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Dialectics of Nature

Despite wide acceptance that the attributes of living creatures have appeared through a cumulative evolutionary process guided chiefly by natural selection, many human activities have seemed analytically inaccessible through such an approach. Prominent evolutionary biologists, for example, have described morality as contrary to the direction of biological evolution, and moral philosophers rarely regard evolution as relevant to their discussions. The Biology of Moral Systems adopts the position that moral questions arise out of conflicts of interest, and that moral systems are ways of using confluences of interest at lower levels of

social organization to deal with conflicts of interest at higher levels. Moral systems are described as systems of indirect reciprocity: humans gain and lose socially and reproductively not only by direct transactions, but also by the reputations they gain from the everyday flow of social interactions. The author develops a general theory of human interests, using senescence and effort theory from biology, to help analyze the patterning of human lifetimes. He argues that the ultimate interests of humans are reproductive, and that the concept of morality has arisen within groups because of its contribution to unity in the context, ultimately, of success in intergroup competition. He contends that morality is not easily relatable to universals, and he carries this argument into a discussion of what he calls the greatest of all moral problems, the nuclear arms race.

"Crammed with sage observations on moral dilemmas and many reasons why an understanding of evolution based on natural selection will advance thinking in finding practical solutions to our most difficult social problems." *Annals of the American Academy of Political and Social Sciences* Richard D. Alexander is Donald Ward Tinkle Professor of Evolutionary Biology, Department of Biology, and Curator of Insects, Museum of Zoology, University of Michigan. A recipient of numerous awards, Dr. Alexander is the author of *Darwinism and Human Affairs*.

The Social Conquest of Earth

Over a decade ago, as the Human Genome Project completed its mapping of the entire human genome, hopes ran high that we would rapidly be able to use our knowledge of human genes to tackle many inherited diseases, and understand what makes us unique among animals. But things didn't turn out that way. For a start, we turned out to have far fewer genes than originally thought — just over 20,000, the same sort of number as a fruit fly or worm. What's more, the proportion of DNA consisting of genes coding for proteins

was a mere 2%. So, was the rest of the genome accumulated 'junk'? Things have changed since those early heady days of the Human Genome Project. But the emerging picture is if anything far more exciting. In this book, John Parrington explains the key features that are coming to light - some, such as the results of the international ENCODE programme, still much debated and controversial in their scope. He gives an outline of the deeper genome, involving layers of regulatory elements controlling and coordinating the switching on and off of genes; the impact of its 3D geometry; the discovery of a variety of new RNAs playing critical roles; the epigenetic changes influenced by the environment and life experiences that can make identical twins different and be passed on to the next generation; and the clues coming out of comparisons with the genomes of Neanderthals as well as that of chimps about the development of our species. We are learning more about ourselves, and about the genetic aspects of many diseases. But in its complexity, flexibility, and ability to respond to environmental cues, the human genome is proving to be far more subtle than we ever imagined.

The Logic of Chance

Prolegomena to Any Future Materialism, Volume Two: A Weak Nature Alone is the second part of a trilogy on subjectivity in the natural world. Johnston weaves together major works in Western philosophy in a visionary theory that is materialist yet antireductive.

The Mirage of a Space between Nature and Nurture

Access PDF The Dialectical Biologist

Michel Serres is one of the most influential living theorists in European philosophy. This volume makes available a work which has a foundational place in the development of chaos theory, representing a tour de force application of the principles underlying Serres' distinctive philosophy of science.

Wilhelm Reich, Biologist

Closing in the present day with a discussion of the 2017 March for Science and the prospects for science and science diplomacy in the Trump era, the book demonstrates the continued hold of Cold War thinking on ideas about science and politics in the United States.

The Dialectical Biologist

In the final book of his astonishing career, Carl Sagan brilliantly examines the burning questions of our lives, our world, and the universe around us. These luminous, entertaining essays travel both the vastness of the cosmos and the intimacy of the human mind, posing such fascinating questions as how did the universe originate and how will it end, and how can we meld science and compassion to meet the challenges of the coming century? Here, too, is a rare, private glimpse of Sagan's thoughts about love, death, and God as he struggled with fatal disease. Ever forward-looking and vibrant with the sparkle of his unquenchable curiosity, *Billions & Billions* is a testament to one of the great scientific minds of our day. From the Trade Paperback edition.

