

IDENTIFYING BEHAVIOURAL MODERNITY: LESSONS FROM SAHUL

Martin Porr

Archaeology/Centre for Rock-Art Studies, School of Social and Cultural Studies, University of Western Australia;
martin.porr@uwa.edu.au

ABSTRACT

This contribution is aimed at drawing attention to the fact that at present the most widely accepted understanding of the origins of modern behaviour is dominated by Western concepts of the character of humanity. Here, it is briefly discussed that this understanding not only produces less than convincing results in the current discussion on 'modern human origins', but is still plagued by problems that were already evident in the 18th and 19th centuries. It is suggested that these issues are connected to a simplistic and essentialist understanding of human historical development. The concept of 'modernity' inevitably produces a version of human history that is unilinear, eurocentric and concentrates on the development and history of state societies. It is therefore suggested that 'modernity' in all its versions is counterproductive to our aim of understanding the human past and present. It needs to be replaced by an understanding of organisms, humans and their environments as mutually constituting each other and as products of their situated becoming and not of their essential (cognitive and/or genetic) and timeless qualities.

INTRODUCTION

In this short contribution I want to draw attention to some problematic issues connected with the current and most widely accepted understanding of the origins of modern behaviour or behavioural modernity. I want to use some aspects of the long and complex Australian history to draw attention to the fact that the discussion surrounding these issues is guided by Western values and definitions of humanity and modernity. I want to stress at the beginning that this essay is not intended to provide an exhaustive discussion of the issues mentioned. In particular, it will not be able to provide clear solutions to the problems discussed. This will, in any case, not be an easy task, because it will involve rethinking some fundamental assumptions about the character of history and evolution. The view from Australia is especially instructive in this context,

because it allows the questioning of essentialist orientations and implied core-periphery distinctions in the current understanding of the origin of modern behaviour.

Following prominent authors such as Paul Mellars (e.g. 2006, 2007), Christopher Henshilwood (e.g. 2007) and Richard Klein (e.g. 2000, 2008, 2009), the 'human revolution' – the origin of behavioural modernity – is currently supposed to have happened between ca. 45,000 and 80,000 years ago in Africa. Although Mellars (2007:3) emphasizes that descriptions of differences between European Middle and Upper Palaeolithic technologies were "never intended or presented as any kind of global characterization of 'modern' behavioural patterns across Europe as a whole, let alone on a more continental scale", he uses exactly these traits to identify the critical period for the development of modern behaviour in Africa. These traits ("blade" production, end-scrapers, burins, geometric lithic elements relating to multi-component hafted tools, appearance of increased imposed form and style, relatively complex bone tools, use of perforated shells and ornaments, the use of ochre etc.) are supposed to have enabled the "closely ensuing Out-of-Africa dispersal, and the rapid colonization of the rest of the world" (Mellars 2007:8) shortly after 80,000 and 60,000 years ago.

From an Australian perspective, it is interesting to note that most of those innovations that supposedly enabled modern humans to reach this continent are conspicuously rare in the region during the Pleistocene. Although Mellars (2007:4) is aware of the European legacy that is included in the definition of modern behaviour, he chooses not to abandon it. This view leaves not only the earliest settlers of Australia in an awkward position, but also African and Near Eastern anatomically modern humans associated with evidence for ritual behaviour but without Upper Palaeolithic material culture, such as the Herto specimens in Ethiopia (Clark et al. 2003) or the individuals at Skhul and Qafzeh, Israel (Vanhaeren et al. 2006). What is the cognitive status of these individuals who are dated between 100,000 and 160,000 years ago? According to the view that there was a "revolution" inhuman behav-

