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in these cases, but as the heart is already doing its utmost before the chloroform is given, it is unable by increased work to stave off the fall in pressure that occurs when the vaso-motor centre is paralysed.

The effect of artificial respiration after the natural respiration has ceased is to cause an alternate rise and fall of small amount in the blood pressure. After artificial respiration has been continued for a certain time, the blood pressure again rises, and a little later natural respiration returns.

Complete stoppage of the respiration always means that an overdose has been given, an overdose perhaps so great as to cause a very prolonged after-fall of blood pressure, and thus render restoration impossible. No matter how soon it is commenced after the respiration stops, it is never in any case certain that artificial respiration will restore the natural respiration and blood pressure; even after the respiration has been restored, the pressure may continue to fall and respiration again ceases and artificial respiration then fails. The time which may be allowed with impunity to pass before commencing artificial respiration varies considerably, as does the time-taken to restore natural respiration.

To test the alleg d danger from shock during chloroform administration, a very large number of those operations reputed peculiarly dangerous in this connection were performed, such as extraction of teeth, evulsion of nails. In many cases the operation was done when the animal was merely stupefied by the chloroform and not fully insensible. In such cases a slight variation in the blood pressure would sometimes occur, such as one would expect from the irritation of a sensory nerve, or from struggling, but in no case in any stage of anæsthesia was there anything even suggestive of syncope or failure of the heart's action.

The commission concluded that chloroform has no power of increasing the tendency to either shock or syncope during operations. If shock or syncope does occur from any cause, it prevents, rather than aggravates, the dangers of chloroform inhalation.

As to fatty heart, the truth appears to be that chloroform *per se* in no way endangers such a heart, but, on the contrary, by lowering the blood pressure, lessens the work that the heart has to perform, which is a positive advantage. A patient with an extremely fatty heart may die from the mere exertion of getting upon the operating table, just as he may die in mounting his own front steps, or from fright at the mere idea of taking chloroform or of undergoing an operation, or during his involuntary struggles. Such patients must inevitably die occasionally during chloroform administration, and would do so even if attar of roses were inhaled.

Severe hemorrhage in no way affects the action of chloroform, for the tow blood pressure produced by the bleeding tends to prevent a too rapid intake of chloroform. Of course a patient nearly bled to death needs less chloroform to put him into a state of anæsthesia.

## PRACTICAL CONCLUSIONS.

The following are the practical conclusions which the Commission think may fairly be deduced from the experiments recorded in this report :--

I. The recumbent position on the back and absolute freedom of re-piration are essential.

II. If during an operation the recumbent position on the back cannot, from any cause, be maintained during chloroform administration, the utmost attention to the respiration is necessary to prevent asphyxia or an overdose. If there is any doubt whatever about the state of respiration, the patient should be at once restored to the recumbent position on the back.

III. To ensure absolute freedom of respiration, tight clothing of every kind, either on the neck, chest, or abdomen, is to be strictly avoided; and no assistants or bystanders should be allowed to exert pressure on any part of the patient's thorax or abdomen, even though the patient be struggling violently. If struggling does occur, it is always possible to hold the patient down by pressure on the shoulders, pelvis, or legs, without doing anything which can by any possibility interfere with the free movements of respiration.

IV. An apparatus is not essential, and ought not to be used, as, being made to fit the face, it must tend to produce a certain amount of asphysia. Moreover, it is apt to take up part of the attention which is required elsewhere.

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