

RICHARD  
DAWKINS

THE EXTENDED  
PHENOTYPE

WITH AN AFTERWORD BY DANIEL DENNETT



THE LONG REACH OF THE GENE

# Extended Phenotype The Long Reach Of The Gene

**Peter A. Corning, Stuart A.  
Kauffman, Denis Noble, James A.  
Shapiro, Richard I. Vane-Wright**

## **Extended Phenotype The Long Reach Of The Gene:**

**The Extended Phenotype** Richard Dawkins, 2016-09-22 In *The Selfish Gene* Richard Dawkins crystallized the gene's eye view of evolution developed by W D Hamilton and others. The book provoked widespread and heated debate. Written in part as a response, *The Extended Phenotype* gave a deeper clarification of the central concept of the gene as the unit of selection but it did much more besides. In it Dawkins extended the gene's eye view to argue that the genes that sit within an organism have an influence that reaches out beyond the visible traits in that body, the phenotype, to the wider environment which can include other individuals. So for instance the genes of the beaver drive it to gather twigs to produce the substantial physical structure of a dam and the genes of the cuckoo chick produce effects that manipulate the behaviour of the host bird making it nurture the intruder as one of its own. This notion of the extended phenotype has proved to be highly influential in the way we understand evolution and the natural world. It represents a key scientific contribution to evolutionary biology and it continues to play an important role in research in the life sciences. *The Extended Phenotype* is a conceptually deep book that forms important reading for biologists and students. But Dawkins' clear exposition is accessible to all who are prepared to put in a little effort. Oxford Landmark Science books are must read classics of modern science writing which have crystallized big ideas and shaped the way we think.

*The Extended Phenotype* Richard Dawkins, 2016 In *The Selfish Gene* Richard Dawkins crystallized the gene's eye view of evolution developed by W D Hamilton and others. The book provoked widespread and heated debate. Written in part as a response, *The Extended Phenotype* gave a deeper clarification of the central concept of the gene as the unit of selection but it did much more besides. In it Dawkins extended the gene's eye view to argue that the genes that sit within an organism have an influence that reaches out beyond the visible traits in that body, the phenotype, to the wider environment which can include other individuals. So for instance the genes of the beaver drive it to gather twigs to produce the substantial physical structure of a dam and the genes of the cuckoo chick produce effects that manipulate the behaviour of the host bird making it nurture the intruder as one of its own. This notion of the extended phenotype has proved to be highly influential in the way we understand evolution and the natural world. It represents a key scientific contribution to evolutionary biology and it continues to play an important role in research in the life sciences. *The Extended Phenotype* is a conceptually deep book that forms important reading for biologists and students. But Dawkins' clear exposition is accessible to all who are prepared to put in a little effort. Oxford Landmark Science books are must read classics of modern science writing which have crystallized big ideas and shaped the way we think.

*Oracles of Science* Karl Giberson, Mariano Artigas, 2009-02-27 *Oracles of Science* examines the popular writings of the six scientists who have been the most influential in shaping our perception of science, how it works and how it relates to other fields of human endeavor, especially religion. Biologists Stephen Jay Gould, Richard Dawkins and Edward O Wilson and physicists Carl Sagan, Stephen Hawking and Steven Weinberg have become public intellectuals articulating a much larger vision for science and what role it should play in the

modern worldview The scientific prestige and literary eloquence of each of these great thinkers combine to transform them into what can only be called oracles of science Their controversial often personal sometimes idiosyncratic opinions become widely known and perceived by many to be authoritative Curiously the leading oracles of science are predominantly secular in ways that don't reflect the distribution of religious beliefs within the scientific community Many of them are even hostile to religion creating a false impression that science as a whole is incompatible with religion Karl Giberson and Mariano Artigas offer an informed analysis of the views of these six scientists carefully distinguishing science from philosophy and religion in the writings of the oracles This book will be welcomed by many who are disturbed by the tone of the public discourse on the relationship between science and religion and will challenge others to reexamine their own preconceptions about this crucial topic

