in direct stimulation to the respiration.

On three occasions slight fires due to the inflammability of ether have occurred. No damage has resulted, and the small blaze has been immediately extinguished. The reason that these occurrences are reported is to emphasize their origin, which has come with the introduction of the aseptic technique. In each operation room there is a small copper boiler in which the instruments are sterilized; this is heated by a gas flame, and is usually situated near the wash basin. In using ether after the preliminary scrubbing of the hands, a current of air apparently drove the ether vapor towards the sterilizer, and the fire resulted. Up to the time of the occurrence the possibility of such a thing was entirely overlooked.

Dr. Bennett's visit certainly suggested the question of the advisability of modifying the present system of giving ether in Boston hospitals.

Professional anesthetizers are common enough in London and in a few cities in the United States. They

are the result of the modern movement towards specialization, and are certainly more rational and desirable products of that movement than certain other types which it has developed. In certain cases, and in private practice, the professional anesthetizer is a most desirable and delightful luxury, possibly at times almost a necessity. But it does not seem that the large general hospital have reached a point where it is desirable to substitute for the etherizer who is a house officer one who is an expert. There are other reasons besides that of expense. In any large hospital three anesthetizers would be required for part of the day at least, and one resident. From ten to fifteen operations are frequently performed in a day, and often three or four are being carried on simultaneously. The house officers would lose a very valuable part of their experience, and it is to be feared that the general public would suffer. The somewhat complicated gas and ether apparatus used by most professional anesthetizers could undoubtedly be mastered by the house officers, but much more slowly than is the case with the simple cone, and at times it certainly does not seem advisable to increase the difficulties with which the beginning etherizer so courageously but inefficiently struggles.

Is the present routine of ether administration at the City Hospital entirely satisfactory? It certainly cannot be said to be without faults, but they are faults which can be, and are being, modified. It is to be doubted if a perfect system of anesthetization can ever be carried into frictionless working order in a large American hospital. The emergencies and the rush of operative work are at times too great. But the writer is satisfied of two things: (1) That ether is given, on the average, better in and about Boston than in any other place in the world (with the possible exception of London); (2) that the average of etherization at the Boston City Hospital is decidedly better than it was ten years ago, and that the introduction of the ether chart is certainly sure to improve it, and, finally, that complications, catastrophes and disagreeable after-effects of anesthesia are, as rather careful observations show, less frequent than might reasonably be expected, if the statements of text-books can be taken as a fair standard. Only one case of pneumonia after ether has been discovered, and the proportion of vomiting in 250 cases was lower than the latest figures from the St. Bartholomew Hospital, of London.

### CYCLICAL, OR PERIODICAL, VOMITING.

BY ALBERT N. BLODGETT, M.D., BOSTON.

CASES of well-marked cyclical, or periodical, vomiting are so rarely observed, or at least so seldom reported, and are the subject of so little attention in the text-books of medical practice, that the following typical case is presented as a contribution to an infrequent and very obscure pathological condition, which appeared under circumstances particularly favorable for careful study, and in which the phenomena attending it could be fully noted and are believed to be correctly reported. The patient was under the care of a particularly competent nurse, and the facts related may be considered reliable.

The patient is a boy, at that time of thirteen years. He was from sea-going ancestry in both parental lines, and is descended from the old Puritan stock of South-

eastern Massachusetts. From his father he is thought to have derived certain stigmata of neurotic character, as this parent at times showed signs of unsoundness of character, and was also subjected to unusual hardships at sea, both before and after the birth of this son, which are believed by the family to have been possible causative factors in the mental and moral variations in the child. I might add that the only other child is a daughter, somewhat older than the patient, in whom no particular nervous or other special tendencies are noticeable.

The patient has always been considered remarkably well except in regard to the conditions hereafter noted. He is a large, sturdy youth, looking older than his years, and is precocious in mental and physical development. He has been indulged by his family to an injudicious degree, and is capricious and "freaky" in temper. Appetite is usually very good, at times ravenous, and he often eats heartily between the hours of regular meals. Digestion and sleep normal, bowels active; there are no signs of intestinal worms or other irritation of the alimentary canal. Urine normal. No indications of genital irritation. Pulse and temperature normal.

I was called to this patient on account of recurrent periodical attacks of vomiting of protracted and stubborn character, occurring at fairly regular intervals of about four weeks, and lasting from two days to a week on each occasion. The paroxysms were usually preceded by a prodromal period of three to four days, during which the patient would become gradually languid, pale and spiritless, with progressive loss of appetite, increasing weakness, more or less pronounced constipation and moderate elevation of temperature; so that on several occasions it was suspected that the condition was that of commencing typhoid fever. On each occasion, however, after a period of nausea and headache, there supervened vomiting of paroxysmal character, in which enormous amounts of fluid stomach contents were thrown up, mixed with portions of food which had been ingested many hours, or sometimes even days before. In the vomitus were often found substances of most varying nature, such as pledgets of lint, wool, pieces of string, feathers, and other strange objects, which had been swallowed by the patient, generally at times shortly preceding the attack. A tendency to ingest strange and indigestible substances was noticeable at other times, independently of the periodic occurrence of vomiting.

During the first paroxysm, while the patient was under my observation, little could be done in the way of treatment on account of persistent nausea, and frequent retching, but when this had subsided, an efficient laxative was administered, which had the effect of relieving the bowel of much fecal accumulation, mixed with a considerable amount of foreign substances similar to those vomited. Upon subsidence of the acute symptoms, and the action of the laxative, recovery was rapid, and in a few days the patient was as well as ever. After an interval of about four weeks a similar train of symptoms was again developed, and the same process took place, with a similar result.

For some time after the second observed attack the patient was carefully watched during the interval between the paroxysms, and it was noticed that for about two weeks everything would go on in a normal manner, but at the end of that time he would begin to exhibit signs of restlessness, with capricious appetite, an