

## CORRESPONDENCE

between World Wars I and II. Although the device was used as a ventilator in several hospitals, few contemporaries took the idea of ACD-CPR seriously.<sup>6</sup> In 1994 Smithline *et al.*,<sup>10</sup> using a Hayek Oscillator (Breasy Medical, London, UK) as a substitute for the Biomotor, confirmed his findings.

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*In Reply:*—We thank Dr. Koetter and Dr. Maleck for commending our work on the history, in Europe and the United States, of the discovery of cardiac massage. Their remarks are interesting but call for a number of comments about the facts and the thrust of our article.

Janos Balassa did indeed report experimenting with compression of the chest, but he shared with a very large number of authors of the time the goal of achieving artificial ventilation, as opposed to cardiac massage. His own words leave no room for ambiguity: "I exerted bellows-like rhythmic pressure to the chest imitating breathing."<sup>1</sup> As for Eisenmenger, we agree that he made a large contribution to the history of cardiac massage. He developed a technique of compression of the chest and abdomen similar to that described by Crile.<sup>2</sup> His primary goal, however, was to improve ventilation rather than circulation, as pointed out recently by Koetter and Maleck: "In 1900 . . . a device for suction on the upper thorax is proposed as a method to improve ventilation of the lung apices in tuberculosis."<sup>3</sup> Only later, at a time when the scientific community had accepted cardiac massage and was aware of the results obtained by Crile, did Eisenmenger suggest that his technique be used in circulatory arrest.

Beyond the raw historical facts, our main objective was to analyze why a technique (external cardiac massage) fell into oblivion after being developed and widely commented on by the scientific community. To illustrate how extraordinary was this passage into limbo, we selected those American and European experiments that were per-

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formed earliest and that made the largest contributions to scientific debate at the beginning of the twentieth century.

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