behaviour between 80,000 and 45,000 years ago, they cannot have been modern. Henshilwood (2007) elaborates on this interpretation in the context of his discussion of “fully symbolic *Sapiens* behaviour”. The inclusion of the term *fully* here signals the need to distinguish this concept from supposedly lesser or only half-symbolic individuals and populations. According to Henshilwood (2007:123) “modern human behaviour” or “fully symbolic *sapiens* behaviour” was “likely closely linked to the emergence of anatomically modern *Homo sapiens* at c. 200 kya” ago. However, he also states that “the change to anatomical modernity may not have been accompanied by behaviour that was mediated by symbolism although it could be argued that the capacity for this behaviour was already in place” (Henshilwood 2007:123). Furthermore, Henshilwood (2007:124) argues that to be “symbolically literate” is a “defining factor of full behavioural modernity”. However, this “literacy” is immediately undermined because, in fact, “it is the *use* of symbolism to mediate behaviour that is paramount and not symbolic thought alone or the capacity for symbolism” (Henshilwood 2007:124 [emphasis added]). Consequently, the individuals mentioned above are imagined to have been in possession of the mental capabilities of later humans, but they were also somehow unable to express these abilities.

In recent years, Richard Klein has been most prominent in arguing for a late and sudden appearance of modern human behaviour between 45,000 and 50,000 years ago. His view is that around this time “a fortuitous mutation [occurred] that promoted the fully modern brain” (Klein 2008:271). The development of the modern brain and the modern mind enabled hominins to spread all over the Old World (and eventually into the New World) and to replace all other archaic populations.

One would think that the current understanding of the Palaeolithic record of both Southeast Asia and Sahul would provide serious challenges to this understanding. However, Klein (2008:271) argues that the record from East and Southeast Asia “is slim and poorly dated” and therefore cannot be used to refute his model, while the record from Sahul is regarded as supporting his model, because “conspicuous archaeological change occurred 50-40 ka” ago in this region (Klein 2008:271). Since no further discussion of this claim is provided, it is very difficult to comprehend how a singular and localized event, such as a mutation in a single organism in East Africa, could have produced the global distribution of modern humans, the accompanying material culture and socio-economic/adaptive relationships within the time frame that Klein proposes. This is, in fact, demonstrated by Klein (2008:270) himself in the form of a map showing the “hypothetical routes of modern human dispersal from Africa”. Modern humans had virtually no time whatsoever to get used to their new ways of thinking and reach Sahul as the dates for the origins of modern behaviour in Eastern Africa

and the arrival in Australia seem to be almost indistinguishable.

These problems are connected to a definition of humanity and an understanding of human development that is firmly based on fundamental elements of the Western tradition of thought. Tim Ingold (e.g. 1995, 2000, 2002b) has repeatedly stressed that ideas about human origins in archaeology and palaeoanthropology reflect a highly restricted understanding of biological evolution that reduces biological developments to genetics and constructs a clear distinction between biological and historical developments. This reduction almost inevitably leads to the idea that ‘behavioural modernity must have a genetic basis and was therefore created at a particular point in time through a mutation event. The most important elements of the Upper Palaeolithic record and the qualities that reflect typical Western values (e.g. emphasis on innovation, efficiency, expansion, advances in the extraction of energy from the environment etc.) appeared at this moment. This understanding can be seen as an extension of the traditional Western essentialist definition of humanity (or behavioural modernity) that has deep roots in European intellectual history, including a Platonian/Cartesian separation of the body and the mind that is remodelled into the idea of a separation between ‘anatomical modernity’ and ‘behavioural modernity’. The current view of modern human origins consequently very much rests on the idea of an absolute and qualitative distinction between modern humans and other hominins, and, consequently, animals (Ingold 2002b). This is, of course, only possible by concentrating exclusively on cognitive and mental attributes with a genetic basis. This essentialist orientation shows extensive similarities with the Western “metaphysical and religious tradition that was dogmatically certain that all those born of women housed immortal souls that were equipped to share God’s life” (Clark 1988:31). Although the religious connotations have generally disappeared, the structure of the argument remains very similar. The belief in a human soul finds its modern expression in the belief in a genetic endowment that is shared by the whole human species (McBrearty & Brooks 2000:533).

