

# The Journal of Experimental Biology

EDITED BY  
J. E. TREHERNE

WITH W. A. FOSTER & P. K. SCHOFIELD

	PAGE
GOULD, JAMES L., KIRSCHVINK, J. L. DEFFEYES, K. S. and BRINES, M. L. Orientation of demagnetized bees . . . . .	1
TAYLOR, C. RICHARD, HEGLUND, NORMAN C., MCMAHON, THOMAS A. and LOONEY, TODD R. Energetic cost of generating muscular force during running: a comparison of large and small animals . . . . .	9
JOKUMSEN, ALFRED and WEBER, ROY E. Haemoglobin-oxygen binding properties in the blood of <i>Xenopus laevis</i> , with special reference to the influences of aestivation and of temperature and salinity acclimation . . . . .	19
ORTIZ, C. LEO and ORKAND, R. K. Neuromuscular facilitation in crayfish: dependence on potassium and strophanthidin . . . . .	39
GWILLIAM, G. F. and BURROWS, M. Electrical characteristics of the membrane of an identified insect motor neurone . . . . .	49
KROESE, ALFONS B. A., VAN DER ZALM, JOHAN M. and VAN DEN BERCKEN, JOEP. Extracellular receptor potentials from the lateral-line organ of <i>Xenopus laevis</i> . . . . .	63
BELL, C. J. The scaling of the thermal inertia of lizards . . . . .	79
SIMMONS, PETER. Connexions between a movement-detecting visual interneurone and flight motoneurons of a locust . . . . .	87
HUDDART, H. and SAAD, K. H. M. Papaverine-induced inhibition of electrical and mechanical activity and calcium movements of rat ileal smooth muscle . . . . .	99
BRACE, R. C. and QUICKE, D. L. J. Neural control of radular retractor muscles of the pulmonate snail, <i>Planorbarius corneus</i> (L.): functional anatomy and properties of neuromuscular units . . . . .	115
HILL, K. G., LEWIS, D. B., HUTCHINGS, M. E. and COLES, R. B. Directional hearing in the Japanese quail ( <i>Coturnix coturnix japonica</i> ) I. Acoustic properties of the auditory system . . . . .	135
COLES, R. B., LEWIS, D. B., HILL, K. G., HUTCHINGS, M. E. and GOWER, D. M. Directional hearing in the Japanese quail ( <i>Coturnix coturnix japonica</i> ) II. Cochlear physiology . . . . .	153
CAMERON, JAMES N. Body fluid pools, kidney function, and acid-base regulation in the freshwater catfish <i>Ictalurus punctatus</i> . . . . .	171
UYAMA, CHIKAO and MATSUYAMA, TAKASHI. Coordinated excitation of flexor inhibitors in the crayfish . . . . .	187
BERGER, P. J., EVANS, B. K. and SMITH, D. G. Localization of baroreceptors and gain of the baroreceptor-heart rate reflex in the lizard <i>Trachydosaurus rugosus</i> . . . . .	197

