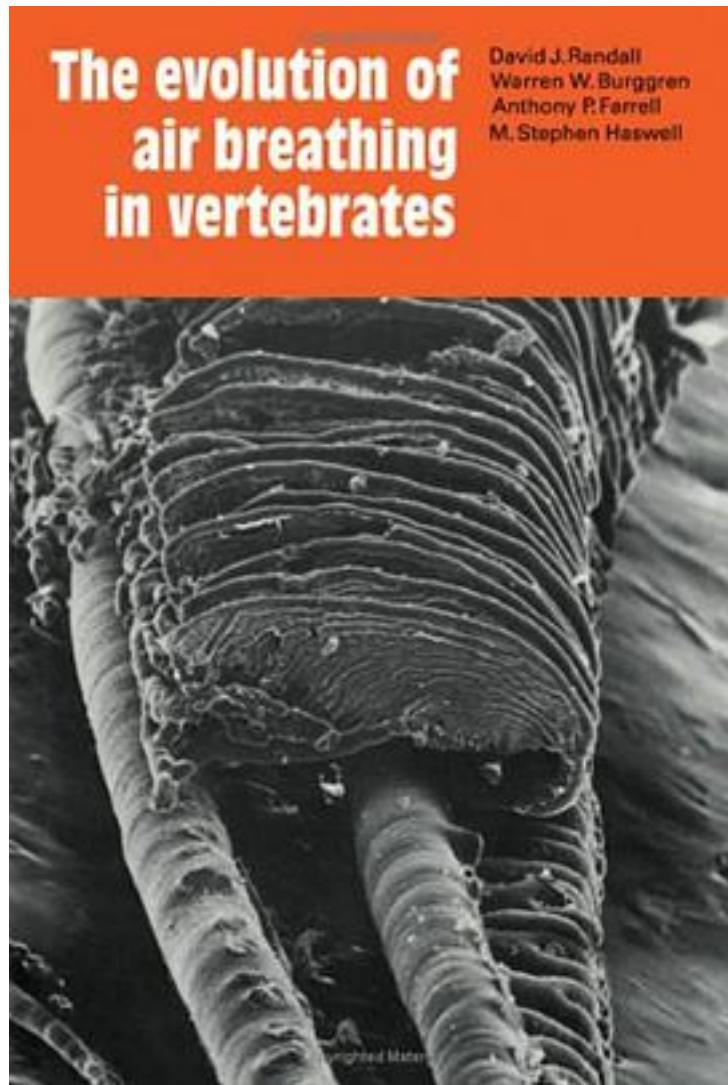


# The Evolution of Air Breathing in Vertebrates



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First published in 1981, this book presents an original approach to an area of great importance in comparative zoology and physiology and evolutionary biology: the evolution of air breathing in vertebrates from aquatic ancestors. The subject is approached from a functional as well as an anatomical viewpoint, utilising knowledge of the physiology of extant animals to trace probable evolutionary steps. Opening with a brief summary of current views of vertebrate evolution, the authors then go on to deal with problems of oxygen transfer in water and air and the structure and function of gills and lungs. Carbon dioxide transfer in water-breathing forms is seen as being tightly coupled to an ion and acid-base regulation. The evolution of air breathing is seen as a several-stage process, beginning with the evolution of accessory air-breathing structures for oxygen uptake.

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