Ingold (2004) has drawn attention to the fact that already Darwin and his contemporaries were struggling with the issues of genetic endowment and cognitive abilities. Darwin himself was very clear about the fact that he assumed that differences between human populations were a product of their organic heritage, their genetic basis. Human history was consequently seen as a selection process in which “tribes have supplanted other tribes”, which favoured groups with the larger proportion of “well-endowed men” (Darwin 1874 cited in Ingold 2004:211). The success of these human populations was, however, not measured by their abilities to adapt to local environments and conditions, but in relation to an absolute scale of human achievements, which was defined by and only fully realized in modern Western society. In com-

binning his views of the general processes of biological evolution with a view of human history that was fundamentally teleological, Darwin produced not only a view of human evolution that was deeply racist. It was also plagued by the deep contradiction between the processes of local adaptation and supposed universal and absolute human progress. Furthermore, some contemporaries of Darwin were also already aware of the complex cultural achievements of supposedly primitive or less-developed people. One of these thinkers was Alfred Wallace, who concluded that it was impossible that biological evolutionary processes alone could have “endowed savage man with a brain ... very little inferior to that of a philosopher” (Wallace 1870:356 quoted in Ingold 2004:212).

These problems have not so much to do with the assumed powerful but unrealized capabilities of early modern brains. Rather, the paradox itself is only a product of retrospectively defining what ‘modern behaviour’ actually is and its imposition onto the archaeological record. The normal course of history, the one that is supposed to accurately reflect the real capacities of the modern mind, is consequently the course that was taken by the most complex and sophisticated societies, those who have achieved the stage of “theoretic thought and external symbolic storage” (as defined and developed by Donald 1991). The whole argument, however, is nothing but the logical consequence of following an essentialist Western understanding of humanity that locates the essence of humanity in the cognitive abilities of the mind, which are modelled upon the core values of the modern Western world.

This emphasis on those aspects of cognition geared towards innovation and growing social, organisational and technological complexity almost inevitably produces a version of human history that is unilinear, eurocentric and concentrates on the development and history of state societies. As such, it has a long history in Western intellectual tradition. In fact, the current standard model of modern human origins seems to reproduce a version of human history that is virtually indistinguishable from ideas expressed by 18th century Enlightenment theorists. These proposed a ‘psychic unity of mankind’, where all human beings shared “a common set of basic intellectual capacities, and in that sense may be considered equal” (Ingold 2004:211). In Linnaeus’ *Systema Naturae*, published in 1735, the genus *Homo* is placed within the classification of animals, “but distinguished by the injunction *Nosce te ipsum*, ‘know for yourself’” (Ingold 2002b:27). The implication is that even though humans are a part of the animal kingdom, the essential qualities of a human can be found in its mind. History was regarded as “the story of man’s rise from primitive savagery to modern science and civilisation” and “the idea that human reason would rise and eventually triumph over the brute forces of nature was the centrepiece of

their philosophy” (Ingold 2004:210-211). Humans were seen to be different:

in *degree* from other creatures with regard to their anatomical form, but nevertheless were distinguished in kind from the rest of the animal kingdom in so far as they had been endowed with minds - that is with the capacities of reason, imagination and language - which could undergo their own historical development within the framework of a constant bodily form (Ingold 2004:211).

This is exactly the position that is at the heart of some of the most influential contributions to the current discussion about the so-called origins of modern humans and behavioural modernity. This position cannot be accommodated within traditional Darwinian evolutionary thinking today as it could not in the 19th century. Given the anti-evolutionary character of this view of humanity, it is not surprising that most authors do not attempt to reconstruct the moment or the conditions of the “magic moment” that created either fully modern humans or modern humans endowed with the capacities for fully modern behaviour. It is very difficult to imagine this revolutionary transition that created the abilities that enabled our ancestors to transcend the laws of biological evolution and embark upon conquering the world with its different and challenging environments—a moment “without precedent in the evolution of life” (Ingold 2004:212-213).

Darwin himself proposed that the differences between societies have to be related to genetic differences and he did not propose one magic moment, which turned our ancestors into fully modern human beings (Ingold 2004:211). But just as current thinkers have rejected this version of human development with its racist implications, they have inherited the problem of creating a version of human history that is divided into two phases that are characterized by a set of qualitatively different causalities: “There is one process, of evolution, leading from our ape-like ancestors to human beings that are recognisably of the same kind as ourselves; another process, of culture or history, leading from humanity’s primitive past to modern science and civilisation” (Ingold 2004:212).