The Birth of Physics

Evolutionary Theory is for graduate students, researchers, and advanced undergraduates who want an understanding of the mathematical and biological reasoning that underlies evolutionary theory. The book covers all of the major theoretical approaches used to study the mechanics of evolution, including classical one- and two-locus models, diffusion theory, coalescent theory, quantitative genetics, and game theory. There are also chapters on theoretical approaches to the evolution of development and on multilevel selection theory. Each subject is illustrated by focusing on those results that have the greatest power to influence the way that we think about how evolution works. These major results are developed in detail, with many accompanying illustrations, showing exactly how they are derived and how the mathematics relates to the biological insights that they yield. In this way, the reader learns something of the actual machinery of different branches of theory while gaining a deeper understanding of the evolutionary process. Roughly half of the book focuses on gene-based models, the other half being concerned with general phenotype-based theory. Throughout, emphasis is placed on the fundamental relationships between the different branches of theory, illustrating how all of these branches are united by a few basic, universal, principles. The only mathematical background assumed is basic calculus. More advanced mathematical methods are explained, with the help of an extensive appendix, when they are needed.

Marx's Ecology

For the last twenty-five years, sociobiologists have come under continuous attack by a group of left-wing

academics, who have accused the former of dubious and politically dangerous science. Many have taken the critics' charges at face value. But have the critics been right? And what are their own motivations? This book strives to set the record straight. It shows that the criticism has typically been unfair. Still, it cannot be dismissed as "purely politically motivated". It turns out that the critics and the sociobiologists live in different worlds of taken-for-granted scientific and moral convictions. The conflict over sociobiology is best interpreted as a drawn-out battle about the nature of "good science" and the social responsibility of the scientist, while it touches on such grand themes as the unity of knowledge, the nature of man, and free will and determinism. The author has stepped right into the hornet's nest of claims and counterclaims, moral concerns, metaphysical beliefs, political convictions, strawmen, red herrings, and gossip, gossip, gossip. She listens to the protagonists - but also to their colleagues. She checks with "arbiters". She plays the devil's advocate. And everyone is eager to tell her the truth - as they see it. The picture that emerges is a different one from the standard view of the sociobiology debate as a politically motivated nature-nurture conflict. Instead, we are confronted with a world of scientific and moral long-term agendas, for which the sociobiology debate became a useful vehicle. Behind the often nasty attacks, however, were shared Enlightenment concerns for universal truth, morality and justice. The protagonists were all defenders of the truth - it was just that everyone's truth was different. Defenders of the Truth provides a fascinating insight into the world of science. It follows the sociobiology controversy as it erupted at Harvard in 1975 until today, both in the US and the UK. But the story goes more deeply, for instance in its account of the circumstances surrounding W.D. Hamilton's famous 1964 paper on inclusive fitness, and in the connections of the sociobiology debate to the Human Genome project and the Science Wars. General readers and academics alike will find much to savour in this book.

Freedom's Laboratory

R. C. Lewontin is a prominent scientist -- a geneticist who teaches at Harvard -- yet he believes that we have placed science on a pedestal, treating it as an objective body of knowledge that transcends all other ways of knowing and all other endeavours. Lewontin writes in this collection of essays, which began their life as CBC Radio's Massey Lectures Series for 1990: "Scientists do not begin life as scientists, after all, but as social beings immersed in a family, a state, a productive structure, and they view nature through a lens that has been molded by their social experience. . . . Science, like the Church before it, is a supremely social institution, reflecting and reinforcing the dominant values and vices of society at each historical epoch." In *Biology as Ideology* Lewontin examines the false paths down which modern scientific ideology has led us. By admitting science's limitations, he helps us rediscover the richness of nature -- and appreciate the real value of science.