Continued on back cover

# CONTENTS

	PAGE
GOULD, JAMES L., KIRSCHVINK, J. L., DEFFEYES, K. S. and BRINES, M. L. Orientation of demagnetized bees . . . . .	1
TAYLOR, C. RICHARD, HEGLUND, NORMAN C., McMAHON, THOMAS A. and LOONEY, TODD R. Energetic cost of generating muscular force during running: a comparison of large and small animals . . . . .	9
JOKUMSEN, ALFRED and WEBER, ROY E. Haemoglobin-oxygen binding properties in the blood of <i>Xenopus laevis</i> , with special reference to the influences of aestivation and of temperature and salinity acclimation . . . . .	19
ORTIZ, C. LEO and ORKAND, R. K. Neuromuscular facilitation in crayfish: dependence on potassium and strophanthidin . . . . .	39
GWILLIAM, G. F. and BURROWS, M. Electrical characteristics of the membrane of an identified insect motor neurone . . . . .	49
KROESE, ALFONS B. A., VAN DER ZALM, JOHAN M. and VAN DEN BERCKEN, JOEP. Extracellular receptor potentials from the lateral line organ of <i>Xenopus laevis</i> . . . . .	63
BELL, C. J. The scaling of thermal inertia of lizards . . . . .	79
SIMMONS, PETER. Connexions between a movement-detecting visual interneurone and flight motoneurons of a locust . . . . .	87
HUDDART, H. and SAAD, K. H. M. Papaverine-induced inhibition of electrical and mechanical activity and calcium movements of rat ileal smooth muscle . . . . .	99
BRACE, R. C. and QUICKE, D. L. J. Neural control of radular retractor muscles of the pulmonate snail, <i>Planorbarius corneus</i> (L.): functional anatomy and properties of neuromuscular units . . . . .	115
HILL, K. G., LEWIS, D. B., HUTCHINGS, M. E. and COLES, R. B. Directional hearing in the Japanese quail ( <i>Coturnix coturnix japonica</i> ) I. Acoustic properties of the auditory system . . . . .	135
COLES, R. B., LEWIS, D. B., HILL, K. G., HUTCHINGS, M. E. and GOWER, D. M. Directional hearing in the Japanese quail ( <i>Coturnix coturnix japonica</i> ) II. Cochlear physiology . . . . .	153
CAMERON, JAMES N. Body fluid pools, kidney function, and acid-base regulation in the freshwater catfish <i>Ictalurus punctatus</i> . . . . .	171
UYAMA, CHIKAO and MATSUYAMA, TAKASHI. Coordinated excitation of flexor inhibitors in the crayfish . . . . .	187
BERGER, P. J., EVANS, B. K. and SMITH, D. G. Localization of baroreceptors and gain of the baroreceptor-heart rate reflex in the lizard <i>Trachydosaurus rugosus</i> . . . . .	197
SPRING, J. H. and PHILLIPS, J. E. Studies on locust rectum I. Stimulants of electrogenic ion transport . . . . .	211
SPRING, J. H. and PHILLIPS, J. E. Studies on locust rectum II. Identification of specific ion transport processes regulated by corpora cardiaca and cyclic-AMP . . . . .	225

	PAGE
MANGEL, ALLEN and LADD PROSSER, C. Rhythmic electrical activity in stomach and intestine of toad . . . . .	237
ASHCROFT, FRANCES M. The electrical constants of the skeletal muscle fibres of the stick insect, <i>Carausius morosus</i> . . . . .	249
CARR, CATHERINE E. and FOURTNER, CHARLES R. Pharmacological analysis of a mono-synaptic reflex in the cockroach, <i>Periplaneta americana</i> . . . . .	259
CANNONE, A. J. and BUSH, B. M. H. Reflexes mediated by non-impulsive afferent neurones of thoracic-coxal muscle receptor organs in the crab, <i>Carcinus maenas</i> . I. Receptor potentials and promotor motoneurone responses . . . . .	275
CANNONE, A. J. and BUSH, B. M. H. Reflexes mediated by non-impulsive afferent neurones of thoracic-coxal muscle receptor organs in the crab, <i>Carcinus maenas</i> . II. Reflex discharge evoked by current injection . . . . .	305
SHORT COMMUNICATIONS	
PETERS, MALTE and TETZEL, HANS D. Piezoelectric drive for step-by-step micro-electrode advancement . . . . .	333
ERIKSSON, E. S. Movement parallax and distance perception in the grasshopper ( <i>Phaulacridium vittatum</i> (Sjöstedt)) . . . . .	337
ZERAHN, KARL. Competition between potassium and rubidium ions for penetration of the midgut of <i>Hyalophora cecropia</i> larvae . . . . .	341
KIRSCHVINK, J. L. South-seeking magnetic bacteria . . . . .	345
WALCOTT, CHARLES. Homing-pigeon vanishing bearings at magnetic anomalies are not altered by bar magnets . . . . .	349