

Darwinism—A new paradigm for organizational behavior?

NIGEL NICHOLSON^{1*} AND ROD WHITE²

¹*London Business School, London, U.K.*

²*The University of Western Ontario, Canada*

Summary

The Special Issue reflects a growing interest in Darwinian ideas and their increasing application to work and organizational issues, analyzes factors that have impeded its adoption as a paradigm and considers the prospects for future growth. After a brief introduction to key concepts in the new Darwinism, some histories, and controversies are traced. Causes for the particularly slow uptake of the paradigm in Organizational Behavior (OB) are discussed, as well as some of the common misconceptions and incorrect attributions that have been leveled at evolutionary theory. The paper then overviews the scope and contents of the Special Issue (SI) papers, and concludes by considering future prospects for the field. The authors argue that the paradigm has compelling significance and wide applicability to the full range of OB topics and interests. Copyright © 2006 John Wiley & Sons, Ltd.

Introduction

The relationship between the ‘new Darwinism’ and the field of Organizational Behavior is in its infancy, but revealing rich potential and intriguing future challenges. The purpose of this Special Issue is to give impetus and encouragement to its further development. The rigorous application of Darwinian logic to business research is long overdue. In the one hundred fifty years since Darwin’s ideas were conceived they have had a pervasive influence in the biological sciences, becoming a foundation for further theoretical and empirical developments (Mayr, 1997). Substantial beachheads of Darwinism have been established in the many of the social sciences, most notably evolutionary psychology (EP). Yet the application of these ideas to the organizational sciences is a story of very limited engagement, mixed success, and some paradox. Darwinian precepts have entered thought and discourse more implicitly than explicitly, and it is rare for them to be acknowledged even within the research and writing of those areas of organizational sciences where they have clear relevance, such as in decision-making, gender issues, negotiation, and leadership.

It is only recently that the writings of recognized organizational scholars have employed Darwinian thinking to help explain behaviors in and around organizations (Lawrence & Nohria, 2002; Nicholson,

*Correspondence to: Nigel Nicholson, Department of Organizational Behavior, London Business School, Regents’ Park, London, NW1 4SA, U.K. E-mail: nnicholson@london.edu

2000). Prior forays into a Darwinian view of business came from journalists like Antony Jay (1971) who talked about teams, leadership, status, and culture in terms of our ancestral origins. Currently there is a good deal of excitement about the prospects for evolutionary approaches to business, management, and organizational behavior, and a growing band of intrepid scholars developing the paradigm. At the same time we recognize that Darwinian thinking has not achieved 'lift-off' within our field. There is neither yet a critical mass of organizational scholars adopting and using this paradigm, nor it has attained a significant, regular presence in the mainstream journals.¹

The contributions to this Special Issue are exemplars of what is possible, but by no means represent the full range of potential applications. This SI therefore has the status of a stocktaking of current research, a reminder of the potential for the field, and a query as to why the progress and explicit adoption of Darwinian thinking has not been greater in the organizational sciences. It is our hope that this collection will be a stimulus for more organizational scholars to actively employ Darwinian logic in their research.

What is Darwinism?

Darwin was a naturalist who studied biological organisms. His great insight was modification by descent—a powerful explanatory principle denoting the application of selective forces ('natural selection') to variations in heritable phenotypic characteristics of organisms, with heritable characteristics that enhance the reproductive fitness of the organism being retained and transmitted to the next generation ('replication'). Variation in the phenotype is caused by—(a) variation in the underlying genotype by spontaneous mutation, or by the exchange of genetic material through sexual reproduction, and (b) impairment and enhancements through environmental impacts, both random and systemic. Some phenotypes are better able to deal with selective forces and differentially reproduce thus passing on more of their genes to the next generation. Darwin never identified the units of biological replication, which we now know to be genes. And indeed as Dawkins' explained in the last chapter of his book *The Selfish Gene* any type of replicator undergoing a process of variation, selection, and retention can evolve (Dawkins, 1976). Biological evolution is just a special case of a more general process.