Evolutionary Theory

Scientists act within a social context and from a philosophical perspective that is inherently political. Whether they realize it or not, scientists always choose sides. *The Dialectical Biologist* explores this political nature of scientific inquiry, advancing its argument within the framework of Marxist dialectic. These essays stress the concepts of continual change and codetermination between organism and environment, part and whole, structure and process, science and politics. Throughout, this book questions our accepted definitions and biases, showing the self-reflective nature of scientific activity within society.

Billions & Billions

This anthology contains some of the more important Marxist thinkers now working on dialectics. As a whole the book is an unusual 'Introduction to Dialectics', a systematic restatement of what it is and how to use it, a survey of most of the main debates in the field, and a good picture of the current state of the art of dialectics.

The Richness of Life

Dialectics of Nature is an unfinished 1883 work by Frederick Engels that applies Marxist ideas - particularly those of dialectical materialism - to science. In his 1939 preface to the work, the biologist J. B. S. Haldane states "most of the manuscript seems to have been written between 1872 and 1882, that is to say it refers to the science" of that era. "Hence it is often hard to follow if one does not know the history of the scientific practice of that time. The idea of what is now called the conservation of energy was beginning to permeate physics, chemistry and biology, but it was still very incompletely realised, and still more incompletely applied. Words such as 'force', 'motion', and 'vis viva' were used where we should now speak of energy." Some then controversial topics of Engels' day, pertaining to incomplete or faulty theories, are now settled, making some of Engels' essays dated. "Their interest lies not so much in their detailed criticism of theories, but in showing how Engels grappled with intellectual problems." One "law" proposed in the Dialectics of Nature is the "law of the transformation of quantity into quality and vice versa." Probably the most commonly cited example of this is the change of water from a liquid to a gas, by increasing its temperature (although Engels also describes other examples from chemistry). In contemporary science, this process is known as a phase transition. There

has also been an effort to apply this mechanism to social phenomena, whereby population increases result in changes in social structure. Dialectics and its study was derived from the philosopher G. W. F. Hegel, who, in turn, had studied the Greek philosopher Heraclitus. Heraclitus taught that everything was constantly changing and that all things consisted of two opposite elements which changed into each other as night changes into day, light into darkness, life into death etc. Engels's work develops from the comments he had made about science in *Anti-Duhring*. It includes the famous *The Part Played by Labour in the Transition from Ape to Man*, which has also been published separately as a pamphlet. Engels argues that the hand and brain grew together, an idea supported by later fossil discoveries. Must read philosophy book, to understand about dialectical materialism."

The Reality Club

Landscapes are frequently seen as fragments of natural habitat surrounded by a 'sea' of agriculture. But recent ecological theory shows that the nature of these fragments is not nearly as important for conservation as is the nature of the matrix of agriculture that surrounds them. Local extinctions from conservation fragments are inevitable and must be balanced by migrations if massive extinction is to be avoided. High migration rates only occur in what the authors refer to as 'high quality' matrices, which are created by alternative agroecological techniques, as opposed to the industrial monocultural model of agriculture. The authors argue that the only way to promote such high quality matrices is to work with rural social movements. Their ideas are at odds with the major trends of some of the large conservation organizations that emphasize targeted land purchases of protected areas. They argue that recent advances in ecological research make such a general approach anachronistic and call, rather, for solidarity with the small farmers around the world who

are currently struggling to attain food sovereignty. Nature's Matrix proposes a radically new approach to the conservation of biodiversity based on recent advances in the science of ecology plus political realities, particularly in the world's tropical regions.

Developing Scaffolds in Evolution, Culture, and Cognition

The gay and lesbian community is experiencing a baby boom. Advances in gay rights coupled with increased availability of alternative reproduction techniques have led to an unprecedented number of openly gay and lesbian parents. Estimates are that between 6 and 14 million children in the United States are being raised by at least one parent who is gay. Yet, very little is known about how gay or lesbian headed families function, or whether they differ in any relevant ways from families headed by straight parents. Written by two developmental psychologists, *The Gay Baby Boom* reports the findings of *The Gay and Lesbian Family Study*, the largest national assessment of gay and lesbian headed families. By asking participants detailed questions about the way they parent, the authors are able to describe for the first time exactly what takes place within gay and lesbian headed families across the country. Traditional research has tended to assume that there is something uniquely different and potentially psychologically damaging about children being raised by gays. The authors draw on their data to show these fears unfounded.

