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Lucy to Language: The Benchmark Papers, edited by R. I. M. Dunbar, Clive Gamble and J. A. J. Gowlett

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Book Reviews

LUCY TO LANGUAGE: THE BENCHMARK PAPERS. Edited by R. I. M. Dunbar, Clive Gamble and J. A. J. Gowlett. Pp. xix and 509, Illus 59. Oxford University Press, 2014. Price: £95.00. ISBN 978 019965 259 4.

The Social Brain Hypothesis (SBH) is the most comprehensive hypothesis for the evolution of hominin cognition yet proposed. It incorporates elements of primate cognition, ethology, life history, and ecology, along with paleoanthropological data from the fossil and archaeological records. In its most basic form it argues that the challenges of managing large, multi-layer social groups, selected for significant upgrades in social cognition and communication, ultimately led to our current abilities in abstract reasoning and syntactical language. Robin Dunbar based the initial version of the model on the correlation between primate social group size and neocortex size. But unlike the Machiavellian hypothesis, which had emphasized competition and deception, the SBH emphasized affiliative behaviours and group cohesion. The hypothesis explained a great deal about primate cognition and had important implications for hominin evolution, especially the role of Theory of Mind (ToM). Between 2003 and 2010, the British Academy's Centenary Research project, *Lucy to Language,* made a concerted assault on the SBH and its implications, eventually involving fifty-five scholars who in aggregate produced some twenty-nine books and four-hundred research articles and book chapters, making it the most thoroughly tested model of hominin behavioral evolution ever developed. The current volume summarizes the results of that seven-year project by reprinting thirteen of the original publications, as well as adding eight chapters specifically written for the volume.

The thirteen reprinted chapters include both journal articles and book chapters. These reprinted chapters bring together in one volume many of the landmark papers of the *Lucy to Language* project, making scholarly access especially easy. They cover a range of specific issues related to the hypothesis, and vary quite a bit in regard to target audience. Some, especially chapters for which John Gowlett, Clive Gamble, or Fiona Coward are co-authors, were clearly written with archaeologists in mind, while others were pitched at psychologists, primatologists, or evolutionary theorists. This makes for an inconsistent overall style. Also, because each of the reprinted works was initially a stand-alone effort, there is an unavoidable amount of repetition as each author or group of authors needed to provide at least some text reviewing the SBH itself.

Despite these minor issues of style, the reprinted chapters do a good job of presenting the range of issues arising from the SBH, and make a strong case for the general hypothesis and many of its specific predictions. Of particular note among the archaeological chapters is James Cole's 'The Identity Model: A Theory to Access Visual Display and Hominin Cognition within the Palaeolithic'. Cole uses the ToM component of the SBH, along with his own argument about social identity, to make a challenging interpretation of components of the Palaeolithic record, such as a very late acquisition (<100,000 years ago) of the modern five levels of intentionality. It is arguably the most creative use of archaeological evidence in the volume, and makes a convincing case for the role of archaeology in any account of hominin cognition evolution.

The eight chapters purpose-written for the volume are the best parts of the book. The authors explore the implications of the SBH in more provocative and creative ways. Here, the reader will find clear explications of SBH's account of multi-level community organization, the importance of time budgets in the evolution of social behavior, and the role of diet. Of particular interest to archaeologists are chapters on fire, high-latitude adaptations (including Neanderthals), and SBH's implications for Post-Pleistocene hunting and gathering and the transition to food-production.

The only weakness to the presentation is the lack of a true introduction and a summarizing conclusion. The editors provide brief context in the preface, but rely on one of Dunbar's reprinted

articles to get the text started (*Mind the Gap: Or Why Humans Aren't Just Great Apes,* 2008). A chapter written for the volume might have done the job better. It would have been useful to have an evaluative, retrospective, conclusion by the three editors, one that also discussed where the SBH goes from here.

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FROM HAND TO HANDLE: THE FIRST INDUSTRIAL REVOLUTION. By Lawrence Barham. Pp. xi and 357, Illus 60. Oxford University Press, 2013. Price: £75.00. ISBN 978 019960 471 5.

This is a very accessible, timely, and thought-provoking exploration of the earliest hafted artefacts in human (pre)history. The central thesis is that innovations occur via 'combinatorial evolution', where change occurs through 'the slow accretion of cumulative innovations based on existing technologies' (p. 20), and that by the Middle Pleistocene (*c.* 780,000–130,000 years ago) the required social, biological and technological frameworks for the emergence of hafting were in place. This thesis is generally convincing, and the first hafting, as an expression of the combinatorial principle and of new ways of thinking about technology, is argued to have fundamentally changed subsequent human evolution. The up-to-date integration of different themes and disciplines is a particular highlight, and include: neuroscience and the differing roles of the brain's left and right hemispheres in, respectively, planning and preparation for tool use, and the active execution of plans; anthropology, in particular childhood and social learning; the palaeoclimatic Middle Pleistocene Transition; palaeoanthropology (e.g. the evolution of different hand grips); and archaeology (e.g. lithic technology, bindings, and mastics). The supporting of key concepts with specific archaeological data in the form of artefacts and fossils (where possible) is a further strength, especially in the earlier chapters.

The emphasis on three broad requirements for the emergence of hafting in the Middle Pleistocene is interesting and, for the most part, convincing. Chapter 2 explores biology and cognition, in particular precision grips and, inferred from handedness, a capacity for complex language. Chapter 3 tackles hominin social life, stressing extended childhood and the implications of food sharing and group cooperation for the processes of, and especially the time available for, teaching and learning. Chapter 4 tackles later Lower Palaeolithic technology, emphasizing the sequential actions and chains of planning required by handaxes, prepared cores, and fire. The related consideration of geographical patterning, such as the technological and possible demographic contrasts east and west of the Movius Line (which runs broadly from Eastern Europe to the north-eastern borders of India) offers an interesting perspective on likely areas of 'origin' for hafting (Chapters 4, 5, and 6). However, the emphasis on the climatic impacts of the Middle Pleistocene Transition was less convincing (as Barham acknowledges in Chapter 6), not least because the contrasts between the resolution of the various climatic signals and the archaeological record were not fully explored (pp. 127–38). The currently very limited evidence for late Acheulean blades (potential working edges when hafted) is perhaps also slightly over-played.

The book is slightly weaker in its later chapters. This is perhaps an inevitable consequence of the limitations of the currently available archaeological data (about which Barham is honest throughout), although the review of hafting processes is excellent, and the classification of the available types of evidence as a 'hierarchy of certainty' (pp. 201–17) (e.g. hafting wear, traces of adhesive, tool form) is very useful. The distinction between actions and understandings is also valuable (Tables 4.1 and 5.1), and is linked back to the earlier cognitive discussions of Chapter 2.

There are, however, numerous important points made which are valuable reminders of the complexities involved in the making of, and learning how to make, the earliest hafted technologies. Making a hafted tool cannot be learned from observing the final form alone, as key aspects, such as mastic, are hidden from view at that point. The more speculative observations, such as that the inclusion of a protective wrapping or pad when using a handaxe might represent the earliest form of