Mountaineering, from Adventure to Knowledge

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The conquest of the great mountain tops started with isolated adventurous tasks at the end of the last century. The highest and second highest mountain tops in the world (Everest and K2) were conquered in the 1950s by Hillary and Tensing, and Compagnoni and Lacedelli, respectively. Since then, several dozens of mountain climbers (physicians among others) have reached the upmost peaks.

Today, all the highest mountain tops in the world have been conquered, and R. Messner can even boast, among his many achievements, having conquered every mountaintop over 8,000 m. It was also acknowledged, though rather late, that these tasks allowed the carrying out of biomedical studies on natural models in 'extreme' physiological conditions and in specific altitude-dependent pathologic conditions. High-altitude medicine, which up to a few decades ago was limited to traumatology, has opened new chapters, and now involves the understanding of previously puzzling respiratory, cardiovascular, metabolic and haematological events.

Several years ago (1980) we organised our first scientific expedition on the Aconcagua mountain in Argentina. We intended to study, in an extreme altitude environment, both lung mechanics in healthy mountain climbers, and bronchial responsiveness in asthmatic patients. In the following expeditions, our attention turned to the behaviour of asthma in the 'natural laboratory' represented by altitudes over 5,000 m.

Meanwhile, taking advantage of the growing popularity of scientific studies in extreme altitude, we managed to equip numerous ad hoc research centres, including the laboratory-pyramid of the Italian National Research Council situated at over 5,000 m in Nepal at the foot of the last ascent to the top of mount Everest, a masterpiece of human daring enterprise. An innovative body of medical knowledge (including new aspects in physiology, new diseases, and atypical responses) has arisen from this field of research.

The Publisher of Respiration asked us to take care of collecting the most important among these medical experiences, that are presented in this issue of Respiration by researchers who directly contributed to these efforts, as for example C.S. Houston, one of the great pioneers in the pathophysiology of extreme altitude.

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