The Two Cultures

This book argues that evolution arises from the activities of organisms as agents, not from the replication of

genes.

Organisms, Agency, and Evolution

Science tells us that a new and dangerous stage in planetary evolution has begun—the Anthropocene, a time of rising temperatures, extreme weather, rising oceans, and mass species extinctions. Humanity faces not just more pollution or warmer weather, but a crisis of the Earth System. If business as usual continues, this century will be marked by rapid deterioration of our physical, social, and economic environment. Large parts of Earth will become uninhabitable, and civilization itself will be threatened. Facing the Anthropocene shows what has caused this planetary emergency, and what we must do to meet the challenge. Bridging the gap between Earth System science and ecological Marxism, Ian Angus examines not only the latest scientific findings about the physical causes and consequences of the Anthropocene transition, but also the social and economic trends that underlie the crisis. Cogent and compellingly written, *Facing the Anthropocene* offers a unique synthesis of natural and social science that illustrates how capitalism's inexorable drive for growth, powered by the rapid burning of fossil fuels that took millions of years to form, has driven our world to the brink of disaster. Survival in the Anthropocene, Angus argues, requires radical social change, replacing fossil capitalism with a new, ecosocialist civilization.

Between Capitalism and Community

Facing the Anthropocene

Scientists act within a social context and from a philosophical perspective that is inherently political. Whether they realize it or not, scientists always choose sides. The *Dialectical Biologist* explores this political nature of scientific inquiry, advancing its argument within the framework of Marxist dialectic. These essays stress the concepts of continual change and codetermination between organism and environment, part and whole, structure and process, science and politics. Throughout, this book questions our accepted definitions and biases, showing the self-reflective nature of scientific activity within society.

Biology Under the Influence

A century ago Darwin and Wallace explained how evolution could have happened in terms of processes known to take place today. This book describes how their theory has been confirmed, but at the same time "transformed", by recent research.

Lifelines

New York Times Bestseller From the most celebrated heir to Darwin comes a groundbreaking book on evolution, the summa work of Edward O. Wilson's legendary career. Sparking vigorous debate in the sciences, *The Social Conquest of Earth* upends "the famous theory that evolution naturally encourages creatures to put family first" (*Discover*). Refashioning the story of human evolution, Wilson draws on his

remarkable knowledge of biology and social behavior to demonstrate that group selection, not kin selection, is the premier driving force of human evolution. In a work that James D. Watson calls “ a monumental exploration of the biological origins of the human condition, ” Wilson explains how our innate drive to belong to a group is both a “ great blessing and a terrible curse ” (Smithsonian). Demonstrating that the sources of morality, religion, and the creative arts are fundamentally biological in nature, the renowned Harvard University biologist presents us with the clearest explanation ever produced as to the origin of the human condition and why it resulted in our domination of the Earth ’ s biosphere.

Not in Our Genes

One of our most brilliant evolutionary biologists, Richard Lewontin here provides a concise, accessible account of what his work has taught him about biology and about its relevance to human affairs. In the process, he exposes some of the common and troubling misconceptions that misdirect and stall our understanding of biology and evolution.

Biology As Ideology

The Logic of Chance offers a reappraisal and a new synthesis of theories, concepts, and hypotheses on the key aspects of the evolution of life on earth in light of comparative genomics and systems biology. The author presents many specific examples from systems and comparative genomic analysis to begin to build a new, much more detailed, complex, and realistic picture of evolution. The book examines a broad range of topics

in evolutionary biology including the inadequacy of natural selection and adaptation as the only or even the main mode of evolution; the key role of horizontal gene transfer in evolution and the consequent overhaul of the Tree of Life concept; the central, underappreciated evolutionary importance of viruses; the origin of eukaryotes as a result of endosymbiosis; the concomitant origin of cells and viruses on the primordial earth; universal dependences between genomic and molecular-phenomic variables; and the evolving landscape of constraints that shape the evolution of genomes and molecular phenomes. "Koonin's account of viral and pre-eukaryotic evolution is undoubtedly up-to-date. His "mega views" of evolution (given what was said above) and his cosmological musings, on the other hand, are interesting reading." Summing Up: Recommended Reprinted with permission from CHOICE, copyright by the American Library Association.