Some organization theorists have used the more general variation-selection-retention paradigm to analyze historical change in organizational forms, and their frequency of occurrence within populations (Aldrich, 1999; Hannan & Freeman, 1989; Nelson & Winter, 1982). This type of thinking—properly called 'selectionism' rather than 'evolution' has been applied to other social phenomena: human invention (Cziko, 1995), cognitive frameworks (Blackmore, 2000), as well as other social collectivities, including cultures (Blackmore, 2000; Boyd & Richerson, 1985; Boyd & Richerson, 1995). What these theories share with biological evolution is the same general process model. Where they differ is in the specifics related to that model; most importantly the unit of replication. For biological evolution it is the gene. But what is the equivalent of DNA for social organisms (i.e., organizations, cultures, and societies)? Could such a thing even exist? These questions are hotly debated.

Darwin's name is often invoked to describe all the variants of this general evolutionary process (Dennett, 1995). However, for this Special Issue we choose to narrow its scope to papers that have at least one if not both feet firmly planted in an evolutionary biological explanation for behaviors

¹An informal review of six major journals: Journal of Organizational Behavior, Organization Science, Academy of Management Review, Journal of Applied Psychology, and Human Relations for the years 1999 to 2003 identified three articles (from a population of 1957 articles) with an explicitly acknowledged Darwinian foundation.

of interest to organizational scholars. Genes must in some way be implicated in the behavior of interest. We did so because we hope to stimulate interest, activity, research, and more publication by organizational scholars with this Darwinian perspective. Many of the other social sciences, those bordering organizational behavior: sociology, anthropology, psychology, and even economics have researchers actively applying this type of Darwinian thinking to their disciplines. Some disciplines have specialized 'Darwinian' journals, like *Evolutionary Psychology*, *Evolution and Human Behavior*, and the *Journal of Bioeconomics*. Indeed, the area of evolutionary psychology has gained sufficient acceptance that there are several introductory textbooks on the subject (Buss, 1999; Barrett, Dunbar, & Lycett, 2002; Plotkin, 2004). Frankly we are concerned about the organizational sciences are being left behind when it comes to understanding how our biology affects our (social) behavior.

The Status of the Darwinian Paradigm—History and Controversies

EP applies the logic to human phenotypic and genotypic characteristics in order to understand the nature of human nature and to make inferences about the implications for the design and conduct of social life. It is explicitly an enterprise to bring together biological and social science explanations under a single parsimonious and scientifically verifiable explanatory framework. William James was perhaps the first, and one of the most far-sighted post-Darwinian psychologists, but his approach to the discipline was eclipsed by the grip of the behaviorists and phenomenologists. They conducted a tug-of-war as to which tabula rasa view of human nature would take precedence. Here, we should confront the hot debate that Darwinism arouses. This started, of course with the storm of ridicule and misrepresentation that the *Origin of Species* aroused at its publication 145 years ago. For much of the 20th century psychologists, in company with most other social scientists, adopted what Tooby and Cosmides (Cosmides & Tooby, 1992) called the Standard Social Science Model (SSSM): the view that human psychology transcends biology through our unique capacity for symbolic representation, reflexivity, and cultural conditioning. This view has supported a plethora of mid-range theorizing about human identity and social systems that eschew any roots in scientism, realism, or positivism. One could call this the triumph of the social constructionists.

This triumph was only ever partial—within branches of psychology the study of heritable individual differences, human universals, and psychophysiology were alive and well, drawing on sources as disparate as Galton and Freud to deviate from the tabula rasa model. The neo-Darwinian revival, with its revolutionary implications for all the social sciences, started in the 1960s with theoretical advances by Hamilton (1964), Trivers (1985), and others (see Dennett, 1995; Wright, 1994 for historical reviews). One of the first introductions of these ideas into popular science was E.O. Wilson's coining of the term 'sociobiology' (Wilson, 1975), a word which became an abusive epithetic in the critiques of many SSSM adherents.