**The Earth Is Our Home** Nelson Rivera, 2016-11-14 This book demonstrates that Mary Midgley's philosophy of evolution points the way towards considering the earth as our only true home since we are products of this planet and its evolving and complex life along with every other organism From the knowledge of ourselves as knowing animals with a biological as well as a cultural history Midgley proposes the elaboration of an evolutionary epistemology that situates us firmly on the earth together with other creatures while at the same time helping us to build knowledge of the world from the complexity of the human experience I like to call this approach by a known theological analogy a view from below that is from the underside of the world from the realms of nature and history Such an approach does not begin by assuming conceptions of design or order in nature a view that we term from above although it does not rule out the possibility of teleological or metaphysical constructions of reality in the long run This down to earth approach I consider essential for any philosophy or theology that wants to take evolutionary theory seriously while committed to a proper and non dismissive assessment of religious views

D. G. Leahy and the Thinking Now Occurring Lissa McCullough, Elliot R. Wolfson, 2021-09-01 This book offers a critical introduction to the work of American philosopher D G Leahy 1937-2014 Leahy's fundamental thinking can be characterized as an absolute creativity in which all creating is live a happening occurring now that manifests a supersaturated polyontological actuality that is essentially created by the logic that characterizes it Leahy leaves behind the categorial presuppositions of modern thought eclipsing both Cartesian and Hegelian subjectivities and introducing instead an essentially new form of thinking founded in a nondual logic of creation The new thinking delineates the absolute unicity of existence as a creative interactivity beyond all traditional dichotomies such as one vs many unity vs plurality identity vs change a fully digitized actuality that is nothing but newness which inherently implies nothing but change Through this new form of thinking change itself is revealed to be the very essence of reality and mind Any reader looking for a quantum leap beyond the thrall of modern and postmodern fixations is invited to hear and apprehend this new thinking that refuses to be conditioned by paradigms categories species genera walls bridges boundaries or abstractions an essentially free thinking that embodies creative novelty itself

**Natural Born Monads** Andrea Altobrando, Pierfrancesco Biasetti, 2020-10-12 We

are still looking for a satisfactory definition of what makes an individual being a human individual The understanding of human beings in terms of organism does not seem to be satisfactory because of its reductionistic flavor It satisfies our need for autonomy and benefits our lives thanks to its medical applications but it disappoints our needs for conscious and free self determination For similar reasons i e because of its anti libertarian tone an organicistic understanding of the relationship between individual and society has also been rejected although no truly satisfactory alternative for harmonizing individual and social wellness has been put forth Thus a reassessment of the very concepts of individual and organism is needed In this book the authors present a specific line of thought which started with Leibniz concept of monad in 17th century continued through Kant and Hegel and as a result reached the first Eastern country to attempt to assimilate as well as confront with Western philosophy and sciences i e Japan The line of thought we are tracing has gone on to become one the main voices in current debates in the philosophy of biology as well as philosophical anthropology and social philosophy As a whole the volume offers a both historical and systematic account of one specific understanding of individuals and their environment which tries to put together its natural embedding as well as its dialectical nature Such a historical systematic map will also allow to better evaluate how life sciences impact our view of our individual lives of human activities of institutions politics and finally of humankind in general

**Darwinizing Gaia** W. Ford Doolittle, 2024-12-03 A reinterpretation of James Lovelock s Gaia Hypothesis through the lens of Darwinian natural selection and multispecies community evolution First conceived in the 1970s James Lovelock s Gaia Hypothesis proposed that living organisms developed in tandem with their inorganic surroundings forming a complex self regulating system Today most evolutionary biologists consider the theory problematic In *Darwinizing Gaia* W Ford Doolittle one of evolutionary and molecular biology s most prestigious thinkers reformulates what evolution by natural selection is while legitimizing the controversial Gaia Hypothesis As the first book attempting to reconcile Gaia with Darwinian thinking and the first on persistence based evolution Doolittle s clear innovative position broadens evolutionary theory by offering potential remedies for Gaia s theoretical challenges Unquestionably the current polycrisis is the most complex that Homo sapiens has ever faced and this book can help overcome the widespread belief that evolutionary biologists don t believe Lovelock Written in the tradition of Richard Dawkins s *The Selfish Gene* *Darwinizing Gaia* will appeal to students evolutionary scientists philosophers and microbiologists as well as environmentalists seeking to understand the Earth as a system at a time when climate change has drawn our planet s structure and function into sharp relief