It Ain't Necessarily So

This book is divided in two parts, the first of which shows how, beyond paleontology and systematics, macroevolutionary theories apply key insights from ecology and biogeography, developmental biology, biophysics, molecular phylogenetics and even the sociocultural sciences to explain evolution in deep time. In the second part, the phenomenon of macroevolution is examined with the help of real life-history case studies on the evolution of eukaryotic sex, the formation of anatomical form and body-plans, extinction and speciation events of marine invertebrates, hominin evolution and species conservation ethics. The book brings together leading experts, who explain pivotal concepts such as Punctuated Equilibria, Stasis, Developmental Constraints, Adaptive Radiations, Habitat Tracking, Turnovers, (Mass) Extinctions, Species Sorting, Major Transitions, Trends and Hierarchies – key premises that allow macroevolutionary epistemic frameworks to transcend microevolutionary theories that focus on genetic variation, selection, migration and

fitness. Along the way, the contributing authors review ongoing debates and current scientific challenges; detail new and fascinating scientific tools and techniques that allow us to cross the classic borders between disciplines; demonstrate how their theories make it possible to extend the Modern Synthesis; present guidelines on how the macroevolutionary field could be further developed; and provide a rich view of just how it was that life evolved across time and space. In short, this book is a must-read for active scholars and because the technical aspects are fully explained, it is also accessible for non-specialists. Understanding evolution requires a solid grasp of above-population phenomena. Species are real biological individuals and abiotic factors impact the future course of evolution. Beyond observation, when the explanation of macroevolution is the goal, we need both evidence and theory that enable us to explain and interpret how life evolves at the grand scale.

Dialectics for the New Century

Experimental Design for Biologists explains how to establish the framework for an experimental project, including the effects of using a hypothesis – driven approach versus a question/answer approach, how to set up a system, design experiments within that system, and how to determine and use the correct set of controls. Separate chapters are devoted to the negative control, the positive control, and other categories of controls which are perhaps less recognized, such as “ assumption controls ” , and “ experimentalist controls. ” Further, there are sections on establishing the experimental system, which includes performing critical “ system controls ” . While the book does reference the use of statistics, statistics is not the focus of this book, but rather the way the scientist should go about framing an experimental question, establishing a validated system to answer the question, and deriving verifiable models from experimental data. There is

often very little formal training in this area for biologists; therefore this text serves as an essential teaching tool for understanding the theory and practice of designing a research plan.

Big Farms Make Big Flu

Is our nature—as individuals, as a species—determined by our evolution and encoded in our genes? If we unravel the protein sequences of our DNA, will we gain the power to cure all of our physiological and psychological afflictions and even to solve the problems of our society? Today biologists—especially geneticists—are proposing answers to questions that have long been asked by philosophy or faith or the social sciences. Their work carries the weight of scientific authority and attracts widespread public attention, but it is often based on what the renowned evolutionary biologist Richard Lewontin identifies as a highly reductive misconception: "the pervasive error that confuses the genetic state of an organism with its total physical and psychic nature as a human being." In these nine essays covering the history of modern biology from Darwin to Dolly the sheep, all of which were originally published in *The New York Review of Books*, Lewontin combines sharp criticisms of overreaching scientific claims with lucid expositions of the exact state of current scientific knowledge—not only what we do know, but what we don't and maybe won't anytime soon. Among the subjects he discusses are heredity and natural selection, evolutionary psychology and altruism, nineteenth-century naturalist novels, sex surveys, cloning, and the Human Genome Project. In each case he casts an ever-vigilant and deflationary eye on the temptation to look to biology for explanations of everything we want to know about our physical, mental, and social lives. These essays—several of them updated with epilogues that take account of scientific developments since they were first written—are an indispensable guide to the most controversial issues in the life sciences today. The second edition of this

collection includes new essays on genetically modified food and the completion of the Human Genome Project. It is an indispensable guide to the most controversial issues in the life sciences today.