It was in a volume edited by Barkow, Tooby and Cosmides, *The Adapted Mind* (Cosmides & Tooby, 1992) that errors and misconceptions of previous formulations and critiques were most coherently supplanted by an integrated and defensible framework. It is here more than anywhere the discipline of evolutionary psychology secured its identity. This publication was followed by a swathe of popular writings (Ridley, 1993; Ridley, 1996; Pinker, 1997; Pinker, 2002; Wright, 1994) and the establishment of the influential Darwin@LSE seminars, under the leadership of the philosopher Helena Cronin, which began in London during 1995. The first explicit application of EP to OB was in a keynote address to the 8th European Work and Organizational Psychology Congress of 1997 and in two publications the same year (Nicholson, 1997a, 1997b).

Since then we have seen evolutionary concepts enter the mainstream of mass culture and public discourse, with popular television programs and news media reports about genetics, Darwinism, and the human animal. At the same time there has been increasingly accessible knowledge about neuroscience and the human genome. From the age of information we seem in the 21st century to be entering the age of biology, such is public preoccupation with the materiality of human existence and our place in the fragile ecosystems of our planet. Yet a paradox remains. Despite the preponderance of evidence Darwin's theory of descent with modification is not well understood and generally accepted. Gallup recently reported that 'a third of Americans believe that Charles Darwin's theory of evolution is a scientific theory that has been well supported by the evidence, while just as many say that it is just one of many theories and has not been supported by the evidence.'² Further fully 45 per cent appear to reject Darwin and 'believe that God created human beings pretty much in their present form about 10 000 years ago.' Interestingly this latter percentage has not changed much over three decades.

Given the onslaught of evidence and new science and the access this Darwinism has to mainstream media one might have expected it to have gained greater acceptance. To a degree this is happening, but it is notable that the ideas remain anathema to a sizeable portion of the general public as well as many social scientists. The latter group includes many SSSM proponents who remain implacably and vociferously hostile to EP. Indeed, it is no exaggeration to say that the Darwinian perspective has made no more headway in the academy than it has in the public mind. One may speculate about why this is so.

Naturally, established academics are likely to resist adopting any new paradigm that require them to relinquish others that they have built their careers upon. A second reason is resistance to 'grand theory'. Darwinism bears the hallmarks of a successful 'grand theory', by providing a unique integrative overview of the relationship between temporally proximate and distal causes, by crossing levels and discipline boundaries, and by its ability to take account of the mediating effects of social and environmental context. It does so with greater reach, elegance, and parsimony than alternative theories. Yet OB and its disciplines seem to prefer middle range theories (Pinder & Moore, 1980), perhaps in reaction to the overweening ambitions of the major 'isms' of earlier times, such as behaviorism and Freudianism. We would argue that the new Darwinism, and the research that underpins it, is fundamentally different from these earlier 'isms'. It is more scientific, rigorous and broad in its inclusion of disparate underpinning evidence. It is more theoretically integrative across disciplinary boundaries (Wilson, 1998), and it passes the difficult test of providing a unitary explanatory framework for hitherto separated observations of law-like relationships in the real world. Most importantly, hypotheses coming from Darwinian theory are falsifiable. Apparently discrepant findings can be pursued and resolved.

We believe the resistance to Darwinism has a deeper cause requiring more attention—this is ideological. The ideology becomes apparent when one examines the stated arguments of the objectors. The most celebrated high profile debate was between what might be called the ecologists and the geneticists. On the one side stand Stephen J. Gould, Nils Eldredge, and colleagues, objecting to the extension of Darwinian logic to self-aware humans, and on the other side Richard Dawkins, John Maynard Smith, and others, arguing for the rigorous application of Darwinian logic to humans as to any other organism. The debate became even more extreme with the strident condemnation of neo-Darwinists in a volume edited by the Roses (Rose & Rose, 2000), and some trenchant responses calling 'foul' by Darwinian defendants (Kurzban, 2002).

