

vocal chords may be forced together by in-rushing air, and act as a valve as in paralysis of the abductor muscles, because there is no expansion of the glottis as in normal inspiration." This does not generally hold, I can safely state, from the observations I have made and now repeat tersely.

In my eleventh case, young woman, I used the face-mask for four hours; my fifteenth case, female, for seven hours; seventeenth case, female, two hours; case nineteen, old lady, two hours; case twenty-first, female, seven hours; case twenty-second, female, four hours; twenty-fourth case, male, five hours; twenty fifth case, female, two hours. In all these cases, and many subsequent for the time mentioned, which resulted in the majority of instances in saving the lives of my patients, there was absolutely no interference with the air passing directly to the lungs. Furthermore, the chest would heave and fall in many cases in the most natural manner. That such results could be obtained by the cheap apparatus mentioned in "The Year Book of Treatment," 1891, page 193—Dr. Wood being given the credit as originator—and lauded as the best, consisting of a face-mask, a few feet of rubber tubing, a pair of bellows, and two sizes of intubation tubes (ordinarily not required), I do not believe. With such an apparatus which, it is stated, could be used by "unskilled persons," I am quite certain I would have lost many of my patients. In the cases referred to, if too great pressure was produced, the œsophagus would expand and cause stomach inflation; but by careful inspirations for a time, followed by pressure on the abdomen, it would pass away without inconvenience.

What appears to me may be urged as facts of value in this connection are the following: The passage to the lungs under ordinary conditions of unconsciousness, except, and even sometimes, in swallowing, is always open. The air forced into the lungs does not, as is generally believed, cause a closure of the glottis any more than the deep auto-inspiration of ordinary respiration. Exceptions may be taken to all rules of course.

If forced respiration by my method, use of face-mask, etc., be carefully conducted, the lungs may be as fully inflated

as under deep auto-inspiration, and the respirations kept up for a period of time ranging from one to ten hours, according to size of individual and degree of obesity. Thin, spare patients appear to be better subjects than those of opposite build. In the few cases in which, from continued work with complete paralysis, the tongue has fallen back and occluded the larynx, a ligature has been placed through it and the organ held forward. Usually, extension of the neck will raise the glottis, but cannot always be relied upon; in such cases intubation would be of value. After the face mask has failed in one or two instances, I have saved life by performing tracheotomy, which was called for through the cases being narcotized by opium (*vide* previous remarks).

As to intubation, it may have its place in some cases of forced respiration, but to urge its value over the use of the face-mask when the latter has accomplished so much, is unwarranted.

Dr. J. S. McLain of Washington, D.C., who has supplied himself with an apparatus for forced respiration, propounded the following questions, which, having a practical bearing upon the use of the instrument, might prove of value to others.

First Question:—After padding the face-cup to make it fit the face of the patient, is it necessary to exert considerable pressure thereon when the air is being sent into the lungs, to keep the air from escaping at sides of cup? The amount of pressure will vary in different patients, but not to a great extent if the cup fits the contour of the face snugly, or it is padded with a piece of cloth to do so. I have used the face-cup on men with a moustache or whiskers, and it has worked well. It is a mistaken notion that much pressure of air is required to inflate the lungs in inspiration. The artificial lungs which I have used in demonstrations very nicely illustrate this, and with them the actual pressure used can be readily obtained. The presence of cyanosis is the most important condition which calls for more active or forcible inspiration. In producing it, it should be borne in mind that *too great* pressure will distend the œsophagus and inflate the stomach and intestines. If this should take place, pressure upon the abdomen at intervals will relieve the condition, so as not to