

Myelinated Fibers and Saltatory Conduction in the Shrimp: The Fastest Impulse Conduction in the Animal Kingdom

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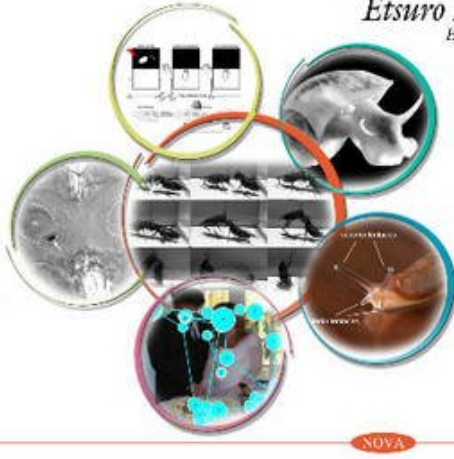
Product Description

In 1961, neurobiologists found that the conduction velocity of the nerve impulse in the giant nerve fiber of the *Penaeus* shrimp abdominal nerve cord was over 200 m/s, the highest speed of information transmission ever observed in the animal kingdom. The peculiar myelin sheath with its unique nodal structure and the electrical properties of the nerve fibers of the shrimp have continued to be investigated for a quarter of century and are now fully described in this book. The investigation dispels the commonly held belief that the fastest recorded impulse conduction is about 120 m/s in the thickest vertebrate myelinated nerve fibers. In the shrimp, researchers found a completely novel type of functional node in the giant fiber which they designated as the fenestration node. In portions of the myelinated fiber, the fenestration node furnished the sites of excitation. Also discovered was a new strategy for increasing impulse conduction in the shrimp. The book includes a section on the formation of the fenestration node and the discovery of a strategy that allows the shrimp to escape its predators by an action of the fastest velocity. The data presented in this volume on the myelin sheath of invertebrates present a new direction for this field and a rich source of information for neurobiologists worldwide.

NEUROSCIENCE RESEARCH PROGRESS

Memory Consolidation

Manabu Sakakibara
Etsuro Ito
Editors



Memory Consolidation (Neuroscience Research Progress)

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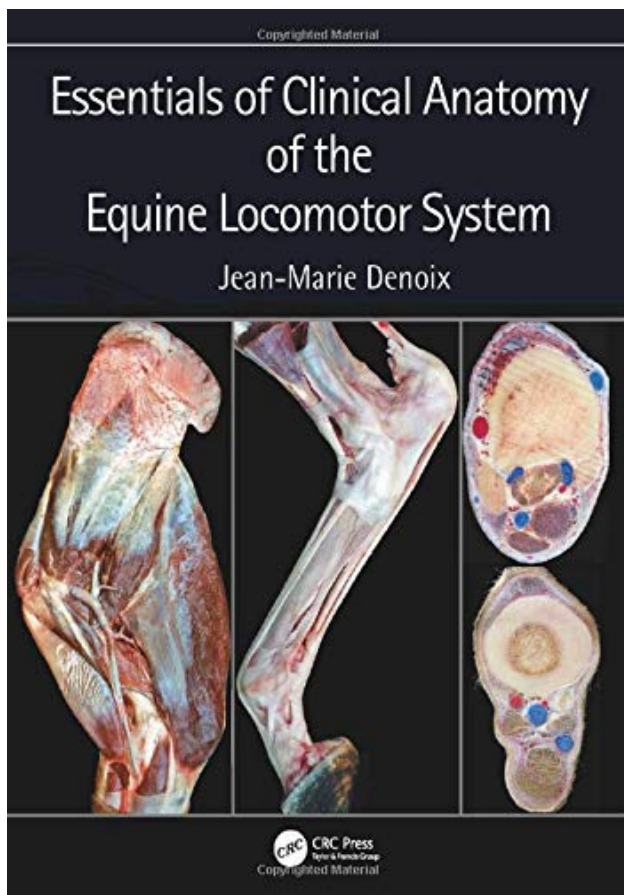
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Product Description

Learning and memory are necessary, fundamental functions that animals need in order to survive and adapt to any environment. The ability to learn and form memory depends on changes occurring in neuronal circuits. These changes occur at both the synaptic level and at the level of changes in intrinsic membrane properties of neurons. Such changes involve physical, structural changes (including growth of new processes as well as retractions of other processes). Some of these changes may persist throughout the life of the organism while others last for relatively short times. While learning and memory are related, they are separate processes with their own 'rules and regulations'. Longer lasting memories involve changes in protein synthesis as well as gene activity. The molecular changes that occur in neurons and glia that underlie learning and memory result in structural and biophysical changes in single neurons and neuronal circuits. Some of the chapters in this book present the authors' findings from specific model systems while other chapters present research concerned with memory consolidation in humans, which can be referred to the process by which the changes in neuronal functioning that occur as a result of learning (ie: new behaviour).



