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Advances in Evolutionary Developmental Biology

- J. Todd Streebman 2013-10-17

Providing outstanding breadth of coverage in evo-devo, *Advances in Evolutionary Developmental Biology* provides a comprehensive review of the milestones of research in evolution and development and outlines the exciting research agenda for the field going forward. Compiling the viewpoints of a diverse group of field experts, this timely text expands the now-mature science of evo-devo into more complex areas of research. This essential reference is destined to become the go-to source for ideas and hypotheses for a new generation of graduate students in evolutionary and developmental biology.

Primate Anatomy - Friderun Ankel-Simons 2000

This work reviews the biology of all living primates, including humans. It provides a taxonomic list of all living genera and species which are described with respect to their adaptation in various environmental and geographic habitats.

The Development of Animal Form - Alessandro Minelli 2003-03-03

Contemporary research in the field of evolutionary developmental biology, or 'evo-devo', has to date been predominantly devoted to interpreting basic features of animal architecture in molecular genetics terms. Considerably less time has been spent on the exploitation of the wealth of facts and concepts available from traditional disciplines, such as comparative morphology, even though these

traditional approaches can continue to offer a fresh insight into evolutionary developmental questions. *The Development of Animal Form* aims to integrate traditional morphological and contemporary molecular genetic approaches and to deal with post-embryonic development as well. This approach leads to unconventional views on the basic features of animal organization, such as body axes, symmetry, segments, body regions, appendages and related concepts. This book will be of particular interest to graduate students and researchers in evolutionary and developmental biology, as well as to those in related areas of cell biology, genetics and zoology.

Origins of Intelligence - Sue Taylor Parker 2012-10-15

A look at the origins of cognitive abilities in primate species. Since Darwin's time, comparative psychologists have searched for a good way to compare cognition in humans and nonhuman primates. In *Origins of Intelligence*, Sue Parker and Michael McKinney offer such a framework and make a strong case for using human development theory (both Piagetian and neo-Piagetian) to study the evolution of intelligence across primate species. Their approach is comprehensive, covering a broad range of social, symbolic, physical, and logical domains, which fall under the all-encompassing and much-debated term intelligence. A widely held theory among developmental psychologists and social and biological anthropologists is that cognitive evolution in humans has occurred through juvenilization—the gradual accentuation

and lengthening of childhood in the evolutionary process. In this work, however, Parker and McKinney argue instead that new stages were added at the end of cognitive development in our hominid ancestors, coining the term adultification by terminal extension to explain this process. Drawing evidence from scores of studies on monkeys, great apes, and human children, this book provides unique insights into ontogenetic constraints that have interacted with selective forces to shape the evolution of cognitive development in our lineage. "The authors' elegant theory and comprehensive empirical synthesis of how the development of human intelligence and brain evolved opens up cascading heuristic avenues for creatively answering one of the great questions in the human history of ideas." —Jonas Langer, *Human Development* "A handy source of information on comparative cognitive abilities related to life history and brain variables." —James Anderson, *Journal of the Royal Anthropological Institute*

Issues in Biological, Biochemical, and Evolutionary Sciences Research: 2011 Edition - 2012-01-09

Issues in Biological, Biochemical, and Evolutionary Sciences Research: 2011 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Biological, Biochemical, and Evolutionary Sciences Research. The editors have built Issues in Biological, Biochemical, and Evolutionary Sciences Research: 2011 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Biological, Biochemical, and Evolutionary Sciences Research in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Biological, Biochemical, and Evolutionary Sciences Research: 2011 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

Human Evolution Through Developmental Change - Nancy Minugh-Purvis 2002-01-11

This book reflects two major strands of research in the study of human heterochrony, the change in the timing and rate of development of individuals.

Origins of Intelligence - Sue Taylor Parker 1999-06-16

"The authors' elegant theory and comprehensive empirical synthesis of how the development of human intelligence and brain evolved opens up cascading heuristic avenues for creatively answering one of the great questions in the human history of ideas." -- *Human Development*

The Origin Nature and Evolution of Protoplasmic Individuals and Their Associations - Faustino Cordon 2013-10-22

The Origin, Nature and Evolution of Protoplasmic Individuals and their Associations explores living beings of all levels of complexity in relation to each other and to the various ambient sources that they use to survive: protoplasmic individuals and their associations, cells and their associations, animals, and man. The book considers the concepts of evolution and of living beings; the main stages in biological evolution; the organisms' individuality, nature, way of formation, phylogenetic, and ontogenetic origin; essential property of the organisms of living beings; and creature modeling. The text also discusses the phylogenesis, ontogenesis, and the nature of the soma; the spatial and temporal environment connecting biological and geological evolution; and concepts of feeding and nutrition. Three separate sections describe phylogenetic origin of the first protoplasmic individuals; the protoplasmic individual as defined by its action and experience; and evolution in protoplasmic level.

