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Book reviews

Mothers and Others: The Evolutionary Origins of Mutual Understanding. By Sarah Blaffer Hrdy. Pp. 422. (Harvard University Press, Cambridge, MA, USA, 2009.) £19.95, ISBN 978-0-674-03299-6, hardback. doi:10.1017/S0021932011000113.

Mothers and Others is a highly stimulating essay on the evolutionary origins of human empathy, i.e. being curious and concerned about the emotions of others. Ultimately, understanding why humans show extreme intersubjectivity is crucial in discussing the evolutionary origins of large-scale cooperation – a perennial hot topic for many evolutionary anthropologists. In this context, Sarah Hrdy challenges the current dominant view that the main selective pressure for the evolution of cooperation within a group is inter-group competition. She argues that, ‘We have underestimated just how important shared care and provisioning of offspring by group members other than parents has been in shaping social impulses.’ Using a broad comparative perspective, she aims to demonstrate that cooperative breeding is a pre-existing condition that permitted the evolution of key human traits such as extended lifespan, prolonged childhoods and bigger brains. However, as is often the case for the big questions in behavioural science, the accumulation of evidence does not always prevent circularity of reasoning, leading some core questions of the book (i.e. why us and not them [apes]?) partly unanswered. Consequently, *Mothers and Others* should be viewed as a case for alternative views and critical thinking of current theories rather than a problem-solving dissertation. Although *Mothers and Others* makes the case for a role of cooperative breeding in shaping cognitive traits allowing individuals to show empathy, even toward non-related individuals, it does not explain why hypersociality has evolved in humans. Nonetheless, this incredibly well documented book (>800 references) has great merit, brilliantly integrating knowledge from child development, psychology, primatology and behavioural ecology, and in doing so provides a unique opportunity to rethink the evolutionary history of the human family.

The argument for the role of cooperative breeding in shaping pro-social impulses and subsequent key human features (i.e. our big brain) builds on the fact that apes, although possessing the basic brain equipment to infer other’s motivations, have not evolved hypersociality. ‘So why us and not them [apes]?’ Hrdy asks. If pro-social impulses allow groups to outcompete others, then a highly competitive species such as chimpanzees would surely have benefited from such an ability, and selection should have favoured pro-sociality and big brains in this species. One important point this reasoning makes is that considering apes as a model to understand human cooperative behaviour is not necessarily a good starting point. Rather, using analogies based on social system rather than phylogeny allows us to observe a joint occurrence of cooperative breeding and pro-social impulses cross-species, and ultimately consider the possibility that pro-social impulses have been selected for as a result of cooperative breeding. However, the question remains: why us and not them (i.e. the cooperative breeding species)? Why have high social skills and associated big brains only evolved in humans and not in Callitrichidae, for instance? Hrdy argues that, 'The remarkable thing about humans is not so much cooperative breeding as it is cooperative breeding in an ape, . . . in a primate already possessing the cognitive capacities, Machiavellan intelligence, and incipient theory of mind typical of all great apes.' Then, one cannot rule out that if theory of mind is a pre-existing condition for cooperative breeding to select for hypersociality, then the selective pressures for the evolution of theory of mind, so far believed to be inter-group competition, might still be relevant to account for the evolution of human cooperation. Then, whether cooperative breeding is necessary at all for the evolution of human hypersociality can be questioned. If it is likely that cooperative breeding increases the amount of energy available for individuals, as Hrdy suggests, and thus relaxing constraints on the evolution of energetically costly organs such as brains, other mechanisms could do the job, i.e. the development of cooking and subsequent high energy food. Finally, it is still possible that the benefit associated with having of a large brain has selected for an extended juvenile period and subsequently for cooperative breeding. Although Hrdy recognizes the occurrence of co-evolutionary processes, the argument would have benefited from more emphasis on 'why humans and no other cooperative breeders', i.e. what is the ecological parameter specific to humans, as compared with all other species, that has selected for high levels of pro-sociality?

