

CONTENTS

Group photograph of participants of <i>Physical Influences on Embryonic Development in Birds and Reptiles</i>	iv
Preface	ix
DENIS C. DEEMING & MARK W. J. FERGUSON	
Contributors	xi
1 Maternal diet, maternal proteins and egg quality HAROLD B. WHITE III	1
2 Comparative composition and utilisation of yolk lipid by embryonic birds and reptiles RAY C. NOBLE	17
3 Oviductal proteins and their influence on embryonic development in birds and reptiles BRENT D. PALMER & LOUIS J. GUILLETTE, JR	29
4 Fluxes during embryogenesis KENNETH SIMKISS	47
5 Eggshell structure and formation in eggs of oviparous reptiles MARY J. PACKARD & VINCENT G. DEMARCO	53
6 Shell structure and formation in avian eggs RONALD G. BOARD & NICK H. C. SPARKS	71
7 Physical characteristics of reptilian eggs and a comparison with avian eggs JOHN B. IVERSON & MICHAEL A. EWERT	87
8 Egg shape in birds IAIN H. M. SMART	101
9 The thermal energetics of incubated bird eggs J. SCOTT TURNER	117
10 Physiological effects of incubation temperature on embryonic development in reptiles and birds DENIS C. DEEMING & MARK W. J. FERGUSON	147
11 Cold torpor, diapause, delayed hatching and aestivation in reptiles and birds MICHAEL A. EWERT	173

CONTENTS

12	Physical factors affecting the water exchange of buried reptile eggs RALPH A. ACKERMAN	193
13	The physiological and ecological importance of water to embryos of oviparous reptiles GARY C. PACKARD	213
14	Roles of water in avian eggs AMOS AR	229
15	Water economy and solute regulation of reptilian and avian embryos DAVID VLECK	245
16	The avian eggshell as a mediating barrier: respiratory gas fluxes and pressures during development CHARLES V. PAGANELLI	261
17	Gas exchange across reptilian eggshells DENIS C. DEEMING & MICHAEL B. THOMPSON	277
18	Metabolism and energetics of reptilian and avian embryos CAROL M. VLECK & DONALD F. HOYT	285
19	Reasons for the dichotomy in egg turning in birds and reptiles DENIS C. DEEMING	307
20	A comparison of reptilian eggs with those of megapode birds DAVID T. BOOTH & MICHAEL B. THOMPSON	325
21	Why birds lay eggs HERMANN RAHN	345
22	Influences of incubation requirements on the evolution of viviparity RICHARD SHINE	361
23	Overview of early stages of avian and reptilian development RUTH BELLAIRS	371
24	Ions and ion regulating mechanisms in the developing fowl embryo JAMES I. GILLESPIE, JAMES R. GREENWELL, ELSPETH RUSSELL & CLAIRE J. DICKENS	385
25	Electrochemical processes during embryonic development PAUL O'SHEA	395
26	Methods for shell-less and semi-shell-less culture of avian and reptilian embryos BRUCE E. DUNN	409
27	Experimental studies on cultured, shell-less fowl embryos: calcium transport, skeletal development and cardio-vascular functions ROCKY S. TUAN, TAMAO ONO, ROBERT E. AKINS & MASAFUMI KOIDE	419
	Index	435