



## RESUSCITATION GREAT

# Benjamin Howard and the direct method of artificial respiration

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One of the earliest advocates of manual artificial respiration was Leroy-d'Etiolles who proposed simultaneous pressure upon the abdomen and the chest for expiration, with the inspiratory phase accomplished by the recoil of the compressed part.<sup>1</sup> This paper, read before the French Academy of Sciences in 1829, initially did not lead to the adoption of manual artificial respiration. However, by the middle of the 19th century the manual techniques of Hall<sup>2</sup> and Silvester<sup>3</sup> were widely adopted and recommended by the Humane Societies. In 1869, Benjamin Howard, Professor of Clinical and Operative Surgery at the Long Island College Hospital, New York, entered the debate. He published a five page booklet *Plain Rules for Restoration of Persons Apparently Dead from Drowning*.<sup>4</sup> In this article, Howard laid out six rules covering the essential elements of appraisal, airway clearance and maintenance, and his manual technique of artificial respiration. He included figures which, in addition to the practicalities of the resuscitation technique, showed a high level of sartorial elegance in the rescuers (Figure 1). He ended the booklet with this plea:<sup>4</sup>

'By an hour's practice upon a friend, any reader may acquire as much skill for such emergencies as

a physician need possess, and at this small cost may perhaps obtain the life-long satisfaction of having restored one or more valuable lives otherwise irrecoverably lost'.

Howard travelled widely and lectured as well as giving practical demonstrations of his 'direct method' of artificial respiration. One of these lectures was published in 1877 in the *Lancet* giving more widespread dissemination of his technique to the medical profession.<sup>5</sup> In this lecture delivered at King's College Hospital in London on 7 July 1877, Howard outlined the essential points for artificial respiration:<sup>5</sup>

1. A clear passage through the lips to the lungs.
2. The greatest possible expansion of the thorax.
3. The greatest practical diminution of the thorax—the two latter occurring with regular alteration and rhythm.'

He began with review of the method of Marshall Hall, a man whom he obviously held in high regard: 'I will begin with a demonstration of the method of Marshall Hall, reverence for whose memory and greatness make any criticism which may follow an uninviting and reluctant task'.<sup>5</sup> Howard pointed out that in Hall's method, the compression of the chest would be minimal as most of the patient's weight rested on the shoulder and hip. While acknowledging the contribution of Silvester's technique,

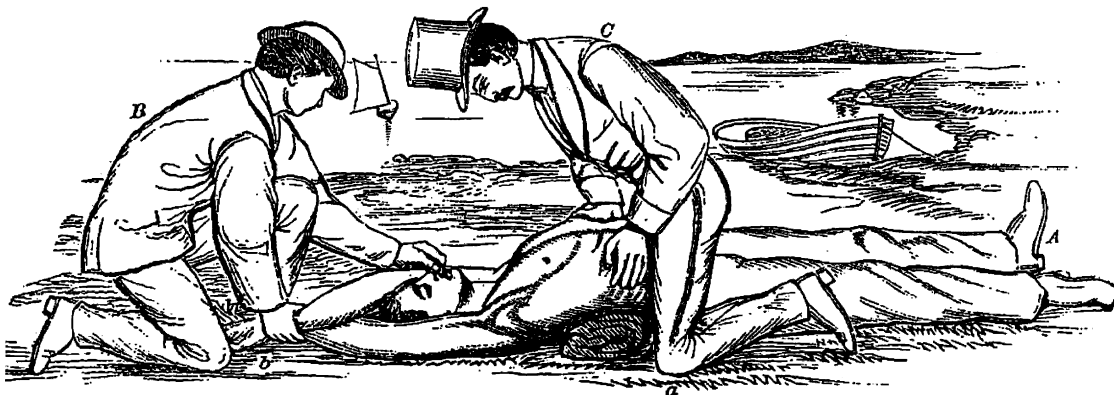
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(a) **RESTORATION OF PERSONS APPARENTLY DROWNED.**

MODE OF FORCING AND DRAINING OFF WATER AND OTHER ACCUMULATIONS FROM THE STOMACH, THROAT, AND MOUTH, ACCORDING TO RULE 2, PREPARATORY TO PERFORMING ARTIFICIAL BREATHING.

*a*, Patient's clothing rolled tightly.

(b)



MODE OF PERFORMING ARTIFICIAL BREATHING ACCORDING TO RULES 3 AND 4.

Figure 1 Howard's direct method of artificial respiration as illustrated [4].<sup>4</sup>

Howard had a number of criticisms about the limitations of this method, particularly in producing adequate compression of the thorax by the rescuer positioned at the patient's head. He felt that the compression of the lower ribs from this position did not allow adequate force as the direction of the compression was downwards, rather than the optimum upwards and inwards.

Howard went on to demonstrate his own technique which involved initially placing the victim face down over a bolster made of the patient's clothes and situated at the level of the epigastrium. The lower part of the chest was then compressed

forcibly a few times to promote drainage of water from the lungs and stomach. The patient was then turned onto his back with the bolster just below the shoulder blades such that the epigastrium and lower thorax were the highest part of the body. He described the main elements of his technique as follows:<sup>5</sup>

'Seize the patient's wrists, and having secured the utmost possible extension with them crossed behind his head, pin them to the ground with your left hand, so as to maintain it. With the right thumb and forefinger armed with the corner of a

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