One appreciable input of *Mothers and Others* is the critique of taken-for-granted arguments. For instance, using the 'misplaced parental investment' hypothesis and evidence that care is not always directed towards kin, she questions the over-reliance on genetic relatedness to explain observed patterns of alloparental care. This emphazises that ecological circumstances (e.g. distribution of resources) are critical in explaining the expression of altruistic behaviour, and those must not be overlooked. In this line, Hrdy challenges the traditional view of the Pleistocene human reproductive system. She provides evidence that polyandry is likely to have been common in ancestral time, and thus the conflict between men and women over reproduction not always in favour of men across our evolutionary history. Using both genetic and cross-cultural data, she argues that the common assumption of ancestral patrilocal residence is far from certain, and sex dispersal more likely to be highly flexible. This has implications for how we discuss the evolution of key human traits such as women's early cessation of reproduction (i.e. menopause) as a helping behaviour, and to generally reconsider the male-payoff maximization view of the early environment and associated selective pressures. Interestingly, the ecological and historical perspectives of the book raise an important question. How much can contemporary human populations tell us about our evolutionary past? It is often assumed that hunter-gatherers are the most likely to inform us on early environment and past selective pressures. However, ecology has changed since the Pleistocene, and, as Hrdy recognizes, recent genetic evidence shows that evolution didn't end at the Neolithic revolution, with natural selection still operating, even accelerating in humans. Thus, current selective pressures do not necessarily inform on past selective pressures. As a consequence, one might question the extent to which the knowledge of non-Western contemporary populations is helpful to infer the ancestral human

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family, and to what extent the knowledge of the human family during the Pleistocene informs us on current behaviour.

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Cholera: The Biography. By Christopher Hamlin. Pp. 344. (Oxford University Press, Oxford, 2007.) £12.99, ISBN 978-0-19-954624-4, hardback. doi: 10.1017/S0021932011000095.

Part of the 'Biographies of Disease' series, edited by William and Helen Bynum, Hamlin's book is, on one level, an illuminating account of the history of cholera. It is, however, much more than this. In highlighting the 'sheer multidimensional indefiniteness' of cholera, Hamlin forces us to consider the very meaning of this and other infectious diseases, past, present and future, and so places his book firmly within the realms of the new disease ecology.

In spite of the lack of footnotes and a prologue featuring the children's book *The Secret Garden*, this is a dense and intellectually stimulating book which presupposes considerable knowledge of the disease itself, and of the historical and cultural contexts in which it is discussed. It is a text that demands to be considered as a whole – almost, indeed, to be read in its entirety at a single sitting. Hamlin builds upon ideas and information in a chronological manner yet weaves strands of the main argument – the impossibility of actually defining something as complex as cholera – throughout the text.

The initial chapters consider the *idea* of cholera, the various meanings of the term itself, the gradual, and problematic, 'Asianisation' of its identity, and the rise of the cholera epidemics in the nineteenth century. Chapter III, 'Citizen Cholera', reviews the changing cultural, moral and political responses to cholera as it became entrenched across Europe and beyond. Community, national and later international cholera policies were demanded and instigated with vigour, yet the disease, notes Hamlin, 'was not inherently a medical or a scientific problem'. The rise of scientific thinking, the problematic dichotomy of contagionist and anticontagionist ideas, and the early epidemiological work of John Snow and others are discussed in the fourth chapter. As elsewhere in the book, Hamlin is keen to link historical with modern cholera science, pointing out that ideas dismissed or ridiculed in their time were often remarkably prescient. All of the questions and approaches raised in the mid-19th century and abandoned in the subsequent reductionist era, he notes, remain relevant to the more collaborative cholera research of the present day.

In the remaining chapters of the book Hamlin discusses the 1880s 'watershed' in cholera publications following Koch's isolation of the *Vibrio* and the consequences of this in regard to treatment and prevention. The pathway from initial scepticism, to over-simplistic confidence, and back to multi-faceted complexity – a familiar story in infectious disease history – is carefully dissected by Hamlin. Here he forces the reader to consider the cultural and environmental aspects of the disease alongside the microbiological and clinical ones, and leaves us with the thought-provoking idea that,