In this way, current thinkers have inherited the ethnocentrism that characterised this thinking. In most current concepts there is indeed very little space for any variability in the characteristics of modern humans. In fact, the ones that are presented appear as nothing else than a reflection of the values and categories of Western modernity, which are assumed to universally underlie and guide the behaviour of all human beings. This view does not take into account the numerous ways that people relate to their environment and the ways that they see and construct themselves. It rather universalizes one particular historical and intellectual trajectory and “privileges as supremely ‘human’ the cultural categories of

the investigator" (Tapper 1988:59). These categories are projected back in time and traced in the form of 'origins research' (Gamble & Gittens 2004). It is rarely conceded that the categories themselves are a product of a specific historical trajectory and therefore would have to be subjected to a contextual analysis. It is clear that they carry numerous "common-sense presumptions that nature is an objective given, and further, that humanity is one, a species with a common nature despite cultural diversity", however, "it has long been established that notions of both nature and humanity are highly variable and changing cultural constructions, and that in many societies they are not constructed at all" (Tapper 1988:49). It is rather arrogant to assume that all cultural variations are just noise and disturbances obscuring a universal, genetically fixed substrate supposedly geared towards Western efficiency considerations and purely accessible through Western scientific, analytical thought.

In this brief contribution, it is not possible to show in great detail how this general orientation has influenced the perception and interpretation of the archaeological record of Sahul and Australian Indigenous people. However, it seems clear that neither has featured in models of human evolution or history as fully developed human societies. Even before the beginnings of scholarly anthropology and with virtually no knowledge of the life-ways and history of its Indigenous people, Australia was perceived as the crucial anthropological "laboratory" for understanding the original condition of humanity. As Kuper (1988:92) has pointed out, this view was purely based on the observation that Australian Aborigines "were black, naked hunters and gatherers". In this, they presented the appropriate antithesis to northwestern European societies within a generalizing, unilinear and progressive understanding of human history. The geographical distance between these societies further supported the idea of progressive, central regions that had to be distinguished from stagnant, peripheral regions of human social development (Gamble 1992).

The study of Australian Aboriginal societies and their past was therefore not conducted to understand how these societies organised their relationships with each other and their environments. The main aim was to find the original condition of humanity, which was primarily constructed in a binary fashion in opposition to European state societies. Kuper (1988) has provided a classic critique of the idea of primitive society and the fallacies connected with it. It is interesting to note that in the 19th century, primitive society was primarily defined not along economic parameters (i.e. hunting and gathering), but rather along social or even religious ones (e.g. kinship). Australian 'totemism' played here a crucial role in the formative period of social anthropology (see Kuper 1988:92-104). The *Man the Hunter* conference and its proceedings (Lee & DeVore 1968) are generally regarded to have provided the shift within hunter-gatherer studies to-

wards an emphasis on ecological, scientific and materialistic approaches. They have not, however, changed the basic orientation of hunter-gatherer studies as research into the original state of humanity. The conference crystallized a shift in attitude towards what constitutes the essential characteristic of hunter-gatherers and, by extension, the original condition of mankind. Recent and prehistoric hunter-gatherers were studied subsequently within an ecological-evolutionary framework that had close theoretical links with neo-Darwinian biology. In an interesting but conceptually flawed extension (see Ingold 2000:27-39), this orientation also incorporates classic economic thinking with an emphasis on cost-benefit decision making (see also Lee & DeVore 1968:21). As mentioned above, the attitude towards the value of the study of hunting and gathering people has not changed with this shift. This is aptly illustrated by the promotional subtitle to the *Man the Hunter* conference volume that reads: "the first intensive survey of a single, crucial stage of human development—man's once universal hunting way of life" Lee and DeVore 1968. Now hunter-gatherers are supposed to represent a crucial stage in human development, because they exemplify a state of human existence that is not only defined by their subsistence activities, but because they appear to be as close to nature as possible and therefore close to the mythical point of the origin of humanity.