*God and Gaia* Michael S Northcott, 2022-12-22 *God and Gaia* explores the overlap between traditional religious cosmologies and the scientific Gaia theory of James Lovelock It argues that a Gaian approach to the ecological crisis involves rebalancing human and more than human influences on Earth by reviving the ecological agency of local and indigenous human communities and of nonhuman beings Present day human ecological influences on Earth have been growing at pace since the Scientific and Industrial Revolutions when modern humans adopted a machine cosmology in which

humans are the sole intelligent agency The resultant imbalance between human and Earthly agencies is degrading the species diversity of ecosystems causing local climate changes and threatens to destabilise the Earth as a System Across eight chapters this ambitious text engages with traditional cosmologies from the Indian Vedas and classical Greece to Medieval Christianity with case material from Southeast Asia Southern Africa and Great Britain It discusses concepts such as deep time and ancestral time the ethics of genetic engineering of foods and viruses and holistic ecological management Northcott argues that an ontological turn that honours the differential agency of indigenous humans and other kind and that draws on sacred traditions will make it is possible to repair the destabilising impacts of contemporary human activities on the Earth System and its constituent ecosystems This book will be of considerable interest to students and scholars of the environmental humanities history and cultural and religious studies

**Cultural Evolution** Kate Distin, 2011 Expounds a theory of cultural evolution and shows how it can help us to understand the development of human culture

*Missing the Revolution* Jerome H. Barkow, 2006 The naturalizing perspective of Darwinian thought has become one of the major intellectual currents of our time pervading contemporary understandings of human nature and society Unfortunately many social scientists in sociology psychology and sociocultural anthropology have failed to engage with it Barkow asks his fellow social scientists to put aside their all too common preconceptions and stereotypes of the biological and to consider a powerful argument that is far different from that of those who once invoked a vocabulary of genes and Darwin as a justification for genocide He argues that the theoretical perspective that has been so successful when applied to the behavior of every other animal species can be applied just as successfully to our own and that the real debate is about how to apply it

BOOK JACKET

**Social Bonding and Nurture Kinship** Maximilian Holland, 2012-10-26 Resolving a decades long divide between what are often held to be incommensurate paradigms Social Bonding and Nurture Kinship unites cultural and biological approaches to social life and kinship The synthesis is non reductive respecting the core tenets of both paradigms and also incorporates psychological attachment theory into the account Praised by adherents of both perspectives the work provides a thorough survey of the theoretical debates and empirical findings across a wide array of disciplines providing students of social behaviour and kinship with a rich and comprehensive resource This work is a powerful example of how social and physical sciences can unite on equal terms without the danger of one being subsumed by the other Both approaches emerge stronger as a result

Scholarly Reviews A landmark in the field of evolutionary biology which places genetic determinism in the correct perspective *Folia Primatologica* Journal I will be strongly recommending this book to all of my advanced undergraduates masters and PhD students as well as to my colleagues Not only does it help to resolve debates that have run for many years but it is also an outstanding example of what can be achieved by immersing oneself in literature from different fields while retaining an intellectual openness and exercising incisive analysis a shining example of what can be achieved when excellent scholars engage fully across disciplinary boundaries *Acta Ethologica* Journal Maximilian Holland

