was chiefly used until Dr. Schaefer described his method in his Harvey lecture in 1909. Since then several important committees have investigated the various mechanical and manual methods of resuscitation, and all have uniformly recommended the prone pressure method. It is, moreover, the easiest method to perform, and the least fatiguing, and can be performed by one person without assistance. Recently the American National Electric Light Association has standardized this prone pressure method, and have had many thousands of its employees trained in it and required to practise it regularly. The men have instructions that the method should be begun promptly and continued for several hours until the patient breathes or until the onset of rigor mortis. Professor Henderson says that a large proportion of all sudden deaths are due to failure of respiration, and the prevention of even a small fraction of them will amount in the aggregate to the saving of a very large number of lives. The Schaefer manual prone pressure method is undoubtedly preferable to any other method for resuscitation after electric shock, drowning, and other conditions in which complete cessation of breathing occurs. The use of artificial apparatus should be discouraged not only because the simple manual method is more effective but also because mechanical devices may injure the structure of the lungs. It is extremely important that the medical profession should be thoroughly acquainted with the prone pressure method, and should realize the importance of applying it immediately in all cases in which respiration has been stopped by any accident. It has been charged against the medical profession that in cases of drowning and electric shock lives have been lost because the physician who happened first to reach the case was unacquainted with this method. In some cases the electric lineman or policeman or boy scout who was administering the prone pressure method effectively has been told to desist, and the physician has either declared the patient dead, or has called an ambulance and sent him to a hospital where he arrived dead. The essentials of any plan of artificial respiration are that it should be applied without the loss of a moment, without waiting to telephone or send for apparatus; and that even if the patient is at first pulseless and apparently dead it should be continued for at least three hours if spontaneous breathing does not return before that time. Professor Henderson in his paper also called attention to the fact that ethical and economic conditions often obstruct greatly needed investigation. The scientific men who have served on the four successive commissions on resuscitation appointed during the last decade, have not only saved hundreds, or more probably thousands of lives, but also millions of dollars to commercial companies which otherwise would have had to be paid in compensatory claims. These commissions have cost the immensely wealthy electrical industry comparatively nothing and they have made no return to the scientific bodies who have made the investigations.

THE PRONE PRESSURE (SCHÄFER) METHOD OF RESUSCITATION

If the mouth is tight shut, no time should be lost in attempts to remove dental plates or other foreign body, but resuscitation should be immediately begun. The patient will breathe through the nose, and, after resuscitation has been carried on a short time, the jaws will probably relax and any foreign substance in the mouth can then be removed. No time should be taken to loosen the patient's clothing as *every moment of delay is serious.*

The patient should be laid on the abdomen, one arm extended directly overhead, the other arm bent at the elbow, and with the face resting on the hand or the forearm so that the nose and mouth are free for breathing (Fig. 1).

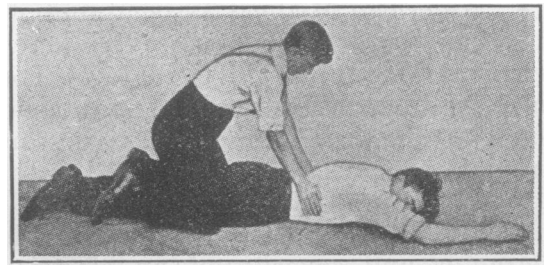

FIG. 1.—HANDS IN POSITION

The resuscitator should kneel, straddling the patient's hips with the knees just below the patient's hip bones or the opening of the trousers' pockets. The palms of the hands should be placed on the small of the back with the fingers resting on the ribs, the little

finger just touching the lowest rib, the thumb alongside the fingers, the tips of the fingers just out of sight (Fig. 1).

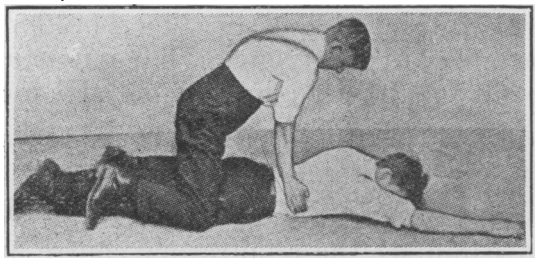

FIG. 2.—PRESSURE ON.

With the arms held straight, the resuscitator should swing forward slowly so that the weight of his body is gradually brought to bear on the subject (Fig. 2). This operation, which should take from two to three seconds, must not be violent, as internal organs may be injured. The lower part of the chest and also the abdomen are thus compressed, and the air is forced out of the lungs; the diaphragm is kept in natural motion; other organs are massaged, and the circulation of the blood is accelerated .

Now the resuscitator should immediately swing backward, so as completely to remove the pressure,

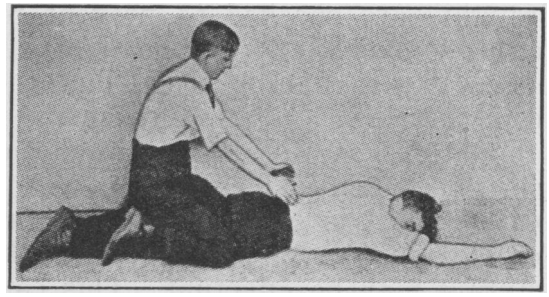

FIG. 3.—PRESSURE OFF

thus returning to the position shown in Figure 3. Through elasticity, the chest wall expands and, the pressure being removed, the diaphragm descends, and the lungs are thus supplied with fresh air.

After two seconds, the resuscitator should swing forward again. Thus the double movement of compression and release should be deliberately repeated from twelve to fifteen times a minute, a complete respiration being made in four or five seconds. If a watch or a clock is not visible, the natural rate of the resuscitator's own deep breathing should be followed. The proper rate may be determined by counting—swinging forward with each expiration and backward with each inspiration.

ON THE PREVENTION OF RESPIRATORY FAILURE

THE above prone pressure method is unquestionably our best present method of resuscitation after electrical shock or drowning accidents, but Professor Yandell Henderson in his address before the American Medical Association, called particular attention to the value of the inhalation of a small percentage of carbon dioxide in combination with oxygen in all conditions in which death from respiratory failure is threatening. He emphasized the fact that the stimulant which nature herself uses to maintain the action of the breathing centre is carbon dioxide. It is the increased production of carbon dioxide during muscular exercise that causes the corresponding increase in the rapidity and in the volume of air inhaled, and by so doing increases the supply of oxygen to meet the increased need. Pure oxygen, or air enriched with oxygen when absorbed by the blood gives life to the tissues, but it is not a stimulant to the respiratory centre and under some conditions may act as a direct depressant. When a man is exposed to a deficiency of oxygen his breathing becomes augmented and with this augmentation more carbon dioxide is exhaled than the body often can afford to lose. Then if oxygen is freely supplied, a marked decrease in the respiratory act occurs and breathing may even stop entirely owing to the lack of stimulus induced by the deficiency of carbon dioxide in the blood. This deficiency will be overcome spontaneously as the carbon dioxide is produced in the body and reaccumulates in the blood, but this may require a long period and while the deficiency of carbon dioxide lasts it profoundly disturbs the acid-alkali balance in the blood. When consciousness becomes impaired in such a condition the inhalation of oxygen alone is not sufficient, and for purposes of resuscitation oxygen containing 5 per cent of carbon dioxide is required. It is this mixture of the two which is specially demanded in carbon monoxide asphyxia (gas poisoning), an accident liable to occur during the winter when the