Essentials of Clinical Anatomy of the Equine Locomotor System

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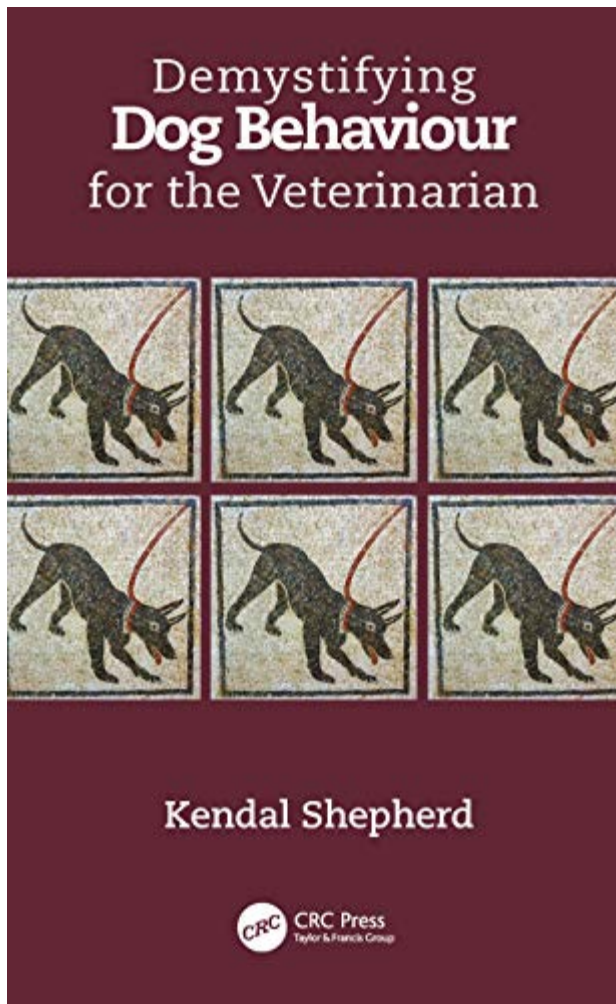
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Product Description

Essentials of Clinical Anatomy of the Equine Locomotor System presents a unique photographic record of dissections showing the topographical anatomy of the locomotor system of the horse. Readers of this book will be able to see the position and relationships of the bones, joints, muscles, nerves and blood vessels that make up each region of the forelimb, vertebral column and hindlimb. Key features: Important features of regional and topographical anatomy are presented using full-color photos of detailed dissections Anatomy is presented in a clinical context Preparations of cross-sectional anatomy facilitate interpretation of diagnostic imaging, such as ultrasonography, MRI images and CT scans All dissections are of fresh material, rather than preserved specimens, to demonstrate the appearance of tissues in the living animal, or at post mortem autopsy This new atlas is essential for anybody involved in detailed anatomical study, complex lameness evaluation or advanced imaging techniques in horses. It will be a useful guide for veterinary students, and a reference for equine vets in practice.



Demystifying Dog Behaviour for the Veterinarian

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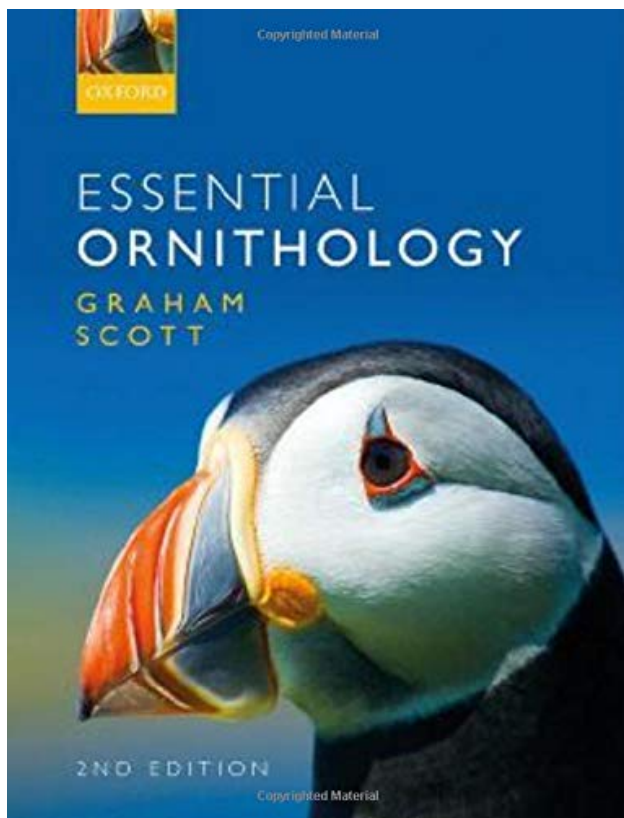
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Product Description

The behaviour textbook that's been missing! - Dr Mandy Roshier, University of Nottingham, School of Veterinary Medicine and Science, UK This practical guide for busy veterinarians demystifies the apparently complex nature of canine behaviour while simultaneously emphasising its importance. Authored by acclaimed veterinary behaviour consultant Kendal Shepherd, the book provides practical knowledge of dog behaviour and an understanding of how to talk about it with clients. Shepherd shows how this can enhance the relationship between owner and pet and between dog and environment, including the vet surgery, as well as improve the vet's own sense of fulfilment and enjoyment of practice. From a discussion on the true nature of obedience to stressing the importance of behavioural indicators when assessing pain and mental welfare and finally by reminding vets of their obligations under Dangerous Dogs legislation, the emphasis is on the prevention of aggression throughout. Packed with anecdotes drawn from real-life cases, easy to read and understand, the principles explained can be effortlessly assimilated into the average consultation without the need for lengthy report-writing.