Now in the form of a newly published article in *Human Relations* (Sewell, 2004), with some fervent rebuttals from EP scholars (Markóczy & Goldberg, 2004; Nicholson, 2005), the debate has arrived in OB. The arguments ranged on the objectors' side are couched in terms of rejection of simplistic determinism, biological reductionism, and the smuggling in of the naturalistic fallacy—accusing Darwinians of having a social policy agenda that claims the right to socially engineer on Darwinian

²<http://www.gallup.com/poll/content/>

principles. It is not difficult to refute these accusations and attributions, for they are based upon caricatured distortions of the EP thesis. We will not repeat these refutations here, but refer readers to Kurzban (2002), Markóczy and Goldberg (1998), and Nicholson (2005). Rather, let us briefly dwell on the substance of what appears to be their argument, which is for a complete decoupling of human nature from biological materiality.

This argument takes various forms. The two most common variants are—(a) in terms of the reflexive self-concept giving humans an unique capacity for free-willed action that somehow transcends its biological vehicle, and (b) that cultural evolution has broken away from the anchor of our evolved nature and taken a course free and uninfluenced by our biological identity, that gives humans open access to all imaginable social destinations. Both ideas—the latter is at least partly dependent on the former—are profoundly liberating, but ultimately metaphysical and unsustainable. The liberation is to give human destiny back to completely free-willed actors. The fallacious metaphysics is dualism—the separation of human identity from the rest of the organic universe.

The ideology underlying objections to EP is thus one that unites people of religious faith with social idealists—maintaining valued ideals about the perfectibility of humanity, the equal potentiality of every individual, the existence of ‘soul’ or some equivalent non-corporeal essence to human identity, a belief in ultimate progress, and the possibility of refined social engineering to construct society as we would wish it (a motive often falsely imputed to Darwinians). This false separation of mind and body, reason and emotion is what Antonio Damasio identifies as *Descartes Error*, in his book of the same name (Damasio, 1998).

The logic of Darwinism often runs afoul of what is generally accepted as politically correct ideology. Feminism is a case in point. Males and females share many biological similarities but there are also obvious and profound differences. Some of these differences are explored in several papers in this Special Issue. Yet even raising the possibility that women and men differ can evoke a storm of protest.³ Darwinism is a positive not a normative science. It provides a framework for understanding the way our natural world is, and why it is that way. It does not tell us what our social, economic, and political world should be, other than perhaps to recognize and take into consideration our innate attributes where they exist, and to point out possible areas of misfit with contemporary environments. A Darwinian perspective raises many interesting empirical research questions. Yet many ideological adherents to the SSSM appear willing to deny the question because they anticipate an answer that may in some way challenge their normative worldview.

There is also a more primitive tribalism in these attacks, for they are peppered with a paranoia that the biologists are ‘taking over’. This is especially threatening to those social theorists—the post-structuralists and critical theorists—whose *raison d’être* is the deconstruction of the world of ideas, whose understandable desire is to preserve an untrammelled freedom to engage in anti-positivistic interpretive method. The scientific stance of the Darwinians is seen as a kind of hegemony that could threaten their existence. This fear may have some justification. Yet social constructionism as a social fact is not inconsistent with this framework, so long as its precepts are anchored in the knowns of human nature and existence, i.e., that prevailing social forms are essentially non-arbitrary. Our biology defines the parameters of human nature upon which social constructions depend. We humans, among all the species, have evolved the intelligence and the cognitive abilities to explore and understand these relationships. We hope this Special Issue will encourage more organizational scholars to discover relationships between our evolved biology and the organizational and social systems we construct and inhabit.

³Recent speculation by Lawrence Summers, Harvard University President that men and women may have innate differences in preferences for, or abilities in math and science led to calls for his resignation. See: “Harvard Women’s Group Rips Summers”, *The Boston Globe*, January 19, 2005, p. A1.

Darwinism and OB—The Current State of the Art

A major purpose of this Special Issue was to provide an outlet for OB scholars employing Darwinian theory to explore and explain interesting behaviors in and around organization. Our own experience suggested that while this perspective generates considerable casual interest amongst OB scholars and practitioners, relatively few have adopted it as their dominant paradigm. To provide maximal opportunity for participation we utilized a two-stage process. In the first stage potential contributors submitted a one-page outline describing their proposal for a full paper. While we were encouraged by the response it is fair to say we were not overwhelmed, underlining the still nascent status of the paradigm within OB. Some 36 submissions were reviewed to assess their fit with the mandate of this Special Issue. Those meeting the criteria were invited to develop a full manuscript for consideration. A normal double blind review process was employed thereafter. After the usual recursive reviews seven quality papers were selected for final inclusion.