The ecological and materialistic orientation of most hunter-gatherer studies produces research designs that almost exclusively concentrate on quantifiable data and exclude a serious engagement with Indigenous interpretations and viewpoints. For example, in neither Kelly's (1995) *The Foraging Spectrum* nor Binford's (2001) monumental *Constructing Frames of Reference* is any direct statement by a hunting and gathering person included. Consequently, no engagement with these viewpoints is possible. Culture and cultural goals are seen as distractions and distortions. Indigenous perspectives are perceived as secondary and irrelevant as causal elements in the understanding and explaining of behaviour and material culture. One might argue that these approaches are partly directed at analysing archaeological and prehistoric cases, where no access to indigenous perspectives is possible. However, as I tried to show above, the problem is more fundamental than this. In general, these approaches present a highly selective and impoverished view of hunting and gathering people and, by linking it to an equally selective and impoverished view of biology, they create the impression of universal applicability. In a sense, they therefore also use and propagate an impoverished version of humans and organisms in general.

The Australian colonial and post-colonial experience, in contrast, shows that reality is much richer and more complex than any attempt at explaining human existence as a consequence of genetic mutation, selection processes or cost-benefit calculations could accommodate. Acknowledging this

does not mean that these elements do not contribute to human actions, but they need to be placed in their specific context in a non-essentialist manner—into dialectical processes of growth and development. Altogether this will mean that it cannot be assumed that deep within every human being can be found a core of attributes that are unaffected and apart from the circumstances of the relational development of organisms in their environments and exclusively accessible through Western analytical methods. This will also mean that we have to abandon the search for the origins of modern humans or behavioural modernity altogether. The idea as such will inevitably lead to the generalisation of a particular historical experience at the expense of spatio-temporal variations. Modernity in all its versions is not only a slippery concept, but counterproductive to our aim of understanding the human past and present.

It is clear that the development of alternative methodological approaches and theoretical frameworks is not a trivial matter. It has to involve a reflexive and fundamental critique of a large number of deeply ingrained concepts about persons, organisms, and processes of tradition, learning, heredity and the relationships between animals and humans and their environment (e.g. Antweiler 1991, Bird-David 1999, Gamble & Porr 2005, McBrearty 2007). Most importantly, this also has to involve a critical re-assessment of the relevance of evolutionary biology in its present neo-Darwinian form. Indeed, some within the field of evolutionary biology have already moved in this direction, proposing a truly relational view of development that breaks down the distinctions between evolution and history, and sees humans, animals and their environments as mutually constituting each other (e.g. Jablonka & Lamb 2005, Ingold 1991, 1998, Lewontin 2000, Oyama et al. 2001). Furthermore, it appears quite significant that despite the dominance of genetics and neo-Darwinian models in many discussions about human evolutionary processes, biology itself has already moved into the ‘post-genomic era’ (see e.g. Sarkar & Plutynski 2008, Rosenberg & Arp 2010). In palaeoanthropology and Palaeolithic archaeology, these developments still have to be integrated into models of human evolution.

The relational character of some of these approaches and frameworks show some interesting convergences with non-Western and indigenous ontologies and epistemologies, which open up new exciting avenues of exploration beyond explicit and implicit attempts to fit indigenous experience and life-ways into the Western scientific or academic framework of knowledge and discourse (Bell & Porr in prep.). In this spirit, Australia’s past and present has a lot to offer. Ingold (1991:356) observed almost twenty years ago that adopting a non-essentialist epistemology involves “taking seriously what many non-Western peoples (...) have been trying to tell us for some time”.

Senior Ngarinyin lawman David Mowaljarlai expressed exactly the same view only a few years later, in 1995:

What we see is, all the white people that were born in this country and they are missing the things that came from us mob, and we want to try and share it. And the people were born in this country, in law country, from all these sacred places in the earth. And they were born on top of that. And that, we call *wunggud* – very precious. That is where their spirit come from. That's why we can't divide one another, we want to share our gift, that everybody is belongin; we want to share together in the future for other generations to live on. You know? That's why it's very important (quoted in Bell 2009:164).

