ETHERIZATION AND ASPHYXIA.

By JOHN SCOTT, Esq., Shelton, Stafford.

PERHAPS the history of medicine presents no instance of an active remedy being brought into extensive use with so little injury resulting from its operation, as the late introduction into practice of vapour of ether. The consideration that it has been extensively used by classes of persons little qualified to judge of any untoward symptoms as they presented themselves, or to regulate its most favourable effects so as to prevent their becoming injurious, speaks strongly in its favour, and proves it to be a safe as well as a powerful agent. But as in some few cases injurious results have been produced, it would be well that every attention should be paid to the phenomena exhibited during the process of inhalation, so that the approach of any dangerous pathological state may be more readily distinguished than it has hitherto been, and care be taken to prevent injuries resulting from it.

With this object, it would be well if the profession generally would discontinue communicating instances of its use, where etherization exhibits nothing but its most ordinary phenomena, except where it has been applied to some new purpose; and communicate, more freely than they have hitherto done, instances of disappointment as to its results, and disagreeable consequences resulting from its employment. It is also important to give a clear account of the process employed, recollecting that it is almost an axiom of scientific communication, at the present day, that it is not sufficient to publish the result, but is especially necessary to state the processes by the aid of which they were obtained. If this were carefully done, the result would be, that we should soon have as correct a pathology of etherization as we have of the action of any established remedy; and it would present another example of the progress of this age, if the therapeutic knowledge was completed in a few months instead of being the labour of generations.

There is one circumstance which appears to have been but little thought of in England, although it has attracted attention in France: that is, the pathological condition produced during inhalation from the vitiated quality of the air breathed. With the purpose of calling attention to the subject, I send you an abstract of an article which appeared in *La Presse* on the 3rd and 7th of this month. The importance of his view of the subject is perhaps there overrated by M. Doyère, the writer, but it is one at least worthy of some consideration. After speaking of the manner in which ether has been administered, and giving a rather dramatic picture of etherization, he says:—

“We see that the vapour of ether has acted thus far only in more or less active conjunction with another agent, terrible in its effects, and to which circumstances, altogether independent of the inventor, the invention, or the administrator, may give a preponderance such as, had it been observed at first, would have stifled the discovery at its birth, and left no other memorial of the experiments than the memory of irreparable disasters. This agent is asphyxia. We hesitate not to attribute to it the greater part of the accidents which have resulted from etherization, and which have brought down upon it those reproaches of which this great discovery has been the subject. What we wish particularly to call attention to, and consider a matter of great moment, is the distinction between etherization and asphyxia, two conditions which have been too much confounded with each other. The phenomena of the latter are well known, and have been so ever since men hanged and drowned themselves, and have been yet better studied in physiological experiments where animals have been enclosed in nitrogen or hydrogen gas. Those of the former are still unknown; for they have never yet been observed isolated from those of asphyxia, by subjecting men or animals to an ethereal mixture, containing twenty-one per cent. of oxygen. The mixtures of ethereal vapour which have been hitherto employed have generally contained less than fifteen per cent. of this gas, and consequently the resulting phenomena have been the combined result of inhalation of ether and deprivation of vital air. Suppose that 100 parts of air are mixed with 100 parts of vapour of ether, the twenty-one parts of oxygen contained in the air will be the entire oxygen of the 200 parts of the mixture, and, consequently, the patient respiring it will be breathing an atmosphere containing, not twenty-one, but ten and a half per cent. of oxygen. This is what actually takes place at a temperature of seventeen centigrammes, (62° Fahr.,) a temperature frequently found in a well-warmed room, not higher than the coolest apartment in summer, and one which the inhaling apparatus is likely to acquire in the immediate vicinity of the

patient and the administrator: much more is this the case when heat is applied to the vessel.

Temperature is therefore an important element in the problem we have to study. When a volatile fluid is enclosed in a vessel, the air enclosed with it is always saturated with its vapour, and the saturating quantity is always the same at the same temperature. But as the temperature changes, the proportions of vapour and air change also; the increase in the proportion of vapour being very great as the temperature becomes elevated. The ratio of increase is one, however, which can be very easily calculated, and the following table presents a view of the proportions of ether held in solution at different temperatures, and the proportions of oxygen contained in the mixture:—

Temperature.		Ether.	Oxygen.
Centigrammes.	Fahr.	Vapour of, to 100 of air.	Per cent. of, in mixture.
0°	32°	25	15
10°	50°	37	13
20°	68°	57	9
30°	86°	83	3½
35°	95°	100	0

Had the discovery come into use last summer, during the seventy-six days between the 1st of June and the 15th of August, then on thirty-nine of these days surgeons would have administered a mixture containing less than five per cent. of oxygen, and on the 5th of July and 5th of August, the vapour of ether would have been administered almost pure.

Now although the difference between etherization and asphyxia may not be so great as M. Doyère imagines, yet these are facts worthy of consideration. The inhalation of air so poor in oxygen cannot be without its proper influence, and will at least modify the specific results of the inhalation of ether.

Stafford, March, 1847.

CASE OF

DELIVERY BY PERFORATION AND EXTRACTION, IN A CASE OF EXTREME PELVIC DISTORTION.

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(Read before the Westminster Medical Society, March 27th, 1847.)

THE following case of delivery by the crotchet, in extreme distortion of the pelvis, may perhaps interest the members of this Society, as additional facts to assist us in determining the rule of practice in these serious and most difficult cases.

E. B—, aged thirty-three years, born of diminutive parents, was perfectly healthy and well-formed until five years of age. She was then attacked with measles; the eruption suddenly disappeared, and she was seized with inflammation of the chest. During her illness, her parents, from limited means, were obliged to depend on parochial assistance, and from this date the disease commenced that produced her deformity. The account given of its progress is homely, but sufficiently expressive. Her parents say, “she was neglected by the doctor; that she could not lie down for seven days, from difficulty of breathing, during which time she scarcely passed any water. The disease fell into her ankles; then into her knees, and eventually settled in her back. It remained in her back for seven years before she could get up and down stairs. She was eighteen years old before she could walk half a mile without a stick. She forgets whether there was any sediment in her water during her illness.” Such is her history. The deformity that resulted, affected chiefly the spinal column. All the extremities were small, but no other deviation in them than that she was knock-kneed. There was a curvature in dorsal vertebræ strongly to the right side, and the whole of the lumbar vertebræ were thrown forwards in extreme convexity, so that the aspect of the pelvis was changed, the axis of the brim of the pelvis being nearly horizontal. Her height was about four feet three inches.

About June last she became pregnant; and the duration of her pregnancy, dated from the cessation of the catamenia, (June 15th,) would be 280 days, to March 22nd. Unfortunately, for an obvious reason, her pregnancy was concealed, which was more easily accomplished in consequence of the natural prominence of the abdomen, produced by the curvature of the spine. She was taken in labour on Tuesday, March 8th; the