The Dialectical Biologist

Dialectic: The Pulse of Freedom is now widely regarded as a classic of contemporary philosophy. This book, first published in 1993, sets itself three main aims: the development of a general theory of dialectic, of which Hegelian dialectic can be seen to be a special case; the dialectical enrichment and deepening of critical realism, viz. into the system of dialectical critical realism; and the outline of the elements of a totalizing critique of Western philosophy. The first chapter clarifies the rational core of Hegelian dialectic. Chapter 2 then proceeds to develop a general theory of dialectic. Isolating the fallacy of "ontological monovalence", i.e. a purely positive account of being, Roy Bhaskar then shows how absence and other negating concepts such as contradiction have a legitimate and necessary ontological employment. He then goes on to give a synoptic account of key dialectical concepts such as the concrete universal; to sketch the further dialectical development of critical naturalism through an account of what he calls four-planar social being; and following consideration of the dialectical critique of analytical reason, he moves on to the real definition of dialectic as absenting absence and in the human sphere, the axiology of freedom. Chapter 3 extends and deepens critical realism 's characteristic concerns with ontology, science, social science and emancipation not only into the realms of negativity and totality, but also into the fields of reference and truth, spatio-temporality, tense and process, the logic of dialectical universalizability and on to the plane of ethics, where it articulates a combination of moral realism and ethical naturalism, whereby consideration of elemental desire involves commitment to the eudaimonistic society. This is then followed—in Chapter 4—by a sublime

discussion of key moments in the trajectory of Western philosophy, the tradition of which can now be seen to be based on what the author calls the unholy trinity of the epistemic fallacy or the reduction of being to knowledge, primal squeeze or the collapse of structure and alethic truth, and ontological monovalence.

Chance and Necessity

Analyzes the problems and consequences of the lack of communication between scientists and non-scientists in the modern world

The Biology of Moral Systems

Experimental Design for Biologists

Jerry Fodor and Massimo Piatelli-Palmarini, a distinguished philosopher and scientist working in tandem, reveal major flaws at the heart of Darwinian evolutionary theory. They do not deny Darwin's status as an outstanding scientist but question the inferences he drew from his observations. Combining the results of cutting-edge work in experimental biology with crystal-clear philosophical argument they mount a devastating critique of the central tenets of Darwin's account of the origin of species. The logic underlying natural selection is the survival of the fittest under changing environmental pressure. This logic, they argue, is mistaken. They back up the claim with evidence of what actually happens in nature. This is a rare

achievement - the short book that is likely to make a great deal of difference to a very large subject. What Darwin Got Wrong will be controversial. The authors' arguments will reverberate through the scientific world. At the very least they will transform the debate about evolution.

Nature's Matrix

Wilhelm Reich ' s experiments in the 1930s with cutting-edge light microscopy and time-lapse micro-cinematography were considered discredited, but not because of shoddy lab technique, as has been claimed. Scientific opposition to Reich ' s experiments, James Strick argues, grew out of resistance to his unorthodox sexual theories and Marxist leanings.

The Theory of Evolution

Thirteen essays deal with topics in the applied and theoretical sciences, by such authors as Kevin Kelly, Dorion Sagan, Lynn Margolis, and others