Development and Evolution - James Mark Baldwin 2004-06-01

Here reprinted from the 1902 Macmillan edition.

Beyond Heterochrony - Miriam Zelditch 2001-10-03

Heterochrony has been a dominant theme in the explosion of interest of evolution and development. This book explores beyond heterochrony for the links between evolutionary and developmental processes, as well as the origins of morphological diversity.

Becoming Human - Michael Tomasello
2019-01-07

Winner of the William James Book Award
"Magisterial...Makes an impressive argument that most distinctly human traits are established early in childhood and that the general chronology in which these traits appear can at least—and at last—be identified." —Wall Street Journal "Theoretically daring and experimentally ingenious, *Becoming Human* squarely tackles the abiding question of what makes us human."
—Susan Gelman, University of Michigan
Virtually all theories of how humans have become such a distinctive species focus on evolution. *Becoming Human* proposes a complementary theory of human uniqueness, focused on development. Building on the seminal ideas of Vygotsky, it explains how those things that make us most human are constructed during the first years of a child's life. In this groundbreaking work, Michael Tomasello draws from three decades of experimental research with chimpanzees, bonobos, and children to propose a new framework for psychological growth between birth and seven years of age. He identifies eight pathways that differentiate humans from their primate relatives: social cognition, communication, cultural learning, cooperative thinking, collaboration, prosociality, social norms, and moral identity. In each of these, great apes possess rudimentary abilities, but the maturation of humans' evolved capacities for shared intentionality transform these abilities into uniquely human cognition and sociality.

The Handbook of Human Symbolic Evolution - Andrew Lock 1999-12-03

Explanations and accounts of our own origins have become one of the most popular of all the areas in science that are now regularly brought into the public arena via television, lavishly illustrated books, and even cartoons.

Environment, Development, and Evolution - Brian Keith Hall 2004

Leading researchers in evolutionary developmental biology seek linkages between, and a synthesis of, development, physiology, endocrinology, ecology, and evolution. Evolutionary developmental biology, also known as evo-devo or EDB, seeks to find links between development and evolution by opening the

"black box" of development's role in evolution and in the evolution of developmental mechanisms. In particular, this volume emphasizes the roles of the environment and of hormonal signaling in evo-devo. It brings together a group of leading researchers to analyze the dynamic interaction of environmental factors with developmental and physiological processes and to examine how environmental signals are translated into phenotypic change, from the molecular and cellular level to organisms and groups of organisms. Taken together, these chapters demonstrate the crucial roles of those processes of genetic, developmental, physiological, and hormonal change that underpin evolutionary change in development, morphology, physiology, behavior, and life-history. Part I investigates links between environmental signals and developmental processes that could be preserved over evolutionary time. Several contributors evaluate the work of the late Ryuichi Matsuda, especially his emphasis on the role of the external environment in genetic change and variability ("pan-environmentalism"). Other contributors in part I analyze different aspects of environmental-genetic-evolutionary linkages, including the importance of alternate ontogenies in evolution and the paradox of stability over long periods of evolutionary time. Part II examines the plasticity that characterizes much of development, with contributors discussing such topics as gene regulatory networks and heterochronicity. Part III analyzes the role of hormones and metamorphosis in the evolution of such organisms with alternate life-history stages as lampreys, amphibians, and insects.