gets to the heart of the matter. If he had been in the debate in the 1980s then a lot of subsequent confusion could have been avoided. Robin Fox, Emeritus Professor of Anthropology, Rutgers. NAS Member Max Holland has demonstrated extraordinarily thorough scholarship in his exhaustive review of the often contentious discussions of kinship. He has produced a balanced synthesis melding the two approaches exemplified in the biological and sociocultural behavioral positions. This should be the definitive word on the subject. Irwin Bernstein, Distinguished Research Professor of Primatology, Georgia. A brilliant discussion of the relationship between kinship and social bonding as understood in evolutionary biology and in sociocultural anthropology. Kirk Endicott, Emeritus Professor of Anthropology, Dartmouth. His synthesis is lucid and effective. Holland has produced a significant work of scholarship that will be of interest to a wide swath of the anthropological community. Critique of Anthropology Journal. A tremendously useful resource for students of kinship in anthropology, psychology and biology who are interested in looking beyond the confines of their own discipline, highly relevant for anyone interested in this exciting field. Social Anthropology Journal. Max Holland has provided a wide ranging and deeply probing analysis of the influence of genetic relatedness and social context on human kinship. He argues that while genetic relatedness may play a role in the evolution of social behavior, it does not determine the forms of such behavior. His discussion is exemplary for its thoroughness and should inspire more nuanced ventures in applying Darwinian approaches to sociocultural anthropology. Philip Kitcher, John Dewey Professor of Philosophy, Colombia. Fellow of the American Academy of Arts and Sciences. Unlike many commentators who have tackled kinship in the context of biology, Holland takes culture seriously and deals fairly with Schneider's arguments. This book helps to untangle a long standing disciplinary muddle. Richard Feinberg, Professor of Anthropology, Kent State. *Organism and Environment* Sonia E. Sultan, 2015. Over the past decade, advances in both molecular developmental biology and evolutionary ecology have made possible a new understanding of organisms as dynamic systems interacting with their environments. This innovative book synthesizes a wealth of recent research findings to examine how environments influence phenotypic expression in individual organisms, ecological development or eco devo and how organisms in turn alter their environments, niche construction. A key argument explored throughout the book is that ecological interactions as well as natural selection are shaped by these dual organism environment effects. This synthesis is particularly timely as biologists seek a unified contemporary framework in which to investigate the developmental outcomes, ecological success and evolutionary prospects of organisms in rapidly changing environments. *Organism and Environment* is an advanced text suitable for graduate level students taking seminar courses in ecology, evolution and developmental biology as well as academics and researchers in these fields. *Genes and the Agents of Life* Robert A. Wilson, 2005. *Genes and the Agents of Life* undertakes to rethink the place of the individual in the biological sciences, drawing parallels with the cognitive and social sciences. Genes, organisms and species are all agents of life, but how are each of these conceptualized within genetics, developmental biology, evolutionary biology and systematics. The book includes highly accessible discussions of

genetic encoding species and natural kinds and pluralism above the levels of selection drawing on work from across the biological sciences The book is a companion to the author's *Boundaries of the Mind* also available from Cambridge where the focus is the cognitive sciences The book will appeal to a broad range of professionals and students in philosophy biology and the history of science

The Genetic Lottery Kathryn Paige Harden, 2022-10-11 A provocative and timely case for how the science of genetics can help create a more just and equal society In recent years scientists like Kathryn Paige Harden have shown that DNA makes us different in our personalities and in our health and in ways that matter for educational and economic success in our current society In *The Genetic Lottery* Harden introduces readers to the latest genetic science dismantling dangerous ideas about racial superiority and challenging us to grapple with what equality really means in a world where people are born different Weaving together personal stories with scientific evidence Harden shows why our refusal to recognize the power of DNA perpetuates the myth of meritocracy and argues that we must acknowledge the role of genetic luck if we are ever to create a fair society Reclaiming genetic science from the legacy of eugenics this groundbreaking book offers a bold new vision of society where everyone thrives regardless of how one fares in the genetic lottery

**The Gene's-Eye View of Evolution** J. Arvid Ågren, 2021 The central aim of this accessible book is to show how the gene's eye view differs from the traditional organismal account of evolution trace its historical origins clarify typical misunderstandings and by using examples from contemporary experimental work show why so many evolutionary biologists still consider it an indispensable heuristic

