An Introduction To Animal Behaviour 6th Sixth Edition By Manning Aubrey Stamp Dawkins Marian Published By Cambridge University Press 2012

This book gives an overview of Animal Behavior with an emphasis on integration of questions at both proximate and ultimate causation. The targeted audience is advanced undergraduates, graduate students, and professional scientists in other fields in need of a succinct review.
This well-accepted book, now stands in its second edition, is a time-honoured revision and extension of the previous edition. Beginning with an introduction to the study of animal behaviour, the book explains the various aspects of behavioural biology incorporating a wealth of information from molecular biology, neurobiology, and socio-biology with a new approach. It describes different kinds of innate and learned behaviours, animal communications, defensive behaviours such as camouflage and mimicry with suitable illustrations. The book incorporates the introductory concepts of biomimicry in an attractive manner. Further, it discusses biorhythms, migration in fish and birds, in addition to evolution and physiological basis of migration. The text also presents the important aspects of socio-biology and social behaviours, such as feeding, adaptation, prey defence, territoriality, aggression, altruism, sexuality, and parental care. Finally, it provides discussions on behavioural ecology in the context of conservation biology, and human behaviour. The book presents the basic principles of animal behaviour with the aid of carefully selected examples from both the recent and classic literature along with an emphasis on readability. In the present edition, topics like eusociality and behavioural theories have been incorporated. This edition also includes as many as 11 published articles by the author on different topics related to the subject matter in box format to further strengthen the text. The book is primarily intended for the students of B.Sc./M.Sc. (Zoology/Life Science) for their courses. It would be useful for the researchers in the field of animal behaviour, and conservation biologists. It would also attract readership studying Sociology and Anthropology. KEY FEATURES : Presents a well-balanced view of ethology. Discusses the current development in the field. Includes a glossary of important terms. Offers end-of-chapter questions to check the students' understanding of the concepts.
How does behaviour affect biological invasions? Can it explain why some animals are such successful invaders? With contributions from experts in the field, and covering a broad range of animals, this book examines the role of behaviour in biological invasions from the point of view of both invaders and native species. The chapters cover theoretical aspects, particularly relevant behaviours and well-documented case studies, showing that behaviour is critical to the success, and ecological and socio-economic impact, of invasive species. Its insights suggest methods to prevent and mitigate those impacts, and offer unique opportunities to understand the adaptive role of behaviour. Offering a comprehensive overview of current understanding on the subject, the book is intended for biological invasion researchers and behavioural ecologists, as well as ecologists and evolutionary biologists interested in how organisms deal with anthropogenic environmental changes such as climate change and habitat loss.
Recently, the 50th anniversary of the publication of Animal Behaviour has passed. To mark the occasion, a group of prominent behaviourists have written essays relevant to their fields. These essays provide a glimpse of the study of behaviour looking in all directions. History and future aside, it is imperative to broadcast this information from the perspective of the behaviourists who have helped shape both the past and the future. It is important for any field to be both retrospective and prospective: where have we been, where are we going, where are we now? These essays provide a unique personal reflection on the history of animal behaviour from John Alcock, Stuart and Jeanne Altmann, Steve Arnold, Geoff Parker, and Felicity

Huntingford. Six topics are reflected on and include: The History of Animal Behavioural Research, Proximate Mechanisms, Development, Adaptation, and Animal Welfare. Broad range of essays on animal behaviour Written by leaders in the field Offers a history of the study of behaviour plus essays on the future of behavioural studies Contains over 30 full color illustrations Includes essays on development, mechanisms and adaptive significance of behaviour

Animal Behavior, Second Edition, covers the broad sweep of animal behavior from its neurological underpinnings to the importance of behavior in conservation. The authors, Michael Breed and Janice Moore, bring almost 60 years of combined experience as university professors to this textbook, much of that teaching animal behavior. An entire chapter is devoted to the vibrant new field of behavior and conservation, including topics such as social behavior and the relationship between parasites, pathogens, and behavior. Thoughtful coverage has also been given to foraging behavior, mating and parenting behavior, anti-predator behavior, and learning. This text addresses the physiological foundations of behavior in a way that is both accessible and inviting, with each chapter beginning with learning objectives and ending with thought-provoking questions. Additionally, special terms and definitions are highlighted throughout. Animal Behavior provides a rich resource for students (and professors) from a wide range of life science disciplines. Provides a rich resource for students and professors from a wide range of life science disciplines Updated and revised chapters, with at least 50% new case studies and the addition of contemporary in-text examples Expanded and updated coverage of animal welfare topics Includes behavior and homeostatic mechanisms, behavior and conservation, and behavioral aspects of disease Available lab manual with fully developed and tested laboratory exercises Companion website includes newly developed slide sets/templates (PowerPoints) coordinated with the book