In the Light of Evolution - National Academy of Sciences 2017-01-01

Biodiversity—the genetic variety of life—is an exuberant product of the evolutionary past, a vast human-supportive resource (aesthetic, intellectual, and material) of the present, and a rich legacy to cherish and preserve for the future. Two urgent challenges, and opportunities, for 21st-century science are to gain deeper insights into the evolutionary processes that foster biotic diversity, and to translate that understanding into workable solutions for the regional and global crises that

biodiversity currently faces. A grasp of evolutionary principles and processes is important in other societal arenas as well, such as education, medicine, sociology, and other applied fields including agriculture, pharmacology, and biotechnology. The ramifications of evolutionary thought also extend into learned realms traditionally reserved for philosophy and religion. The central goal of the In the Light of Evolution (ILE) series is to promote the evolutionary sciences through state-of-the-art colloquia-in the series of Arthur M. Sackler colloquia sponsored by the National Academy of Sciences-and their published proceedings. Each installment explores evolutionary perspectives on a particular biological topic that is scientifically intriguing but also has special relevance to contemporary societal issues or challenges. This tenth and final edition of the In the Light of Evolution series focuses on recent developments in phylogeographic research and their relevance to past accomplishments and future research directions.

Evolution's Eye - Susan Oyama 2000-04-12
 In recent decades, Susan Oyama and her colleagues in the burgeoning field of developmental systems theory have rejected the determinism inherent in the nature/nurture debate, arguing that behavior cannot be reduced to distinct biological or environmental causes. In *Evolution's Eye* Oyama elaborates on her pioneering work on developmental systems by spelling out that work's implications for the fields of evolutionary theory, developmental and social psychology, feminism, and epistemology. Her approach profoundly alters our understanding of the biological processes of development and evolution and the interrelationships between them. While acknowledging that, in an uncertain world, it is easy to "blame it on the genes," Oyama claims that the renewed trend toward genetic determinism colors the way we think about everything from human evolution to sexual orientation and personal responsibility. She presents instead a view that focuses on how a wide variety of developmental factors interact in the multileveled developmental systems that give rise to organisms. Shifting attention away from genes and the environment as causes for

behavior, she convincingly shows the benefits that come from thinking about life processes in terms of developmental systems that produce, sustain, and change living beings over both developmental and evolutionary time. Providing a genuine alternative to genetic and environmental determinism, as well as to unsuccessful compromises with which others have tried to replace them, *Evolution's Eye* will fascinate students and scholars who work in the fields of evolution, psychology, human biology, and philosophy of science. Feminists and others who seek a more complex view of human nature will find her work especially congenial.

The Evolutionary Biology of Hearing - Douglas B. Webster 2012-12-06

To develop a science of hearing that is intellectually satisfying we must first integrate the diverse, Marine Laboratory in Sarasota, Florida, May - extensive body of comparative research into an 24, 1990. The invited participants came from the evolutionary context. The need for this integra fields of comparative anatomy, physiology, biophysics, and a conceptual framework in which it could be structured, were demonstrated in landmark biology, ontogeny, and paleontology. Before the papers by van Bergeijk in 1967 and Wever in 1974. conference, preliminary manuscripts of the invited However, not since 1965, when the American papers were distributed to all participants. This facilitated - even encouraged - discussions through Society of Zoologists sponsored an evolutionary conference entitled "The Vertebrate Ear;" has there out the conference which could be called, among other things, "lively. " The preview of papers, along been a group effort to assemble and organize our current knowledge on the evolutionary-as with the free exchange of information and opinion, opposed to comparative-biology of hearing. also helped improve the quality and consistency of In the quarter century since that conference the final manuscripts included in this volume. there have been major changes in evolutionary In addition to the invited papers, several studies concepts (e. g. , punctuated equilibrium), in sys were presented as posters during evening sessions.

Ontogeny and Phylogeny - Stephen Jay Gould
1977

"Ontogeny recapitulates phylogeny" was Haeckel's answer to 19th-century biology's most vexing question: what is the relationship between individual development and the evolution of species and lineages? Gould documents the history of the idea of recapitulation from its first appearance among the pre-Socratics to its fall in the early 20th century.

Textbook of Evolutionary Psychiatry and Psychosomatic Medicine - Martin Brüne
2015-11-12