Archaeological and anthropological research has to engage critically with its own historical and epistemological foundations. It has yet to fully engage with the (Australian) indigenous experience in its own right. This still remains the most important lesson from Sahul.

ACKNOWLEDGEMENTS

This is an edited version of a paper presented at the 19th Congress of the Indo-Pacific Prehistory Association in Hanoi on December 1st, 2009. I would like to thank Miriam Haidle and Alfred Pawlik, the organizers of the session ‘Cognitive Competence, Cultural Failure? Is the Modernity Discussion Valid for the Indo-Pacific Area?’, for inviting me to participate and present my thoughts on the topic. Jane Balme provided valuable comments on an earlier draft of this contribution.

REFERENCES

- Antweiler, C. 1991. Transgenerational Cultural Dynamics: From Neo-Evolutionism to a Truly Evolutionary Theory. *Cultural Dynamics* 4:270-289.
- Bell, H.R. 2009. *Storymen*. Cambridge: Cambridge University Press.
- Bell, H.R. and M. Porr. 2011. ‘Rock-art’, ‘animism’ and two-way thinking. Towards a complementary epistemology in the understanding of material culture and ‘rock-art’ of hunting and gathering people. *Journal of Archaeological Method and Theory*. DOI 10.1007/s10816-011-9105-4.
- Binford, L.R. 2001. *Constructing Frames of Reference: An Analytical Method for Archaeological Theory Building Using Hunter-Gatherer and Environmental Data Sets*. Berkeley: University of California Press.
- Bird-David, N. 1999. “Animism” Revisited. Personhood, Environment, and Relational Epistemology. *Current Anthropology* 40, Supplement: S67-S91.