Modern farm environments are profoundly different from the natural habitats of the ancestors of today's farm animals, and through genetic selection, the appearance and behaviour of the animals themselves have also changed. However, the legacy of the ancestors is still obvious, and some apparently bizarre actions are only possible to understand in the light of the evolutionary history of the species. On the other hand, some of the behaviour we can observe in animals in a modern farm or in a laboratory are not part of the normal, species-specific behaviour at all. They may even indicate that the animal is under stress and that its welfare is poor. Distinguishing between these possibilities is one important goal for applied ethology. This revised and updated edition includes extended coverage of dog behaviour and human-animal interactions as well as novel and intriguing research findings. The issue of animal cognition, central to understanding welfare, has also received a more thorough examination.

Biomechanics in Animal Behaviour offers a unique approach by integrating fully the fields of animal behaviour and biomechanics. It demonstrates how an understanding of biomechanical issues is an important part of evaluating and predicting animal behaviour. The book examines how behaviour is determined and/or constrained by biomechanical variables such as hydrodynamics, aerodynamics, kinematics, and the mechanical properties of biomaterials.

Animal behaviour has been one of the fastest-growing scientific disciplines of recent years. Its impact on the way we think about biology has spawned lucid ¿best sellers¿ like The Selfish Gene and widespread scientific and public debate about our view of the natural world and our place in it. This book provides a comprehensive introduction to the study of behaviour, from its basis in the animal¿s anatomy and physiology to its adaptive value in the environment. It is aimed at undergraduate students in the biological sciences and psychology and is designed to serve as both a detailed introduction and an extensive, up-to-date source of reference enabling students to pursue topics in the primary literature.

What can the evolution of animal behaviour tell us about human behaviour? More specifically, how good an account of animal behaviour can we give in terms of evolution, and how do

humans fit in with or deviate from the pattern established for other animals? The biological approach to the study of animal behaviour has important implications for psychology, but it is distinctly different. Originally published in 1984, this book provides a basic introduction to biological theories about behaviour, from the classic ethological tradition of Lorenz and Tinbergen to the later sociobiological approach. The principles of experimentation and research involved are assessed critically, especially with regard to their implications for the study of human behaviour. Written specifically for those with little biological knowledge, this book will still be of interest to students of biology and introductory psychology alike.

Suffering is a state of mind that is difficult to measure and analyse in human beings and considerably more so in animals. It is related to the environment in which we live and our physical and mental states. Understanding the physiology of suffering in animals is crucial in assessing animal welfare. Written by an expert in applied welfare aspects of physiology, this book is the first to address the physiological aspects of suffering in animals. It explores the different causes of suffering – physical discomfort, thirst and hunger, the responses in the body that lead to suffering and it offers insight into how suffering can be managed. The second book in a major new animal welfare series Draws together information that is scattered across the literature Written for the specialist and non-specialist alike Includes colour pictures This book is part of the UFAW/Wiley-Blackwell Animal Welfare Book Series. This major series of books produced in collaboration between UFAW (The Universities Federation for Animal Welfare), and Wiley-Blackwell provides an authoritative source of information on worldwide developments, current thinking and best practice in the field of animal welfare science and technology. For details of all of the titles in the series see www.wiley.com/go/ufaw.

Readable introduction to animal behaviour for beginning students in biology and psychology. Covering every aspect of animal behaviour from adaptation to warning, this accessible A-Z also includes terms from the related fields of ecology, physiology and psychology. Clear and informative entries on topics such as communication, learning, and navigation are backed up by examples and illustrations where appropriate. The new edition adds 80 new entries, expands coverage of behavioural ecology, cognitive ethology, and evolutionary theory, and brings the text up to date with new theories and research. An essential source of reference for students of biology, psychology, and zoology, and fascinating reading for all those interested in animal behaviour.