Psychiatry and Psychosomatic Medicine are concerned with medical conditions affecting brain, mind and behaviour in manifold ways. Traditional approaches have focused on a restricted array of potential causes of psychiatric and psychosomatic conditions - including adverse experiences such as trauma, neglect or abuse, genetic vulnerability and epigenetic regulation of gene expression. Whilst essential for the understanding of mental disorders, these approaches have disregarded important questions such as why the human mind is vulnerable to dysfunction at all. The *Textbook of Evolutionary Psychiatry and Psychosomatic Medicine* updates and expands the previous edition to provide answers to these questions by emphasising an evolutionary perspective on psychiatric and psychosomatic conditions. It explains how the human brain/mind has been shaped by natural and sexual selection; why adaptations to environmental conditions in our evolutionary past may nowadays work in suboptimal ways; and how human cognition, emotions, and behaviour can be scientifically framed to improve our understanding of how people try to attain important biosocial goals pertaining to one's status in society, mating, eliciting and providing care, and maintaining rewarding relationships. The evolutionary topics relevant to the understanding of psychiatric and psychosomatic conditions include the concepts of genetic plasticity, life history theory, stress regulation and immunological aspects. In addition, it is argued that an evolutionary framework is also necessary to understand how psychotherapy and psychopharmacology work to

improve the lives of patients with psychiatric and psychosomatic disorders. The *Textbook of Evolutionary Psychiatry and Psychosomatic Medicine* is a valuable text for all students of Psychology, Medicine, and Psychotherapy who seek an understanding of the evolutionary issues surrounding health and disease.

Evolution - Collin Allen 2009

An introduction to evolutionary biology spans evolutionary science from its inception to its latest findings, covering discoveries, philosophy, and history.

Piaget, Evolution, and Development - Jonas Langer 1998-06

Based on the 25th Anniversary Symposium of the Jean Piaget Society, this book represents cutting-edge work on the mechanisms of cognitive, social, and cultural development. The authors-anthropologists, biologists, historians of science, paleontologists, and psychologists-believe that a rebirth is in progress relating to the study of these mental developments. This volume seeks to illuminate this rebirth. The varied findings and approaches reported reveal that contemporary comparative research on mental development is in a phase of differentiation and integration. Far from being global and fused, this comparative study is a flowering field of diverse disciplinary approaches, empirical phenomena, scholarly topics, and theoretical perspectives. It focuses on the comparative phylogeny, ontogeny, and history of mentation-most notably on the comparative onset and offset ages, velocity, extent, sequencing, organization of thought, symbol, and value development. The world's leading authorities on the subject discuss the implications of the study of evolution for our models of the ontogenetic origins, development, and history of mentation, as well as determine the constraints that evolution imposes on mental development. Bringing the current interest in primate cognition to bear on studies of cognitive development in humans, this book will be of interest cognitive developmentalists, primatologists and comparative psychologists.

The Origins of Music - Nils L. Wallin 2001-07-27

The book can be viewed as representing the birth of evolutionary biomusicology. What biological and cognitive forces have shaped humankind's musical behavior and the rich

global repertoire of musical structures? What is music for, and why does every human culture have it? What are the universal features of music and musical behavior across cultures? In this groundbreaking book, musicologists, biologists, anthropologists, archaeologists, psychologists, neuroscientists, ethologists, and linguists come together for the first time to examine these and related issues. The book can be viewed as representing the birth of evolutionary biomusicology—the study of which will contribute greatly to our understanding of the evolutionary precursors of human music, the evolution of the hominid vocal tract, localization of brain function, the structure of acoustic-communication signals, symbolic gesture, emotional manipulation through sound, self-expression, creativity, the human affinity for the spiritual, and the human attachment to music itself. Contributors Simha Arom, Derek Bickerton, Steven Brown, Ellen Dissanayake, Dean Falk, David W. Frayer, Walter Freeman, Thomas Geissmann, Marc D. Hauser, Michel Imberty, Harry Jerison, Drago Kunej, François-Bernard Mâche, Peter Marler, Björn Merker, Geoffrey Miller, Jean Molino, Bruno Nettle, Chris Nicolay, Katharine Payne, Bruce Richman, Peter J.B. Slater, Peter Todd, Sandra Trehub, Ivan Turk, Maria Ujhelyi, Nils L. Wallin, Carol Whaling

The Origin and Early Evolutionary History of Snakes - David J. Gower 2022-08-11

Latest developments in understanding how, when and where the extraordinary body plan and ecology of snakes evolved from lizard ancestors.