Evolution "On Purpose" Peter A. Corning, Stuart A. Kauffman, Denis Noble, James A. Shapiro, Richard I. Vane-Wright, 2023-08-22 A unique exploration of teleonomy also known as evolved purposiveness as a major influence in evolution by a broad range of specialists in biology and the philosophy of science The evolved purposiveness of living systems termed teleonomy by chronobiologist Colin Pittendrigh has been both a major outcome and causal factor in the history of life on Earth Many theorists have appreciated this over the years going back to Lamarck and even Darwin in the nineteenth century In the mid twentieth century however the complex dynamic process of evolution was simplified into the one way bottom up single gene centered paradigm widely known as the modern synthesis In *Evolution On Purpose* edited by Peter A Corning Stuart A Kauffman Denis Noble James A Shapiro Richard I Vane Wright and Addy Pross some twenty theorists attempt to modify this reductive approach by exploring in depth the different ways in which living systems have themselves shaped the course of evolution *Evolution On Purpose* puts forward a more inclusive theoretical synthesis that goes far beyond the underlying principles and assumptions of the modern synthesis to accommodate work since the 1950s in molecular genetics developmental biology epigenetic inheritance genomics multilevel selection niche construction physiology behavior biosemiotics chemical reaction theory and other fields In the view of the authors active biological processes are responsible for the direction and the rate of evolution Essays in this collection grapple with topics from the two way read write genome to cognition and decision making in plants to the niche construction



activities of many organisms to the self making evolution of humankind As this collection compellingly shows and as bacterial geneticist James Shapiro emphasizes The capacity of living organisms to alter their own heredity is undeniable

**Shakespeare and Ecocritical Theory** Gabriel Egan,2015-10-22 Combining the latest scientific and philosophical understanding of humankind s place in the world with interpretative methods derived from other politically inflected literary criticism ecocriticism is providing new insights into literary works both ancient and modern With case study analyses of the tragedies comedies histories and late romances this book is a wide ranging introduction to reading Shakespeare in the light of contemporary ecocritical theory

**Homesickness** Carlos Rojas,2015-04-06 Carlos Rojas focuses on the trope of homesickness in China discomfort caused not by a longing for home but by excessive proximity to it This inverse homesickness marks a process of movement away from the home conceived of as spaces associated with the nation family and individual body and gives rise to the possibility of long term health

**Making Progress** C. Leigh Anderson,Janet W. Looney,2002-01-01 While a universal definition of progress has proved elusive measures of progress have been defined and grouped into the broad areas of material wealth social relations technical capacity and moral aesthetic and intellectual sensibilities However not until the Progress Project whose results are gathered here has the impact of progress on public policy in these realms been systematically explored In this volume noted scholars in economics government education technology literature culture and religion among other fields discuss the meaning and measurement of progress in their areas of specialty They assess particular policies that have either promoted or retarded progress and provide recommendations for policy processes or instruments that better reflect the nature of forward movement in the current era Making Progress is an important contribution to both the theoretical and practical literature on public policy it is a resource for scholars and students as well as a guide for policymakers analysts and advocates who help craft those policies in the name of progress

**The New Celebrity Scientists** Declan Fahy,2015-03-06 A new cultural icon strode the world stage at the turn of the twenty first century the celebrity scientist as comfortable in Vanity Fair and Vogue as Smithsonian Declan Fahy profiles eight of these eloquent controversial and compelling sellers of science to investigate how they achieved celebrity in the United States and internationally and explores how their ideas influence our understanding of the world Fahy traces the career trajectories of Richard Dawkins Stephen Hawking Steven Pinker Neil deGrasse Tyson Brian Greene Stephen Jay Gould Susan Greenfield and James Lovelock He demonstrates how each scientist embraced the power of promotion and popularization to stimulate thinking impact policy influence research drive controversies and mobilize social movements He also considers critical claims that they speak beyond their expertise and for personal gain The result is a fascinating look into how celebrity scientists help determine what it means to be human the nature of reality and how to prepare for society s uncertain future

## **Extended Phenotype The Long Reach Of The Gene** Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has become apparent than ever. Its ability to stir emotions, provoke thought, and instigate transformation is truly remarkable. This extraordinary book, aptly titled "**Extended Phenotype The Long Reach Of The Gene**," written by a highly acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound impact on our existence. Throughout this critique, we will delve into the book's central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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supply ranging from 0 if the battery is empty disconnected to 4.2 full battery

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