Humans have a natural interest in animals; through a long history of domestication, they have become tools, a food source and even friends. Behaviour is a significant indicator of animal health and well-being, and understanding this behaviour is therefore the key to good management. Covering all aspects of animal behaviour and how this relates to welfare for companion animals, farm animals and farmed fish, this book reviews development, socialisation, locomotion, reproduction and more. It takes a comprehensive approach to the subject, including a section of chapters addressing common abnormal behaviours and reviewing some animals, such as rabbits, from both a pet and farm perspective. Now in its fifth edition, Domestic Animal Behaviour and Welfare includes new chapters detailing the welfare of sheep, goats and exotic pets, and welfare in relation to genetic selection and modification. Animal behaviour and welfare sciences are now core topics for agriculture and veterinary students, with courses and research opportunities in this field growing world-wide. Fully updated and with new photographs, this indispensable textbook provides a student-friendly guide to the major themes of animal behaviour and welfare.

Animal Behavior for Shelter Veterinarians and Staff presents and evaluates the available research and programs that address both animal and human behaviors associated with the intake, management and rehoming of dog and cats. Introductions to dog and cat behavior relevant to any animal professional Reviews behavioral reasons for the relinquishment of dogs and cats Describes intake and assessment protocol, shelter design, training and enrichment

programs that reduce stress and enhance behavioral well-being Concepts to improve the adoption process and support the human-animal bond post-adoption

Essential Animal Behavior provides a comprehensive introduction toall areas of the subject: from the genetic and neurobiologicalcontrol of behavior to the learning, development, and function ofbehavior in an evolutionary context. Social behaviour is alsocovered throughout the text. Written in a concise and engaging style, this new book: includes examples from both marine and terrestrial environmentsaround the world places current research alongside classic examples, and puts the study of animal behavior in an applied context,emphasizing the implications for animal welfare and animalconservation. Carefully designed to meet the needs of students coming to thesubject for the first time, the book includes the followingfeatures: key concept boxes Focus on boxes chapter summaries guided reading to aid revision and further study case studies and boxed examples that reinforce essentialpoints, and questions for discussion. This book is essential reading for degree-level studentsfollowing modular programs in biology, zoology, marine biology, andpsychology. An Instructor manual CD-ROM for this title is available. Pleasecontact our Higher Education team at ahref="mailto:HigherEducation@wiley.com"HigherEducation@wiley.com/afor more information.

How animals behave is crucial to their survival and reproduction. The application of new molecular tools such as DNA fingerprinting and genomics is causing a revolution in the study of animal behaviour, while developments in computing and image analysis allow us to investigate behaviour in ways never previously possible. By combining these with the traditional methods of observation and experiments, we are now learning more about animal behaviour than ever before. In this Very Short Introduction Tristram D. Wyatt discusses how animal behaviour has evolved, how behaviours develop in each individual (considering the interplay of genes, epigenetics, and experience), how we can understand animal societies, and how we can explain collective behaviour such as swirling flocks of starlings. Using lab and field studies from across the whole animal kingdom, he looks at mammals, butterflies, honeybees, fish, and birds, analysing what drives behaviour, and exploring instinct, learning, and culture. Looking more widely at behavioural ecology, he also considers some aspects of human behaviour. ABOUT THE SERIES: The Very Short Introductions series from Oxford University Press contains hundreds of titles in almost every subject area. These pocket-sized books are the perfect way to get ahead in a new subject quickly. Our expert authors combine facts, analysis, perspective, new ideas, and enthusiasm to make interesting and challenging topics highly readable.

Using its powerful beak, a lorikeet gently preens its mate s feathers; young cheetahs rest together in the shade; fireflies semaphore to each other across a darkened landscape and a mongoose deftly bites its prey to death. The study of animal behaviour is about all these things and more. It involves absolute stillness and violent activity, and all the noises and smells and changes of colour and shape that characterize animal life. Taking the organisation of behaviour within the individual animal as its core, this is a clear, concise and readable textbook introduction to the fascinating world of animal behaviour, investigating Tinbergen s questions of causation, evolution, development and function. It provides lucid accounts of all levels of behaviour from the nerve cell to that of the population. The broad biological approach of this new and re-written edition makes it an excellent choice for all students and teachers of animal behaviour and psychology.

