(43) In some dogs, and especially in those to which phosphorus had been given stoppage of the respiration and slowing of the heart occurred immediately after the application of the chloroform to the face, or on forcibly pulling out the tongue, and this suggests that the mechanism of cardiac arrest in them is precisely the same as it is in the rabbit. On the other hand, in rabbits, as in all other animals, it is possible to give chloroform so gently that no spasm of the chest occurs, no reflex effect is produced, and then the pressure falls in the same regular curve and with the same succession of phenomena (anæthesia, cessation of the respiration, and lastly cessation ofthe heart beat) that was above described as typi-cal of chloroform inhalation.

(44) Goats have a great tendency to hold their breath while inhaling chloroform, and monkeys resemble dogs rather than rabbits, as when ammonia was held before a monkey's nose (Experiment 98) it did not cause immediate stoppage of the respiration and heart as it does in rabbits.

(45) The experiments with ether show that it is impossible to produce efficient anæsthesia with this agent unless some form of inhaler is used which thoroughly excludes the air. If an ordinary cap containing a sponge saturated with ether is applied very closely to the face, the animal generally holds its breath and struggles, and we at once get the fall of blood pressure and slowing of the heart that invariably occur under these circumstances. If the ether is continued in this way after the animal has recommenced breathing a condition of semi-anæthesia results, in which the cornea is sometimes sensitive and sometimes insensitive, and the pressure rises and falls alternately to a slight amount and forms a wavy trace, which may be continued right round the drum without any particular change. As soon as air is rigidly excluded, the pressure commences to fall gradually exactly in the same way as with chloroform, and with the same succession of phenomena—viz., first anæthesia then cessation of the respiration, then of the heart movements, and finally death. How far this is due to ether and how far to the results of asphyxia it is impossible to say, but an exactly similiar succession of events can be brought about by making the animal inhale carbonic acid gas alone.

(46) If surgeons choose to be content with a condition of semi-anæthesia, it can no doubt be produced with perfect safety, though with discomfort to the patient, by ether held rather closely over the mouth. Such a condition of imperfect anæthesia would never be accepted by any surgeon accustomed to operate under chloroform. If more perfect anæthesia is required, it can be procured by excluding air more rigidly, but then there is exactly the same danger as in giving chloroform. How very suddenly and rapidly the pressure may fall and death ensue is well shown by Experiment 33. Ether injected into the jugular vein produces a fall of blood-pressure and anæsthesia in the same way as chloroform does, but in all cases in which it was so injected large clots were found in the heart immediately after death. It is interesting to note that Claude Bernard seems to have formed a very similar opinion with regard to ether, as the following quotations from his work entitled "Leçons sur les Anesthésiques et sur l'Asphyxie," published in 1875, show. The first quotation (p. 50) is as follows :—"Aussi, un certain nombre de chirurgiens proposèrent ill d' abandonner le chloroforme pour revenir à l'éther dont l'usage paraissait moins à craindre. Aujourd'hui encore les chirugiens de Lyons emploient préférablment l'éther. On croyait le chloforme plus dangereux que l'éther parce qu'il était plus actif ; mais, en réalité, la fréquence relative des accidents par le chloroforme tentait peut-être tout simplement à ce que c'était cet agent anesthésique qu'on employait dans l'immense majorité des cas. Plusieurs discussions ont été proet il a été constaté que l'éther, lui aussi, avait provoquées par les partisans de l'ether surtout par les représentants de l'école de Lyons, duit un certain nombre d'accidents mortels. Les deux agents anesthésiques usités peuvent donc, l'un comme l'autre, entrainer quelques risques de mort, et la chirurgie humaine a conservé presque partout le chloroforme, dont l'action est plus rapide et plus complete." The second quotation, to be found on p. 101 of the same work, runs :—"Quant à l'éther et au chloroforme, leur action est à peu près la même au point de vue physiologique, sauf une difference d'intensité en faveur du chloroforme, ce qui nous fera généralement employer ce dernier corps de préférence à l'éther."

(47) The A. C. E. mixture given gently with plenty of air and the other conditions mentioned before under chloroform produces the typical chloroform trace. Given freely to a struggling animal, it can produce a very rapid and dangerous fall of blood pressure. In Experiment 52. Fig. 4 shows very perfectly the effect on the heart of holding the breath.

ACCIDENTAL DEATHS.

31. The notes of the cases of accidental deaths that occurred during our experiments have been left amongst the other notes in the position in which each occurrence took place, and they can be readily found by a reference to the index. The fatal result was brought about either by neglecting to watch the condition of the respiration during or after the adminstration of chloroform, especially while the carotid artery was being exposed, or from a reckless adminstration of chloroform in the endeavor to check or prevent struggles. In all the cases of accidental death the usual chloroformist was absent, and no one was attending to the chloroform. The notes would have been more complete