The Ontogeny of Information - Susan Oyama 2000-02-24

The Ontogeny of Information is a critical intervention into the ongoing and perpetually troubling nature-nurture debates surrounding human development. Originally published in 1985, this was a foundational text in what is now the substantial field of developmental systems theory. In this revised edition Susan Oyama argues compellingly that nature and nurture are not alternative influences on human development but, rather, developmental products and the developmental processes that produce them. Information, says Oyama, is thought to reside in molecules, cells, tissues, and

the environment. When something wondrous occurs in the world, we tend to question whether the information guiding the transformation was pre-encoded in the organism or installed through experience or instruction. Oyama looks beyond this either-or question to focus on the history of such developments. She shows that what developmental “information” does depends on what is already in place and what alternatives are available. She terms this process “constructive interactionism,” whereby each combination of genes and environmental influences simultaneously interacts to produce a unique result. Ontogeny, then, is the result of dynamic and complex interactions in multileveled developmental systems. The Ontogeny of Information challenges specialists in the fields of developmental biology, philosophy of biology, psychology, and sociology, and even nonspecialists, to reexamine the existing nature-nurture dichotomy as it relates to the history and formation of organisms.

Ontogeny, Functional Ecology, and Evolution of Bats - Rick A. Adams 2000-06-15

The study of animal development has deep historical roots in codifying the field of evolutionary biology. In the 1940s evolutionary theory became engulfed by analyses of microevolutionary genetics and development became focused on mechanisms, forsaking the evolutionary implications of ontogeny. Recently, ontogeny has resurfaced as a significant component of evolutionary change and also of population and community dynamics. Ontogeny, Functional Ecology and Evolution of Bats is a reference work by bat biologists who emphasize the importance of understanding ontogeny in analyses of evolution and ecology. In addition, the developmental underpinnings of specialized morphology, physiology and behaviour are elucidated, and the strong influence of ecology on the ontological niche of juvenile bats is illustrated. This book is an essential reference, not only for bat biologists, but for anyone working in the fields of ecology, developmental biology, evolution, behaviour and systematics. The Origin of Animal Body Plans - Wallace Arthur 1997

This book examines both the origin of body plans in particular and the evolution of animal development in general.

Homoplasmy - Michael J. Sanderson 1996-10-21
Why do unrelated organisms sometimes appear almost identical in details of the anatomy, behavior, physiology, and ecology? Homoplasmy assembles leaders in evolutionary biology to explore issues of parallelism, convergence, and reversals. This innovative book is certain to provoke discussion of homoplasmy compelling evidence for particular theories of evolutionary change The first book on this increasingly interesting subject Includes authoritative treatments from leading experts expressing a variety of viewpoints

Evolution by Association - Jan Sapp 1994
Our evolution and that of all plants and animals is not thought to be due solely to the gradual accumulation of gene changes within species. Symbiosis is at the root of our being. This book is a systematic history of this emerging field and gives an account of the growth of a biological idea.

Human Evolution - John L. Bradshaw
2014-01-02

The last decade has seen an explosive burst of new information about human origins and our evolutionary status with respect to other species. We have long been considered unique as upright, bipedal creatures endowed with language, the ability to use tools, to think and introspect. We now know that other creatures may be more or less capable of similar behaviour, and that these human capacities in many cases have long evolutionary trajectories. Our information about such matters comes from a diverse variety of disciplines, including experimental and neuropsychology, primatology, ethology, archaeology, palaeontology, comparative linguistics and molecular biology. It is the interdisciplinary nature of the newly-emerging information which bears upon one of the profoundest scientific human questions - our origin and place in the animal kingdom, whether unique or otherwise - which makes the general topic so fascinating to layperson, student, and expert alike. The book attempts to integrate across a wide range of disciplines an evolutionary view of human psychology, with particular reference to language, praxis and aesthetics. A chapter on evolution, from the appearance of life to the earliest mammals, is followed by one which examines the appearance

of primates, hominids and the advent of bipedalism. There follows a more detailed account of the various species of Homo, the morphology and origin of modern H. sapiens sapiens as seen from the archaeological/palaeontological and molecular-biological perspectives. The origins of art and an aesthetic sense in the Acheulian and Mousterian through to the Upper Palaeolithic are seen in the context of the psychology of art. Two chapters on language address its nature and realization centrally and peripherally, the prehistory and neuropsychology of speech, and evidence for speech and/or language in our hominid ancestors. A chapter on tool use and praxis examines such behaviour in other species, primate and non-primate, the neurology of praxis and its possible relation to language. Encephalization and the growth of the brain, phylogenetically and ontogenetically, and its relationship to intellectual capacity leads on finally to a consideration of intelligence, social intelligence, consciousness and self awareness. A final chapter reviews the issues covered. The book, of around 70,000 words of text, includes over 500 references over half of which date from 1994 or later.

