
PREFACE

In September 1989, a meeting was held at Needham Hall, The University of Manchester, England, entitled 'Physical Influences on Embryonic Development in Birds and Reptiles'. The philosophy behind this meeting was to bring together scientists who specialised in the incubation and physiology of avian embryos with those workers interested in reptilian eggs and embryos. Leading authorities within many fields of incubation, oology and embryology were invited to give a presentation reviewing current knowledge within their sphere of research. The idea was to stimulate interest and collaboration between avian and reptilian researchers who may not have had any significant contact previously and to systematically compare and contrast events in birds and reptiles: a task never before attempted due in part to the paucity of reptilian data until the rapid expansion in knowledge of the past five years. Each speaker was also requested to produce a written review which forms the basis of this volume. This book is *not* a set of conference proceedings. Rather, it aims to be a comprehensive review of relevant reptilian and avian embryonic data: a text designed as a reference guide for the next few years.

The book aims to review incubation and embryology in birds and different kinds of reptiles and covers three major areas: the first deals with the chemical components and structure of eggs; the second examines the effects of the four main determinants of incubation, temperature, water relations, respiratory gas exchange and turning, upon embryonic development together with reviews of the evolutionary significance of incubation parameters. The final area deals with embryonic development and the possible methods used to investigate and manipulate the embryo. A review of the methods used in the generation of transgenic birds, originally presented at the meeting, has been withdrawn due to the ill-health of its author. Sadly, Professor Hermann Rahn, the leading international figure in avian egg physiology, died during the preparation of this book: we are privileged to publish one of his last seminal scientific contributions, authored before his death.

The chapters are extensively referenced either to the original literature or to other reviews so that this book might serve as a useful entrance into the field of avian and reptilian eggs and embryos. The book should be of value to a wide range of individuals: developmental biologists, zoologists, commercial incubation and breeding establishments, zoos, conservationists, wildlife managers, evolutionary biologists, herpetologists, physiologists, biochemists, the enlightened hobbyist and a variety of graduate students.

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