The Association of Pet Behaviour Counsellors has been established for over twenty years and their experience and understanding of this new, and developing, science of ethology is the basis of the book. Experienced animal behaviour counsellors provide

the most up-to-date account of the science of animal psychology for all pet owners, while providing a practical approach for all veterinarians who treat small animals. Dogs, cats and rabbits are the animals most commonly treated for behavioural problems and the book focuses on the problems that affect these companion animals. Exploring the psychology of a pet's relationship with its owner, and with each other, leading writers from Sarah Heath and Anne McBride to Inga MacKellar identify the problems all vets will be asked about and provide practical solutions to them. Bringing together a variety of expert opinions and the most up-to-date research The APBC Book of Companion Animal Behaviour will help resolve a cat's anti-social behaviour and explain why a dog acts like its wild wolf ancestors. Groundbreaking essays on problem behaviour look at how learning and emotions governs animal behaviour while outlining the best way to understand: The foundations of canine behaviour How pets and children interact Behaviour problems in domestic rabbits Rage Syndrome in dogs Problems specific to ageing pets. This guide compiles the insights and experience of authors at the forefront of this expanding science to provide expert and professional perspectives that will enhance the relationship between a pet and its owner. Pet behavior, whether dogs, cats or rabbits, is affected by their ethology (the science of animal behavior) while it is also important to understand how learning and emotional response can govern their actions. Animal experts propose solutions to problem behavior in ground-breaking essays, as well as providing guidance on the relationship between pets and children (including the arrival of a new baby), "rage" syndrome in dogs, how to rehabilitate rescue dogs and cats, plus advice on legal and welfare issues. The Association of Pet Behaviour Counsellors has been established for almost thirty years to study why pets act as they do. The APBC's experience and understanding of this new, and developing, science of ethology is the basis for this book. Experienced animal behaviour counsellors provide the most up-to-date account of the science of animal psychology in the relationship between a pet and its owner, while providing a practical approach for veterinarians who treat small animals. Dogs, cats and rabbits are the animals most commonly treated for behavioural problems and the book focuses on the problems that affect these companion animals. Exploring the psychology of a pet's relationship with its owner, and with each other, leading writers from Julie Bedford and Anne McBride to Inga MacKellar identify the problems all vets will be asked about and provide practical solutions to them. Groundbreaking essays on problem behaviour look at how learning and emotional response governs animal behaviour while outlining the best way to understand: The foundations of canine behaviour, How pets and children interact, How to rehabilitate rescue dogs and cats, Rage Syndrome in dogs Bringing together a variety of expert opinions and the most up-to-date research The APBC Book of Companion Animal Behaviour will help resolve a cat's anti-social behaviour and explain why a dog acts like its wild wolf ancestors.

A concise introduction to psychological theories which attempt to explain non-human animal behaviour. Theories covered include evolutionary explanations, classical and operant conditioning and social learning.

Encyclopedia of Animal Behavior, Second Edition, the latest update since the 2010 release, builds upon the solid foundation established in the first edition. Updated sections include Host-parasite interactions, Vertebrate social behavior, and the introduction of ‘overview essays’ that boost the book's comprehensive detail. The

structure for the work is modified to accommodate a better grouping of subjects. Some chapters have been reshuffled, with section headings combined or modified. Represents a one-stop resource for scientifically reliable information on animal behavior Provides comparative approaches, including the perspective of evolutionary biologists, physiologists, endocrinologists, neuroscientists and psychologists Includes multimedia features in the online version that offer accessible tools to readers looking to deepen their understanding

Can we improve the health and welfare of livestock while increasing production? Can we maintain animal biodiversity in the face of increasing demands for resources and expanding agriculture? Can we use animal behaviour to reduce the carbon footprint of livestock production? Applied ethology is a young, multidisciplinary science that is relevant to these and other pressing issues. This book celebrates the history and science of applied ethology, and commemorates the 50th anniversary of the International Society for Applied Ethology. Through themes such as human-animal interaction, play behaviour, cognition, evolutionary theory and the relationship between applied ethology and animal welfare science, the book examines why ethologists are so passionate about their work, and why this field remains more exciting now than ever. Chapter authors include world renowned ethologists such as Don Broom, Ian Duncan, Ruth Newberry, and many others. The history of the ISAE and development of the field is presented with engaging profiles of founding members and pioneers in the field. New methods and emerging issues in behaviour research are discussed, along with the development of ethology around the globe. The book concludes with thoughts on future directions for applied ethology in addressing global issues of animal production, welfare, biodiversity, and the role of the ISAE. The book provides an exciting overview of this emerging field of science, and is intended for academics, students and anyone who takes pleasure in observing animals.