Mothers and Others - Sarah Blaffer Hrdy
2011-04-15

Mothers and Others finds the key in the primatologically unique length of human childhood. Renowned anthropologist Sarah Hrdy argues that if human babies were to survive in a world of scarce resources, they would need to be cared for, not only by their mothers but also by siblings, aunts, fathers, friends—and, with any luck, grandmothers. Out of this complicated and contingent form of childrearing, Hrdy argues, came the human capacity for understanding others. In essence, mothers and others teach us who will care, and who will not.

Great Transformations in Vertebrate Evolution - Kenneth P. Dial 2015-07-20

How did flying birds evolve from running dinosaurs, terrestrial trotting tetrapods evolve from swimming fish, and whales return to swim in the sea? These are some of the great transformations in the 500-million-year history of vertebrate life. And with the aid of new techniques and approaches across a range of fields—work spanning multiple levels of

biological organization from DNA sequences to organs and the physiology and ecology of whole organisms—we are now beginning to unravel the confounding evolutionary mysteries contained in the structure, genes, and fossil record of every living species. This book gathers a diverse team of renowned scientists to capture the excitement of these new discoveries in a collection that is both accessible to students and an important contribution to the future of its field. Marshaling a range of disciplines—from paleobiology to phylogenetics, developmental biology, ecology, and evolutionary biology—the contributors attack particular transformations in the head and neck, trunk, appendages such as fins and limbs, and the whole body, as well as offer synthetic perspectives. Illustrated throughout, *Great Transformations in Vertebrate Evolution* not only reveals the true origins of whales with legs, fish with elbows, wrists, and necks, and feathered dinosaurs, but also the relevance to our lives today of these extraordinary narratives of change.

The Changing Role of the Embryo in Evolutionary Thought - Ron Amundson
2005-03-14

In this book Ron Amundson examines two hundred years of scientific views on the evolution-development relationship from the perspective of evolutionary developmental biology (evo-devo). This perspective challenges several popular views about the history of evolutionary thought by claiming that many earlier authors had made history come out right for the Evolutionary Synthesis. The book starts with a revised history of nineteenth-century evolutionary thought. It then investigates how development became irrelevant with the Evolutionary Synthesis. It concludes with an examination of the contrasts that persist between mainstream evolutionary theory and evo-devo. This book will appeal to students and professionals in the philosophy and history of science, and biology.

The Dialogical Roots of Deduction - Catarina Dutilh Novaes
2020-12-17

This comprehensive account of the concept and practices of deduction is the first to bring together perspectives from philosophy, history, psychology and cognitive science, and mathematical practice. Catarina Dutilh Novaes

draws on all of these perspectives to argue for an overarching conceptualization of deduction as a dialogical practice: deduction has dialogical roots, and these dialogical roots are still largely present both in theories and in practices of deduction. Dutilh Novaes' account also highlights the deeply human and in fact social nature of deduction, as embedded in actual human practices; as such, it presents a highly innovative account of deduction. The book will be of interest to a wide range of readers, from advanced students to senior scholars, and from philosophers to mathematicians and cognitive scientists.

The Evolution of Language Out of Pre-language - Talmy Givón
2002-01-01

The contributors to this volume are linguists, psychologists, neuroscientists, primatologists, and anthropologists who share the assumption that language, just as mind and brain, are products of biological evolution. The rise of human language is not viewed as a serendipitous mutation that gave birth to a unique linguistic organ, but as a gradual, adaptive extension of pre-existing mental capacities and brain structures. The contributors carefully study brain mechanisms, diachronic change, language acquisition, and the parallels between cognitive and linguistic structures to weave a web of hypotheses and suggestive empirical findings on the origins of language and the connections of language to other human capacities. The chapters discuss brain pathways that support linguistic processing; origins of specific linguistic features in temporal and hierarchical structures of the mind; the possible co-evolution of language and the reasoning about mental states; and the aspects of language learning that may serve as models of evolutionary change.

