

CHAPTER SIX

Physiological Effects of Abnormal Atmospheric Pressure*

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I. Introduction—Historical Background

The effects of the pressure exerted by the atmosphere upon the body, especially those that follow changes in this pressure, for convenience are considered in two classes, linked by the common physical attributes of gases. They comprise those found respectively: (1) in the range from normal barometric pressure to positive pressures met in diving and caisson work, and (2) in the range from normal to the reduced pressures incident to ascent into the atmosphere. As will be seen subsequently, certain details of the response to these two alterations in atmospheric pressure are different and necessitate separate discussion. In general, however, there is a continuity of response that has permitted a mutual acceleration of understanding of problems arising in these fields.

Historically, the elucidation of essential factors under both conditions rests on observation and practices of long standing, on the one hand in the diving industry, and on the other hand in agriculture and mining in mountainous areas, which have been implemented from ancient times by special knowledge, uncritical though it may seem in the light of more recent observation and experiment.

It is probable that pearl and sponge diving offered the earliest and most frequent industrial encountering of effects of compressed air. It seems likely that no realization of the physiological aspects existed until the time of Aristotle,¹ and then

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¹R. Heller, W. Mager, and H. Schrötter, *Luftdruckerkrankungen mit besonderen Rücksichtigung der sogenannten Caissonkrankheit*. Vol. I, Hölder, Vienna, 1900.