Essential Ornithology

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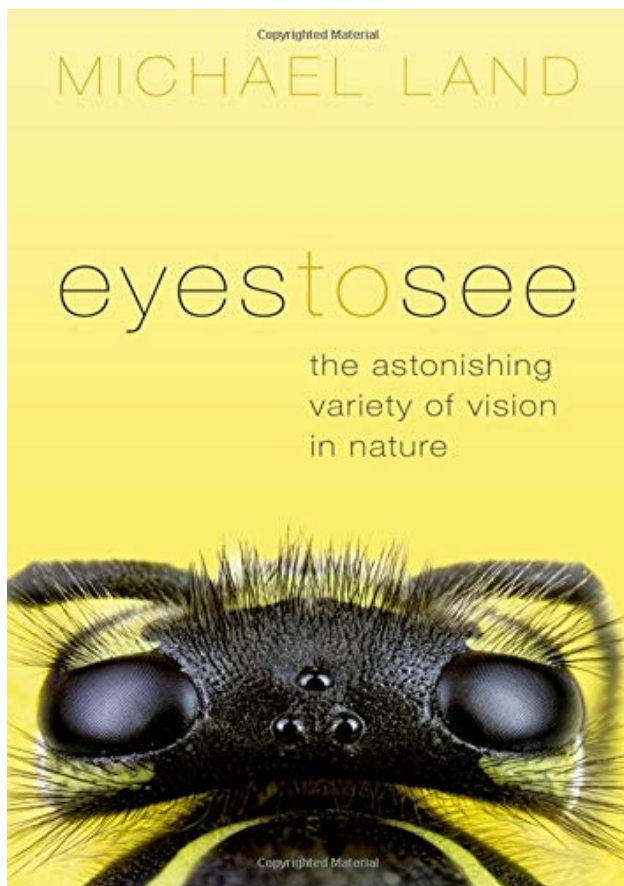
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Product Description

Essential Ornithology provides the reader with a concise but comprehensive introduction to the biology of birds, one of the most widely studied taxonomic groups. The book begins by considering the dinosaur origins of birds and their subsequent evolution. Development, anatomy, and physiology are then discussed followed by chapters devoted to avian reproduction, migration, ecology, and conservation. Sections dealing with aspects of bird/human relationships and bird conservation give the book an applied context. This new edition has been thoroughly updated, providing new information from rapidly-developing fields including the avian fossil record, urban and agricultural ecology, responses to climate change, invasive species biology, technologies to track movement, avian disease, and the role of citizen scientists. There is also a greater focus on North American ornithology. Drawing extensively upon the wider scientific literature, this engaging text places the results of classical studies of avian biology alongside the most recent scientific breakthroughs. Useful case studies are presented in a concise and engaging style with the student reader foremost in mind. Key points are highlighted and suggestions for guided reading and key references are included throughout. Essential Ornithology is a companion textbook for advanced undergraduate and graduate students taking courses in avian science, as well as a useful reference for professional researchers and consultants. Amateur ornithologists will also find this book offers a scientifically rigorous and accessible overview for a more general readership.



Eyes to See: The Astonishing Variety of Vision in Nature

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Price: \$523.95

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Product Description

Vision is the sense by which we and other animals obtain most of our information about the world around us. Darwin appreciated that at first sight it seems absurd that the human eye could have evolved by natural selection. But we now know far more about vision, the many times it has independently evolved in nature, and the astonishing variety of ways to see. The human eye, with a lens forming an image on a sensitive retina, represents just one. Scallops, shrimps, and lobsters all use mirrors in different ways. Jumping spiders scan with their front-facing eyes to check whether the object in front is an insect to eat, another spider to mate with, or a predator to avoid. Mantis shrimps can even measure the polarization of light. Animal eyes are amazing structures, often involving precision optics and impressive information processing, mainly using wet protein - not the substance an engineer would choose for such tasks. In *Eyes to See*, Michael Land, one of the leading world experts on vision, explores the varied ways in which sight has evolved and is used in the natural world, and describes some of the ingenious experiments researchers have used to uncover its secrets. He also discusses human vision, including his experiments on how our eye movements help us to do everyday tasks, as well as skilled ones such as sight-reading music or driving. He ends by considering the fascinating problem of how the constantly shifting images from our eyes are converted in the brain into the steady and integrated conscious view of the world we experience.