Defenders of the Truth

"Everything is contradictory," Hegel declares in Science of Logic. In this analysis of one of the most difficult and neglected topics in Hegelian studies, Songsuk Susan Hahn tackles the status of contradiction in Hegel's thought. Properly philosophical thinking in the Hegelian mode recognizes that contradiction pervades all

organic forms of life. *Contradiction in Motion* presents Hegel's doctrine of contradiction, once widely dismissed, as one deserving serious consideration. The book argues that contradiction is not a sign of error or incoherence, but rather plays an important role in the development of Hegel's system. The first part of the book sets up Hegel's logic of organic wholes in such a way as to motivate his claim that everything is contradictory. Hahn explores how Hegel tests his abstract logical and methodological apparatus against the more concrete, unmanageable aspects of empirical nature. The second and third parts of the book examine the extent to which Hegel's organic model informs his aesthetics and ethics. Hahn reveals the privileged role of art forms in expressing our consciousness of organic unity and shows how Hegel's organic-holistic conception of cognition and nature, with its distinctively contradictory stance, can be incorporated coherently into his ethics.

The Deeper Genome

"Scaffolding" is a concept that is becoming widely used across disciplines. This book investigates common threads in diverse applications of scaffolding, including theoretical biology, cognitive science, social theory, science and technology studies, and human development. Despite its widespread use, the concept of scaffolding is often given short shrift; the contributors to this volume, from a range of disciplines, offer a more fully developed analysis of scaffolding that highlights the role of temporal and temporary resources in development, broadly conceived, across concepts of culture, cognition, and evolution. The book emphasizes reproduction, repeated assembly, and entrenchment of heterogeneous relations, parts, and processes as a complement to neo-Darwinism in the developmentalist tradition of conceptualizing evolutionary change. After describing an integration of theoretical perspectives that can accommodate different levels of analysis

and connect various methodologies, the book discusses multilevel organization; differences (and reciprocity) between individuals and institutions as units of analysis; and perspectives on development that span brains, careers, corporations, and cultural cycles. Contributors Colin Allen, Linnda R. Caporael, James Evans, Elihu M. Gerson, Simona Ginsburg, James R. Griesemer, Christophe Heintz, Eva Jablonka, Sanjay Joshi, Shu-Chen Li, Pamela Lyon, Sergio F. Martinez, Christopher J. May, Johann Peter Murmann, Stuart A. Newman, Jeffrey C. Schank, Iddo Tavory, Georg Theiner, Barbara Hoeberg Wimsatt, William C. Wimsatt

The Triple Helix

Progress requires the conquest of nature. Or does it? This startling new account overturns conventional interpretations of Marx and in the process outlines a more rational approach to the current environmental crisis. Marx, it is often assumed, cared only about industrial growth and the development of economic forces. John Bellamy Foster examines Marx's neglected writings on capitalist agriculture and soil ecology, philosophical naturalism, and evolutionary theory. He shows that Marx, known as a powerful critic of capitalist society, was also deeply concerned with the changing human relationship to nature. Marx's Ecology covers many other thinkers, including Epicurus, Charles Darwin, Thomas Malthus, Ludwig Feuerbach, P. J. Proudhon, and William Paley. By reconstructing a materialist conception of nature and society, Marx's Ecology challenges the spiritualism prevalent in the modern Green movement, pointing toward a method that offers more lasting and sustainable solutions to the ecological crisis.

Prolegomena to Any Future Materialism

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Collects forty-four key segments from the late paleontologist and evolutionary biologist's books, papers, and essays, in a collection that includes an assortment of previously unpublished articles and speeches.

Dialectic

Thanks to breakthroughs in production and food science, agribusiness has been able to devise new ways to grow more food and get it more places more quickly. There is no shortage of news items on hundreds of thousands of hybrid poultry – each animal genetically identical to the next – packed together in megabarns, grown out in a matter of months, then slaughtered, processed and shipped to the other side of the globe. Less well known are the deadly pathogens mutating in, and emerging out of, these specialized agro-environments. In fact, many of the most dangerous new diseases in humans can be traced back to such food systems, among them *Campylobacter*, Nipah virus, Q fever, hepatitis E, and a variety of novel influenza variants. Agribusiness has known for decades that packing thousands of birds or livestock together results in a monoculture that selects for such disease. But market economics doesn't punish the companies for growing Big Flu – it punishes animals, the environment, consumers, and contract farmers. Alongside growing profits, diseases are permitted to emerge, evolve, and spread with little check. “ That is, ” writes evolutionary biologist Rob Wallace, “ it pays to produce a pathogen that could kill a billion people. ” In *Big Farms Make Big Flu*, a collection of dispatches by turns harrowing and thought-provoking, Wallace tracks the ways influenza and other pathogens emerge from an agriculture controlled by multinational corporations. Wallace details, with a precise and radical wit, the latest in the science of agricultural epidemiology, while at the same time juxtaposing ghastly phenomena such as attempts at producing featherless chickens, microbial time travel, and neoliberal Ebola. Wallace also offers sensible alternatives to

