

ON NARCOTISM BY THE INHALATION OF VAPOURS.

By John Snow, M.D.

Dr. Snow states that chloroform may, when due care is used, be safely employed under all circumstances in which surgical operations require to be performed. He considers that chronic disease of vital organs ought not to deprive patients of the benefits of anæsthesia when they have to undergo a painful operation of any kind, as he is of opinion that when carefully induced, it causes much less disturbance in the system than severe pain, and is in fact a means of preventing, in a great measure, the shock of the operation. We must remark, however, that we entirely dissent from this view of the subject. He states that he has many times exhibited chloroform to patients having disease of the heart, as well as to phthisical subjects and to persons who had previously had apoplexy, and there were no ill effects in any of these cases. He has also given chloroform at all ages, from three weeks to extreme old age, and states that this agent acts in a very pleasant manner on children. He gives a number of particulars respecting the administration of chloroform in the different kinds of operations. He recommends the patient to be in the horizontal posture whenever the nature of the operation permits of it, and advises that the chloroform should not be inhaled till some time after the last meal, and that the patient should not take any food or drink for an hour after the operation, in order to avoid the inconvenience of vomiting, which is otherwise apt to occur. Dr. Snow always employs an inhaler in exhibiting the chloroform, and argues that it is particularly required with this powerful agent, in order to insure the vapour being largely diluted with air, and thus to prevent its effects being produced with such rapidity as to incur the risk of accident.—The fatal cases of inhalation of this agent are quoted, and it is shown that death always occurred in the most sudden manner, and that in nearly all the cases the chloroform was exhibited on a handkerchief.

In the physiological part of his inquiry, the author details experiments on animals with a number of volatile substances, and arrives at the conclusion, that their narcotic strength is in the inverse ratio of their solubility in the blood. The substances to which this rule applies all contain carbon, and the rule does not apply to agents, such as hydrocyanic acid, which contain nitrogen as a radical element. Other experiments were performed by the author, on himself, which show that chloroform and ether are exhaled again unaltered in the expired air, after being inhaled, and that it is on this account their influence so quickly subsides. By a number of experiments on animals, as well as on himself, he also shows that the quantity of carbonic acid gas excreted by the lungs is considerably diminished under the influence of the above agents, which, when long continued, have also the power of reducing the temperature of the body. As the result of his experiments, Dr. Snow arrives at the conclusion that anæsthetic agents, and probably all other narcotics, produce their effects by virtue of a power they possess, when absorbed into the blood, of limiting those combinations between the oxygen of the arterial blood and the tissues of the body, on which the animal functions depend. He considers that this view is confirmed by the circumstance that the narcotic vapours in question have the property of limiting and arresting various forms of oxidation out of the living body, such as that of putrefaction, that of ordinary combustion, and the slow oxidation of phosphorus. The author concludes by suggesting a somewhat new hypothesis of chemical affinity, to account for the action of these substances in interfering with oxidation, both in the living body and elsewhere, but our space does not allow us to enter upon this part of the subject.