The papers that make up this Special Issue include both the development and application of Darwinian theory to OB issues, empirical studies testing hypotheses derived from evolutionary theory, and review and synthesis pieces that map extant Darwinian research onto the OB territory, pointing to areas for future exploration. The content of each category is as follows:

Review and synthesis

Darwinism, behavioral genetics, and organizational behavior: a review and agenda for future research (Ilies, Arvey, & Bouchard).

Evolved sex differences and occupational segregation (Browne).

Women, power, and sex composition in small groups: an evolutionary perspective (Colarelli, Spranger, & Hechanova)

Theory development

OCB as a handicap: an evolutionary psychological perspective (Deutsch Salamon & Deutsch).

Empirical studies

Monitoring, reputation, and 'greenbeard' reciprocity in a Shuar work team (Price).

Resource context contestability and emergent social structure: an empirical investigation of an evolutionary theory (Pierce & White).

Facial attractiveness, sexual selection, and personnel selection: when evolved preferences matter (Luxen & van de Vijver).

This list encompasses a range of topics. The article by Ilies, Arvey, and Bouchard is notable for analyzing the intersection between behavioral genetics and evolutionary theory as they bear upon the key theme in organizational behavior of individual differences. The other two articles in this group use Darwinian thinking to explore sex differences, addressing questions that may be considered controversial, and even provocative. Browne explores whether the different proportions of men and women in different occupational categories can be explained by sex differences in evolved preferences, arguing powerfully that no competing explanation can do so with equal parsimony and completeness. The other article in this group, by Colarelli, Spranger, and Hechanova, uses evolutionary psychology to

understand how sex composition affects small group dynamics. These careful, well-crafted studies show how Darwinian theories can illuminate differences between the sexes without endorsing particular outcomes.

Among the empirical articles the sex differences theme arises gain in Luxen and van de Vijver's paper examining whether facial attractiveness affects men and women differently when they make personnel decisions. Their data reveal an intriguing pattern of results, wholly consistent with Darwinian prediction. If the topic of sex differences is one of the most important and controversial areas of Darwinian theory and research, another would be co-operation and competition, which figures largely in the remainder of the papers. The tension between these seeming opposites has proved to be one of the fertile, important, and contentious areas of evolutionary theory, as scholars seek to understand the dynamics of their co-existence. These papers explore the tension between co-operation and conflict. Price's article, drawing upon compelling field data from non-literate tribespeople, demonstrates how human groups can distinguish between co-operators and free riders; a skill required for the maintenance of non-kin co-operative groups in our ancestral environment. Pierce and White build upon their earlier theoretical work (Pierce & White, 1999), testing hypotheses relating the emergent social structure of a group to its ecology, specifically the 'contestability' of its resource context. They find that in less contestable situations more hedonic, or co-operative group structures emerge. Finally, Deutsch Salamon and Deutsch do some novel theorizing around the important concept in evolutionary theory of 'self-handicapping' as a means of communicating one's qualities. Costly signals has been an interesting area of evolutionary theory and their article provides a new view of citizenship behavior by analyzing it with this theoretical lens.

Future Prospects

This array of articles just scratches the surface of potential applications. A longer but by no means exhaustive list would include topics like: human emotions and motivation; individual differences and human universals; cognition, metacognition, judgment and decision-making; interpersonal dealing, negotiation, trust and deception; communal aspects of organizations, networking; ethical behaviors and leadership. This listing seems perilously close to the whole of the OB field—as well it might be, for the paradigm is broad in its applicability.

We foresee three important areas of future growth and development that will enhance the credibility and maturity of evolutionary perspective on organizations. First, further advances in the theory and its translation, and application to individual behavior within contemporary organization settings are needed. Several pathways merit investigation. One is the nature of the self and its role in regulating behavior. There is great scope for tidying-up our understanding of the relationship between psychological modalities (cognition, emotion, and action tendencies) with the aid of an interdisciplinary Darwinian analysis of neuro-psychological functioning. Another is the nature of social co-evolutionary processes, and how 'socially constructed' local environments simultaneously serve and shape the adaptive needs of their occupants. Bridging the two is the need for a more developed interactionist framework to study topics such as leadership (see Nicholson, 2005).