Heterochrony in Evolution - Michael L. McKinney
2013-11-21

... an adult poet is simply an individual in a state of arrested development—in brief, a sort of moron. Just as all of us, in utero, pass through a stage in which we are tadpoles, ... so all of us pass through a state, in our nonage, when we are poets. A youth of seventeen who is not a poet is simply a donkey: his development has been arrested even anterior to that of the tadpole. But a man of fifty who still writes poetry is either an unfortunate who has never developed,

intellectually, beyond his teens, or a conscious buffoon who pretends to be something he isn't-something far younger and juicier than he actually is. -H. 1. Mencken, *High and Ghostly Matters*, *Prejudices: Fourth Series* (1924) Where would evolution be, Without this thing, heterochrony? -M. L. McKinney (1987) One of the joys of working in a nascent field is that it is actually possible to keep up with the literature. So it is with mixed emotions that we heterochronists (even larval forms like myself) view the recent "veritable explosion of interest in heterochrony" (in Gould's words in this volume). On the positive side, it is obviously necessary and desirable to extend and expand the inquiry; but one regrets that already we are beginning to talk past, lose track of, and even ignore each other as we carve out individual interests.

The Cultural Origins of Human Cognition - Michael TOMASELLO 2009-07-01

Bridging the gap between evolutionary theory and cultural psychology, Michael Tomasello argues that the roots of the human capacity for symbol-based culture are based in a cluster of uniquely human cognitive capacities. These include capacities for understanding that others have intentions of their own, and for imitating, not just what someone else does, but what someone else has intended to do. Tomasello further describes with authority and ingenuity how these capacities work over evolutionary and historical time to create the kind of cultural artifacts and settings within which each new generation of children develops.

Functional Morphology and Diversity - Les Watling 2013-01-16

Explores the functional morphology of crustaceans, which cover the main body parts and systems.

Primate Origins of Human Cognition and Behavior - Tetsuro Matsuzawa 2009-03-12

Biologists and anthropologists in Japan have played a crucial role in the development of primatology as a scientific discipline. Publication of *Primate Origins of Human Cognition and Behavior* under the editorship of Tetsuro Matsuzawa reaffirms the pervasive and creative role played by the intellectual descendants of Kinji Imanishi and Junichiro Itani in the fields of behavioral ecology, psychology, and cognitive

science. Matsuzawa and his colleagues-humans and other primate partners- explore a broad range of issues including the phylogeny of perception and cognition; the origin of human speech; learning and memory; recognition of self, others, and species; society and social interaction; and culture. With data from field and laboratory studies of more than 90 primate species and of more than 50 years of long-term research, the intellectual breadth represented in this volume makes it a major contribution to comparative cognitive science and to current views on the origin of the mind and behavior of humans.

On the Origin of Autonomy - Bernd Rosslenbroich 2016-09-03

This volume describes features of autonomy and integrates them into the recent discussion of factors in evolution. In recent years ideas about major transitions in evolution are undergoing a revolutionary change. They include questions about the origin of evolutionary innovation, their genetic and epigenetic background, the role of the phenotype and of changes in ontogenetic pathways. In the present book, it is argued that it is likewise necessary to question the properties of these innovations and what was qualitatively generated during the macroevolutionary transitions. The author states that a recurring central aspect of macroevolutionary innovations is an increase in individual organismal autonomy whereby it is emancipated from the environment with changes in its capacity for flexibility, self-regulation and self-control of behavior. The first chapters define the concept of autonomy and examine its history and its epistemological context. Later chapters demonstrate how changes in autonomy took place during the major evolutionary transitions and investigate the generation of organs and physiological systems. They synthesize material from various disciplines including zoology, comparative physiology, morphology, molecular biology, neurobiology and ethology. It is argued that the concept is also relevant for understanding the relation of the biological evolution of man to his cultural abilities. Finally the relation of autonomy to adaptation, niche construction, phenotypic plasticity and other factors and patterns in evolution is discussed. The text has a clear perspective from the context

of systems biology, arguing that the generation of biological autonomy must be interpreted within an integrative systems approach.

Cumulated Index Medicus - 1972

Routes to Child Language - Joanna Blake
2000-07-03

This book provides a detailed comparison of nonhuman primates and human infants with regard to key abilities that provide the foundation for language. It makes the case for phylogenetic continuity across species and

ontogenetic continuity from infancy to childhood. Examined here are behaviors fundamental to language acquisition, such as vocalizations, mapping of meaning onto sound, use of gestures to communicate and to symbolize, tool use, object concept, and memory. The author provides evidence linking these abilities with language acquisition. Similarities and differences across species in these precursors are analyzed and how these may have influenced the evolution of language. Hypotheses about the origins of language are described.