Introduction to Animal Physiology provides students with a thorough, easy-to-understand introduction to the principles of animal physiology. It uses a comparative approach, with a broad spectrum of examples chosen to illustrate physiological processes from across the animal kingdom. The book covers a wide range of topics, including neurons and nervous systems, endocrine function, ventilation and gas exchange, thermoregulation, gastrointestinal function and reproduction. It also present topics that students typically struggle with, including neuronal membrane function, in a logical, structured format, highlighting to core concepts. Simple analogies are used to clarify important facts.

Contests are an important aspect of the lives of diverse animals, from sea anemones competing for space on a rocky shore to fallow deer stags contending for access to females. Why do animals fight? What determines when fights stop and which contestant wins? Addressing fundamental questions on contest behaviour, this volume presents theoretical and empirical perspectives across a range of species. The historical development of contest research, the evolutionary theory of both dyadic and multiparty contests, and approaches to experimental design and data analysis are discussed in the first chapters. This is followed by reviews of research in key animal taxa, from the use of aerial displays and assessment rules in butterflies and the developmental biology of weapons in beetles, through to interstate warfare in humans. The final chapter considers future directions and applications of contest research,

making this a comprehensive resource for both graduate students and researchers in the field.

Abnormal behaviour patterns, from the jumping and somersaulting of caged laboratory mice to the pacing of enclosed 'big cats', are displayed by many millions of farm, zoo, research and companion animals. Including new chapters and over 30 contributors, this book focuses on the causation and treatment of these environment-induced stereotypic behaviours, and their implications for animal welfare and normalcy of brain functioning. The book begins by taking an ethological perspective, focusing on the constraints captivity places on animals' normal behavioural repertoires, and the effects these have on specific motivational systems. It then addresses the role of dysfunction, particularly the impact of chronic stress and impoverished environments on brain functioning. The book then moves on to explore how stereotypic behaviours can be tackled, once they have emerged, using diverse techniques from environmental enrichment to pharmaceutical intervention. It concludes by giving a new definition for 'stereotypic behaviour', and a discussion of future research directions.

This book provides an introductory text covering the use and misuse of behaviour tests applied to animals. By including illustrative examples from a variety of species, the book inspires the animal scientist to think about what a given behavioural test can be used for and how the results can be interpreted. This text includes: the dos and don'ts of running behaviour tests and interpreting the results; many clear, simple illustrations which make the information readily accessible, down to earth, practical advice yet a thorough, evidence-based approach; information on behaviour tests for a whole range of species from companion, farm, zoo, laboratory and wild animals; succinct yet comprehensive text, designed to be read cover to cover and stimulate further reading. This book is an essential item in the researcher's toolkit when embarking on and devising any animal behaviour test and is valuable to students, established researchers, teachers and practitioners of applied ethology, animal welfare science, and veterinary science.

The third edition of this successful textbook looks again at theinfluence of natural selection on behavior - an animal's struggleto survive by exploiting resources, avoiding predators, andmaximizing reproductive success. In this edition, new examples areintroduced throughout, many illustrated with full colorphotographs. In addition, important new topics are added includingthe latest techniques of comparative analysis, the theory andapplication of DNA fingerprinting techniques, extensive newdiscussion on brood parasite/host coevolution, the latest ideas onsexual selection in relation to disease resistance, and a newsection on the intentionality of communication. Written in thelucid style for which these two authors are renowned, the text isenhanced by boxed sections illustrating important concepts and newmarginal notes that guide the reader through the text. This bookwill be essential reading for students taking courses in behavioralecology. The leading introductory text from the two most prominentworkers in the field. Second colour in the text. New section of four colour plates. Boxed sections to ilustrate difficult and importantpoints. New larger format with marginal notes to guide the readerthrough the text. Selected further reading at the end of each chapter.

Principles of Animal Behavior has long been considered the most current and engaging introduction to animal behavior. The Third Edition is now also the most comprehensive and balanced in its approach to the theoretical framework behind how biologists study behavior.