Second, we envisage more vigorous and precisely focused prediction and hypothesis testing employing Darwinian precepts. This Special Issue contains a few examples but we expect a broadening of the scope to many more of the topics we have listed above as more and more OB scholars engage this compelling paradigm. At the moment the flow of causal insight is one-way—novel

propositions from other evolutionary disciplines are tested in the OB field. In the longer-term research by OB scholars at the leading edge will feedback into and enrich core evolutionary theory. This outcome is most likely in such areas as decision-making and sex differences, as some of the papers here indicate.

Lastly, a sign that a field has 'arrived' is when communities of practice start taking serious notice. The evolutionary paradigm is beginning to catch the interest of executive and practitioner audiences. A forthcoming book on the fastest growing travel organization in the world attributes its phenomenal success to the founders' captivation with the new Darwinism and his adoption of a fluid 'family, village, and tribe' structure (Johnson, 2005). Many organizations, it could be argued, succeed because they adopt forms and practices consistent with human nature and the kinds of community in which we are most effective. Perhaps this case represents the first of many examples of organizations making more conscious efforts to achieve congruence by design through insight. Using insights into our human nature, developed from evolutionary theory and proven through rigorous testing, to design organizations more compatible with that human nature. Achieving this result would be one notable sign of a valid and powerful paradigm—a close union between theory, empiricism, and practice.

Acknowledgements

It only remains for us to extend our sincerest thanks to our contributors for the courage of their thought, the focus of their intelligence, and the innovativeness of their achievement in framing these highly positive exemplars of evolutionary thinking applied to OB. Likewise, we would like to thank our band of reviewers, who maintained the highest standards of rigor and constructive criticism while helping to bring this set of papers to completion. Finally, we would like to thank the editors of *JOB* for their perspicacity in seeking to be at the cutting edge of thought and knowledge by supporting this Special Issue. And if we may, we would like to thank each other, as co-editors for our long-distance teamwork in bringing this project from inception through to maturity. It is easy when you share such firm common ground.

Author biographies

Nigel Nicholson is Professor of Organizational Behavior at London Business School. His wide-ranging research interests have encompassed motivation and performance, the psychology of labor relations, innovation, role transitions, executive career development, personality and leadership, risk and decision-making in finance, and, most recently, family business. His executive teaching is in the area of leadership skills, in which he directs two major programs at London Business School: *High Performance People Skills*, and *Proteus*, an experiential program for leaders.

Rod White is an Associate Professor in General Management at the Richard Ivey School of Business, The University of Western Ontario. He teaches at the undergraduate, masters, and doctoral levels, as well as executive education. Rod received his DBA and MBA (with high distinction) from Harvard University and his Honors Bachelors of Arts (Business) from the University of Western Ontario. His current research interests include the role evolved social structures play in the functioning of organizations and the biological basis for entrepreneurial behavior.

