# VERTEBRATE LIMB REGENERATION

by H. Wallace. The University of Birmingham, Department of Genetics

The first to cover this topic exclusively and in such detail, this provocative book describes limb regeneration in amphibians and reviews the experimental analysis of the process, to show how similar it is to limb development in all vertebrates and to point out possible ways of permitting limb regeneration in higher vertebrates such as ourselves.

Unique in providing a comprehensive review of the experiments on limb regeneration, the book challenges traditional views concerning the influence of nerves and hormones on limb regeneration and asserts that an early regenerate is equivalent to a developing limb bud in its capacity for self-regulation, involving metaplasia and autonomous morphogenesis. It examines our limited understanding and highly artificial theories of limb morphogenesis in development and regeneration. It finally argues that the unknown mechanisms which guide development may persist in all vertebrate limbs, so that any means of stimulating enough growth at the end of a limb stump might well provoke a recapitulation of development.

#### Contents:

Preface: Descriptive: Nervous Control; Hormonal Influence; Effects of Irradiation; Metabolic Changes; Genetic Aspects; The Mechanism of Regeneration; Regional and Axial Determination; Blastemal Morphogenesis; Comments and Speculations; References; Subject Index.

0471 27877 7

approx. 320 pages February 1981

approx. \$58.00/£20.00



John Wiley & Sons Limited

Baffins Lane · Chichester · Sussex PO19 1UD · England

# Cell Membranes and Viral Envelopes

Volumes 1 and 2 edited by H.A. Blough and J.M. Tiffany

Volume 1: June 1980, xiv + 430pp., £44.00 (UK only) / \$106.00, 0.12.107201.0 Volume 2: June 1980, xiv + 424pp., £44.00 (UK only) / \$106.00, 0.12.107202.9

This book attempts to correlate cell membrane structure and function with viral structure. It is advantageous for studies of the two systems to be carried out in conjunction as in order to understand fully the attachment, penetration and replication of a virus a knowledge of the nature of the membranes involved in these various steps is required. The work concentrates on the synthesis of proteins, carbohydrates and lipids, their assembly into viral membrane structures and the relationships to the host cell membrane.

# Academic Press



A Subsidiary of Harcourt Brace Jovanovich, Publishers London New York Toronto Sydney San Francisco 24-28 Oval Road, London NW1 7DX, England 111 Fifth Avenue, New York, NY 10003, USA



### Sense Organs

Edited by M S Laverack, University of St Andrews and D J Cosens, University of Edinburgh.

In this timely book, a number of eminent, international researchers review current knowledge of how biological sensors work—their sensitivities, their ambiguities, their input to the central nervous system and the manner in which their signals are interpreted.

#### Contents:

#### STRUCTURE AND FUNCTION OF SENSE ORGANS

Introduction: *H. Autrum.* The adaptive radiation of sense organs: *M. Laverack.* Optical mechanisms in the higher crustacea: *M. Land.* Behavioural correlates of photoreception in *Daphnia: S. Young.* The properties of hair cells in the mammalian cochlea: *I. Russell.* Chemoreceptors—their structure and function: *J. Boeckh.* The transducer mechanisms of sense organs: *C. Duncan.* Strain detection in the arthropod exoskeleton: *F Barth.* Bistable and photostable pigments in microvillar photoreceptors: *K. Kirschfeld.* The role of calcium in invertebrate visual transduction: *H. Stieve.* The mechanisms of stimulus transduction in chemoreceptors: *C. Den Otter.* 

#### ORGANISATION OF SENSORY SYSTEMS

Introduction: O. E. Lowenstein. The acoustic-lateralis system of aquatic vertebrates: A. Hawkins. Retinal fibre projection patterns in the primary visual pathways to the brain: J. Scholes. Equilibrium and proprioceptive systems: D. Sandeman. Electroreception in weakly-electric fish: T. Szabo. Coding and integration in receptors and central afferent systems: T. Bullock. Cutaneous sensory systems: A. Iggo. The orientation of bees in the earth's magnetic field: H. Martin and M. Lindauer. Visual perception—the eye and brain: R. Gregory. Unusual Senses: F. A. Brown. Epilogue: O. E. Lowenstein.

410pp 52 line diagrams 6pp photographs Cased ISBN 0 216 91094 3 £29.75 net

## **Biology of Communication**

D Brian Lewis and D Michael Gower, both of City of London Polytechnic.

A book showing how neurophysiology can make a significant contribution to understanding the underlying mechanisms of communicative behaviour.

#### Contents

What is communication? Sensory systems. External stimuli, internal factors and behaviour. Integration and the control of behaviour. The evolution of signals. The shaping of communication sequences—courtship. Some methods of analysing sequences of behaviour. Bibliography.

 248pp
 42 line diagrams
 1980

 Cased
 ISBN 0 216 90780 2
 £17.75 net

 Paperback
 ISBN 0 216 90995 3
 £8.75 net



Blackie & Son Ltd. Bishopbriggs, Glasgow G64 2NZ, U.K.

Continued from front cover	PAGE
Johnston, James W. and Jungreis, Arthur M. Carbonic anhydrase activity during the larval-pupal transformation of <i>Hyalophora cecropia</i> reared on foliage and synthetic diet: effects of potassium and chloride on midgut, fat body and integumentary enzymes .	255
Costello, Walter J., Hill, Russell and Lang, Fred. Innervation patterns of fast and slow motor neurones during development of a lobster neuromuscular system	271
Bogé, G., Rigal, A. and Pérès, G. A study of in vivo glycine absorption by fed and fasted rainbow trout (Salmo gairdneri)	285
FARRELL, A. P. Cardiovascular changes in the lingcod (Ophiodon elongatus) following adrenergic and cholinergic drug infusions	293
HORRIDGE, G. A., DUNIEC, J. and MARCELJA, L. A 24-hour cycle in single locust and mantis photoreceptors	307
ALT, J. M., STOLTE, H., EISENBACH, G. M. and WALVIG, F. Renal electrolyte and fluid excretion in the Atlantic hagfish <i>Myxine glutinosa</i>	323
Denlinger, David L. and Bradfield IV, James Y. Duration of pupal diapause in the tobacco hornworm is determined by number of short days received by the larva	331
Greenaway, Peter. The fate of glomerular filtration markers injected into the haemolymph of the amphibious crab, <i>Holthuisana transversa</i>	339
SHORT COMMUNICATIONS	
EDDY, F. B., BAMFORD, O. S. and MALOTY, G. M. O. Na <sup>+</sup> and Cl <sup>-</sup> effluxes and ionic regulation in <i>Tilapia grahami</i> , a fish living in conditions of extreme alkalinity	349
SIMMONS, PETER J. Ocellar excitation of the DCMD; an identified locust interneurone .	355
Hansson, Mild Kjell and Løvtrup, Søren. A note on the cell water density in amphibian eggs	361
Marsh, Richard L. and Storer, Robert W. Correlation of flight-muscle size and body mass in Cooper's hawks: a natural analogue of power training	363

The Journal of Experimental Biology is published for the Company of Biologists Limited by Cambridge University Press.

ISSN: 0022-0949

© The Company of Biologists 1981.