This classic textbook is a concise introductory guide to the subject of animal behavior. The book is organized by first building the four-cornered foundations of the subject, then moving higher. In an extremely well-organized progression, the student is lead to an understanding of the essential topics, explained in logical self-contained units. Each chapter ends with suggestions for further reading. In this second edition, the coverage of mechanisms of

behavior is much expanded, as is the material on evolution and natural selection. The chapter on development includes much of the new work on learning and memory, especially song-learning in birds. Indeed throughout the book, examples are drawn from recent ground-breaking research.The latest edition of the textbook of choice in animal behaviourExtremely well illustrated and including many classic photos by Niko TinbergenUniquely well suited as an introductory text - designed for student use with a clear and logical organization founded on self-contained units

A thoroughly updated and expanded step-wise guide to the study of animal behaviour.

Asking AnimalsAn Introduction to Animal Behaviour TestingCABI

Evidence-based, yet entirely practical, this important new text builds upon the basics of neuroscience to describe the links between olfaction and animal behaviour, and the effects of odours in animal welfare. Animals use smells in a multitude of ways: to orientate themselves, to create social bonds, to recognise food, to initiate reproduction, and to avoid predators and imminent threats such as fire. Starting from the scientific basis of olfaction and odour perception, the book covers pheromones and behavioural tests, before describing the role of olfaction in feeding behaviour, reproduction, disease detection, and animal housing. This is a captivating introduction to the world of smells, suitable for advanced students, researchers, and teachers of applied ethology, animal welfare and veterinary science.

This textbook is an introduction to the Science of Animal Behaviour Presently this subject is introduced in most of the Indian Universities in B.Sc. IIIrd year and Post-graduate classes.

Introduction to chemical communication and pheromones.

Explains how animals use chemical communication, emphasising the evolutionary context and covering fields from ecology to neuroscience and chemistry.

This book introduces the reader to the power of observation before, and sometimes instead of, experimental manipulation in the study of animal behaviour. It starts with simple and easily accessible methods suitable for student projects, before going on to demonstrate the possibilities that now exist for far more sophisticated analyses of observational data. At a time when animal welfare considerations are attracting political as well as scientific debate, the potential for non-intrusive studies on animals is being increasingly recognized. Observation emerges as a valuable alternative approach, often yielding highly informative results in situations (such as on zoos, farms or for wild animals) where more invasive experimental techniques would be undesirable, unethical or just plain impossible. However, to justify its place alongside experimentation as a rigorous scientific method, observation needs to be just as disciplined and systematic and have just as much attention paid to project design in the way that observations are made and recorded. Observing Animal Behaviour takes the reader through all these stages: from the initial observations, to the formulation of hypotheses, and their subsequent testing with further systematic observations. Although designed principally as a companion text for advanced undergraduate and students taking courses in animal behaviour, this accessible text will be essential reading for anyone wanting to study animal behaviour using observational methods rather than experimentation, and assumes no previous knowledge of animals, statistics or scientific method. It will be of particular relevance and use to those professional researchers and consultants in the

behavioural sciences who seek a compact but comprehensive introduction to the quantitative observation of animal behaviour.

The aim of this book is to identify the main areas of active discussion about, and research into, the biology of animal behaviour, to describe and assess ways in which these can be studied and using selected examples, to illus trate the kinds of results which are emerging. It is not intended to provide an exhaustive review of all we know about animal behaviour, although the examples have been chosen to cover as many as possible of the things that animals do. XlV Preface

Acknowledgements I would like to thank C. Swann, M.L.N. Murthy and the Superbrain for typing the manuscript; Linda Partridge, Pat Monaghan, Douglas Fraser and Richard Wilson for constructive criticism of earlier drafts; Alan Crowden for help in planning and producing the book and, particularly, Tim Huntingford for help and encouragement at all stages of its pro duction. Acknowledgements are gratefully made to Jim Tulley fot producing plates 1, 2, 3, 7 and 12 and to Michael Hansell for the remainder.

This is a highly readable and accessible introduction to current knowledge about the way animals behave. It is comprehensive, authoritative and is beautifully illustrated throughout by wildlife artist Catherine Putman,

Animal Cognition presents a lucid and comprehensive overview of cognitive processes in animals--bees and wasps, cats and dogs, dolphins and sea otters, pigeons, titmice, and chimpanzees--and offers a novel discussion of the ways in which Piagetian concepts may be used to develop models for the study of animal cognition.