

these well-known physicians failed where I succeeded, am I to have less the credit?

In all this apparatus a grave defect existed, in my opinion, in that provision was made to exhaust the air from the lungs; this complicates the apparatus, and, furthermore, is not in accord with physiological conditions, as inspiration is a forcible measure, while expiration, being passive and produced by the elasticity of the fibro-elastic tissue of the lungs, does not call for the utilization of mechanical means to produce it. I also believe that an apparatus provided with means for exhausting air from the lungs would prove a very dangerous instrument to place in the hand of the average physician in an emergency case.

However, *no one* will question that Richardson, Hunter, the designer of the apparatus mentioned in Dr. Herzog's letter and several others whom I could cite, have prepared or invented instruments for forced respiration upon human beings.

With all their labor, what did they accomplish? Was a single human life saved by them? Did they demonstrate the *wonderful possibilities* of the method? Let us see. After my first operation with the instrument used in my physiological laboratory, and with which, notwithstanding its defects or adaptation for the purpose, I had succeeded in keeping my patient alive for nearly three hours, until he breathed for himself, I looked up the home and foreign literature on the subject. Nothing was discovered which appeared to controvert the fact, that I was justly entitled to the credit of being the first to *systematically and practically* solve the question of the value of forced respiration in the saving of human life; or that I had demonstrated, as one physician puts it, "that air can be *forced* into the lungs without any damage to them." Whatever has been accomplished, also should be stated, was without *any previous knowledge* of the *failures* in the same field which had ante-dated my efforts.

I can say, with the practical knowledge obtained from operating upon human beings, that the instruments used in the physiological laboratory do not meet the conditions to be successfully overcome in breathing for a human being for any length of time. They may answer in some in-

stances as a make-shift, but the work is carried on at a great disadvantage, and with many chances in favor of producing, instead of averting, a fatal result. They were never intended to be used upon human beings. The instrument with face-mask, originally devised by myself in all its practical details, and with which the results detailed in this paper were accomplished, was founded upon the experience obtained in my first case; and the results of my labor with it so overwhelmingly annihilates any controversy in opposition to its use, that it is needless to do more than present them to the profession. Had similar results or demonstration been accomplished at the hands of others in the past, nothing could have prevented them from receiving the widest publicity in the medical literature of the day; but no record is found which detracts from the practical value and originality of my labors. As a physiologist, I was acquainted with the apparatus used in the physiological laboratory, from the simple bellows with nozzle poked into the trachea of a dog, to the more complicated, constant Sprengle blower with interruptor, which admittedly would be of no use as an emergency instrument.

The apparatus I had used meets all the requirements for forced respiration in man, with or without tracheotomy, and in the *simplest manner*. It covers* *all* the methods which can be utilized in the operation, is adapted to be used out of doors or in a cold atmosphere, but may be modified by an arrangement to provide a constant air supply and automatic inspirator, which would, however, increase the cost, and do away with the emergency feature of the apparatus, as now used.

Dr. Herzog's article, possibly without intent, would naturally lead to the inference that the subject is old, not worth considering; its tenor is not uncertain. The truth is that the work in forced respiration, prior to my own, and running through the past century to a great extent, had simply relegated it to the list of *unjustifiable* procedures. Do we find anything

*I do not question that different mechanical devices might not be successfully used in forced respiration. They would not simplify the operation, and now, since the demonstrations of its value, may spring up as original inventions.