References

- Aldrich, H. E. (1999). *Organizations evolving*. Thousand Oaks, CA: Sage.
- Barrett, L., Dunbar, R. I. M., & Lycett, J. (2002). *Human evolutionary psychology*. Princeton, N.J.: Princeton University Press.
- Blackmore, S. (2000). The power of memes. *Scientific American*, October, 64–73.
- Boyd, R., & Richerson, P. J. (1995). Why does culture increase human adaptability? *Ethology and Sociobiology*, 16, 125–143.
- Boyd, R., & Richerson, P. J. (1985). *Culture and the evolutionary process*. Chicago: University of Chicago Press.
- Buss, D. M. (1999). *Evolutionary psychology: The new science of the mind*. Boston: Allyn and Bacon.
- Cosmides, L., & Tooby, J. (1992). Cognitive adaptations for social exchange. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind: Evolutionary psychology and the generation of culture* (pp. 163–228). New York: Oxford University Press.
- Cziko, G. (1995). *Without Miracles: Universal selection theory and the second Darwinian revolution*. Cambridge, MA: MIT Press.
- Damasio, A. R. (1998). *Descartes' error: Emotion, reason, and the human brain*. New York: Bard/Avon Books.
- Dawkins, R. (1976). *The selfish gene*. New York: Oxford University Press.
- Dennett, D. C. (1995). *Darwin's dangerous idea: Evolution and the meanings of life*. New York: Simon & Schuster.
- Hamilton, W. D. (1964). The genetical evolution of social behavior. I. *Journal of Theoretical Biology*, 7, 1–16.
- Hannan, M. T., & Freeman, J. (1989). *Organizational ecology*. Cambridge, MA: Harvard University Press.
- Johnson, M. (2005). *Family, village, tribe: The story of Flight Centre Ltd*. Melbourne: Random House.
- Kurzban, R. (2002). Alas poor evolutionary psychology: Unfairly accused, unjustly condemned. *The Human Nature Review*, 2, 99–109.
- Lawrence, P., & Nohria, N. (2002). *Driven: The four drives underlying human nature*. San Francisco: Jossey-Bass.
- Markoczy, L., & Goldberg, J. (1998). Management organization and human nature: An introduction. *Managerial and Decision Economics*, 19, 387–409.
- Markóczy, L., & Goldberg, J. (2004). Yabba-dabba-doo! A response to unfair accusations. *Human Relations*, 57, 1037–1046.
- Mayr, E. (1997). *This is Biology: The science of the living world*. Cambridge, MA: Belknap Press of Harvard University Press.
- Nelson, R. R., & Winter, S. G. (1982). *An evolutionary theory of economic change*. Cambridge, MA: The Belknap Press.
- Nicholson, N. (1997a). Evolutionary psychology: towards a new view of human nature and organizational society. *Human Relations*, 50(9), 1053–1078.
- Nicholson, N. (1997b). Evolutionary psychology and organizational behaviour. In C. L. Cooper, & S. Jackson (Eds.), *Creating tomorrow's organizations: A handbook for future research in organizational behavior*. Chichester: Wiley.
- Nicholson, N. (2000). *Executive instinct: Managing the human animal in the information age*. New York: Crown Business.
- Nicholson, N. (2005). Objections to evolutionary psychology: Reflections, implications and the leadership exemplar. *Human Relations*, 58(3), 393–409.
- Pierce, B. D., & White, R. E. (1999). The evolution of social structure: Why biology matters. *Academy of Management Review*, 24(4), 843–853.
- Pinder, C. C., & Moore, L. F. (1980). *Middle range theory and the study of organizations*. Boston: M. Nijhoff Pub.
- Pinker, S. (1997). *How the mind works*. New York: Norton.
- Pinker, S. (2002). *The blank slate: The modern denial of human nature*. New York: Viking.
- Ridley, M. (1993). *The red queen: Sex and the evolution of human nature*. London: Viking.
- Ridley, M. (1996). *The origins of virtue: Human instincts and the evolution of cooperation*. London: Viking.
- Rose, H., & Rose, S. (2000). *Alas poor darwin: Arguments against evolutionary psychology*. London: Jonathan Cape.
- Sewell, G. (2004). Yabba-dabba-doo! Evolutionary psychology and the rise of Flintstone psychological thinking in organizational and management studies. *Human Relations*, 57, 923–955.
- Tooby, J., & Cosmides, L. (1992). The psychological foundations of culture. In J. H. Barkow, L. Cosmides, & J. Tooby (Eds.), *The adapted mind*. Oxford: Oxford University Press; 19–136.
- Trivers, R. L. (1985). *Social evolution*. Reading, MA: Benjamin/Cummings.
- Wilson, E. O. (1975). *Sociobiology: The new synthesis*. Cambridge, MA: Harvard University Press.
- Wilson, E. O. (1998). *Consilience: The unity of knowledge*. New York: Knopf.
- Wright, R. (1994). *The moral animal: Evolutionary psychology and everyday life*. New York: Pantheon.