- Clark, J., D. Y. Beyene, G. Wolde-Gabriel, W.K. Hart, P.R. Renne, H. Gilbert, A. Defleur, G. Suwa, S. Katoh, K.R. Ludwig, J.-R. Boisserie, B. Asfaw and T.D. White. 2003. Stratigraphic, chronological and behavioural contexts of a Pleistocene *Homo sapiens* from Middle Awash, Ethiopia. *Nature* 423:747-752.
- Clark, S.R.L. 1988. Is humanity a natural kind? In T. Ingold (ed.), *What is an animal?*, pp. 17-34. London: Unwin Hyman.
- Donald, M. 1991. *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition*. Cambridge, Mass.: Harvard University Press 1991.
- Gamble, C.S. 1992. Archaeology, history and the uttermost ends of the earth – Tasmania, Tierra del Fuego and the Cape. *Antiquity* 66:712-720.
- Gamble, C.S. and E. Gittins. 2004. Social Archaeology and Origins Research: A Paleolithic Perspective. In R. W. Preucel and L. Meskell (eds.), *A Companion to Social Archaeology*, pp. 96-118. Malden, Mass.: Blackwell.
- Gamble, C.S. and M. Porr. 2005. From empty spaces to lived ones: Exploring the individual in the Paleolithic. In C.S. Gamble and M. Porr (eds.), *The Hominid Individual in Context. Archaeological investigations of Lower and Middle Paleolithic landscapes, locales and artefacts*, pp. 1-12. London/New York: Routledge.
- Henshilwood, C.S. 2007. Fully Symbolic Sapiens Behaviour: Innovations in the Middle Stone Age at Blombos Cave, South Africa. In P. Mellars, K. Boyle, O. Bar-Yosef and C. Stringer (eds.), *Rethinking the Human Revolution: New Behavioural and Biological Perspectives on the Origin and Dispersal of Modern Humans*, pp. 123-132. Cambridge: McDonald Institute for Archaeological Research.
- Ingold, T. 1991. Becoming Persons: Consciousness and Sociality in Human Evolution. *Cultural Dynamics* 4:355-378.
- _____. 1995. 'People like Us': The concept of the anatomically modern human. *Cultural Dynamics* 7:187-214.
- _____. 1998. From complementarity to obviation: On dissolving the boundaries between social and biological anthropology, archaeology and psychology. *Zeitschrift für Ethnologie* 123:21-52.
- _____. 2000. *The Perception of the Environment. Essays in Livelihood, Dwelling and Skill*. London: Routledge.
- _____. 2002a. Between Evolution and History: Biology, Culture, and the Myth of Human Origins. In M. Wheeler, J. Ziman and M.A. Boden (eds.), *The Evolution of Cultural Entities. Proceedings of the British Academy* 112, pp. 43-66. Oxford: Oxford University Press.
- _____. 2002b [1994]. Humanity and animality. In T. Ingold (ed.), *Companion Encyclopedia of Anthropology*, pp. 14-32. London: Routledge.
- _____. Beyond biology and culture: the meaning of evolution in a relational world. *Social Anthropology* 12:209-221.
- Jablonka, E. and M.J. Lamb 2005. *Evolution in Four Dimensions: Genetic, Epigenetic, Behavioral, and Symbolic Variation in the History of Life*. Cambridge, Mass.: MIT Press.
- Kelly, R.L. 1995. *The Foraging Spectrum: Diversity in Hunter-Gatherer Lifeways*. Washington: The Smithsonian Institution.
- Klein, R.G. 2000. Archaeology and the Evolution of Human Behaviour. *Evolutionary Anthropology* 9:17-36.
- _____. 2008. Out of Africa and the Evolution of Human Behaviour. *Evolutionary Anthropology* 17:267-281.
- _____. 2009. *The Human Career: Human Biological and Cultural Origins*, 3rd ed. Chicago: University of Chicago Press.
- Kuper, A. 1988. *The Invention of Primitive Society: Transformations of an Illusion*. London: Routledge.
- Lee, R. B. and I. DeVore (eds.) 1968. *Man the Hunter*. Chicago: Aldine de Gruyter.
- Lewontin, R.C. 2000. *The Triple Helix: Gene, Organism and Environment*. Cambridge, Mass.: Harvard University Press.
- McBrearty, S. 2007. Down with the Revolution. In P. Mellars, K. Boyle, O. Bar-Yosef and C. Stringer (eds.), *Rethinking the Human Revolution. New Behavioural and Biological Perspectives on the Origin and Dispersal of Modern Humans*, pp. 133-151. Cambridge: McDonald Institute for Archaeological Research.
- McBrearty, S. and A.S. Brooks. 2000. The revolution that wasn't: A new interpretation of modern human behaviour. *Journal of Human Evolution* 39:453-563.

- Mellars, P. 2006. Why did modern human populations disperse from Africa ca. 60,000 years ago? A new model. *Proceedings of the National Academy of Sciences* 103:9381-9386.
- Mellars, P. 2007. Rethinking the Human Revolution: Eurasian and African Perspectives. In P. Mellars, K. Boyle, O. Bar-Yosef and C. Stringer (eds.), *Rethinking the Human Revolution. New Behavioural and Biological Perspectives on the Origin and Dispersal of Modern Humans*, pp. 1-11. Cambridge: McDonald Institute for Archaeological Research.
- Oyama, S., P.E. Griffiths and R.D. Gray (eds.) 2001. *Cycles of Contingency: Developmental Systems and Evolution*. Cambridge, Mass.: MIT Press.
- Rosenberg, A. and R. Arp (eds.) 2010. *Philosophy of Biology: An Anthology*. Oxford: Wiley-Blackwell.
- Sarkar, S and A. Plutynski (eds.). 2008. *A Companion to the Philosophy of Biology*. Malden, Mass.: Blackwell.
- Tapper, R. 1988. Animality, humanity, morality, and society. In T. Ingold (ed.), *What is an Animal?*, pp. 47-62. London: Unwin Hyman.
- Vanhaeren, M. F. d'Errico, C. Stringer, S.L. James, J.A. Todd and H.K. Mienis. 2006. Middle Paleolithic Shell Beads in Israel and Algeria. *Science* 312:1785-1788.