lethal agribusiness. Some, such as farming cooperatives, integrated pathogen management, and mixed crop-livestock systems, are already in practice off the agribusiness grid. While many books cover facets of food or outbreaks, Wallace's collection appears the first to explore infectious disease, agriculture, economics and the nature of science together. *Big Farms Make Big Flu* integrates the political economies of disease and science to derive a new understanding of the evolution of infections. Highly capitalized agriculture may be farming pathogens as much as chickens or corn.

Macroevolution

A distinct voice in the nature/nurture debate, Rose's series of essays are a response to the biological reductionism of Richard Dawkins's book, *The Selfish Gene* (OUP, 1990), which insists that all aspects of human life are in our genes, and everything arises as a consequence of natural selection. Rose argues that life depends on the elaborate web of interactions that occur within cells, organisms, and ecosystems, and in which DNA has but one part to play.

What Darwin Got Wrong

Change and necessity is a statement of Darwinian natural selection as a process driven by chance necessity, devoid of purpose or intent.

Doing Science

In this powerful critique, the esteemed historian and philosopher of science Evelyn Fox Keller addresses the nature-nurture debates, including the persistent disputes regarding the roles played by genes and the environment in determining individual traits and behavior. Keller is interested in both how an oppositional “ versus ” came to be inserted between nature and nurture, and how the distinction on which that opposition depends, the idea that nature and nurture are separable, came to be taken for granted. How, she asks, did the illusion of a space between nature and nurture become entrenched in our thinking, and why is it so tenacious? Keller reveals that the assumption that the influences of nature and nurture can be separated is neither timeless nor universal, but rather a notion that emerged in Anglo-American culture in the late nineteenth century. She shows that the seemingly clear-cut nature-nurture debate is riddled with incoherence. It encompasses many disparate questions knitted together into an indissoluble tangle, and it is marked by a chronic ambiguity in language. There is little consensus about the meanings of terms such as nature, nurture, gene, and environment. Keller suggests that contemporary genetics can provide a more appropriate, precise, and useful vocabulary, one that might help put an end to the confusion surrounding the nature-nurture controversy.

Contradiction in Motion

Connects the Marxist construct of capitalism to systems of community In this book, Michael Lebowitz deepens the arguments he made in his award-winning, *Beyond Capital*. Karl Marx, in *Capital*, focused on capital and the capitalist class that is its embodiment. It is the endless accumulation of capital, its causes and consequences that are central to Marx ’ s analysis. In taking this approach, Marx tended to obscure not only the centrality of capital ’ s “ immanent drive ” and “ constant tendency ” to divide the working class but

also the political economy of the working class (“ social production controlled by social foresight ”). In *Between Capitalism and Community*, Lebowitz demonstrates that capitalism contains within itself elements of a different society, one of community. Whereas Marx ’ s intellectual construct of capitalism treats it as an organic system that reproduces its premises of capital and wage-labor (including a working class that looks upon the requirements of capital “ as self-evident natural laws ”), Lebowitz argues that the struggle of workers in common and activities based upon solidarity point in the direction of the organic system of community, an alternative system that produces its own premises, communality, and recognition of the needs of others. If we are to escape the ultimate barbarism portended by the existing crisis of the earth system, the subordination of the system of capitalism by that of community is essential. Since the interregnum in which capitalism and community coexist is marked by the interpenetration and mutual deformation of both sides within this whole, however, the path to community cannot emerge spontaneously but requires a revolutionary party that stresses the development of the capacities of people through their protagonism.

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