Replacement of Neanderthals by Modern Humans Series

Takeru Akazawa
Yoshihiro Nishiaki
Kenichi Aoki *Editors*

Dynamics of Learning in Neanderthals and Modern Humans

Volume 1

Cultural Perspectives

Springer

Replacement of Neanderthals by Modern Humans Series

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The planned series of volumes will report the results of a major research project entitled "Replacement of Neanderthals by Modern Humans: Testing Evolutionary Models of Learning", offering new perspectives on the process of replacement and on interactions between Neanderthals and modern humans and hence on the origins of prehistoric modern cultures. The projected volumes will present the diverse achievements of research activities, originally designed to implement the project's strategy, in the fields of archaeology, paleoanthropology, cultural anthropology, population biology, earth sciences, developmental psychology, biomechanics, and neuroscience. Comprehensive research models will be used to integrate the discipline-specific research outcomes from those various perspectives. The series, aimed mainly at providing a set of multidisciplinary perspectives united under the overarching concept of learning strategies, will include monographs and edited collections of papers focusing on specific problems related to the goals of the project, employing a variety of approaches to the analysis of the newly acquired data sets.

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Takeru Akazawa • Yoshihiro Nishiaki
Kenichi Aoki
Editors

Dynamics of Learning in Neanderthals and Modern Humans
Volume 1

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Preface

Knowledge about the pathways of human evolution has expanded dramatically as a result of advances in genetic, paleontological, and archaeological studies in the twentieth century. One excellent example is the resolution of the issue of the origin of modern humans, long a source of great controversy; namely, the idea that modern *Homo sapiens* are direct related genealogically to Eurasian archaic humans was rejected, and the "Out of Africa" theory, which is now the accepted evolutionary model, was vindicated. However, this new theory only gave rise to a flurry of new questions, one of which centers on the drama of the replacement of the archaic Neanderthals by modern *Homo sapiens*.

Modern humans emerged in Africa about 200,000 years ago; as they subsequently spread across Eurasia, they encountered the indigenous Neanderthals. The two populations coexisted until 30,000 years ago or perhaps even later, but the Neanderthals eventually went extinct. What governed the fates of the two groups? A number of current hypotheses have been proposed to explore the possible mechanics of the replacement of Neanderthals by modern humans, and there has been extensive debate as to whether or not the presence of the modern humans accelerated the extinction of the Neanderthals. This question is being hotly debated among archaeologists, anthropologists, and geneticists around the world.

We are actively engaged in a five-year (2010–2014) major research project entitled "Replacement of Neanderthals by Modern Humans: Testing Evolutionary Models of Learning" (RNMH). In launching RNMH we have adopted a large scale innovative assault on this research question. The RNMH project implements a pioneering framework structured around the contrast between the success of modern human societies in solving strategic survival problems, and the failure of Neanderthal societies to do so. In that context, we attribute the contrasting fates of the two societies to a difference in learning abilities between the two populations. This is the basis of our working hypothesis ("learning hypothesis").

The specific goal of this project is to verify the learning hypothesis within an interdisciplinary research framework incorporating new perspectives and methods in the fields of archaeology, paleoanthropology, cultural anthropology, population biology, earth sciences, developmental psychology, biomechanics, and neuroscience. The two present volumes are the proceedings of the first international RNMH conference held in Tokyo in November 2012. Some results have already been published separately in various scholarly journals, but these two volumes constitute the first full attempt to disseminate the findings of our RNMH project to the international research communities. A major purpose in doing so at this halfway point of our project is to solicit scholarly evaluation of these findings.

The 43 submitted manuscripts have been classified into seven sections based on content, and then divided into two groups to be published as two volumes in the Replacement of Neanderthals by Modern Humans series. The first volume is devoted to discussion of cultural perspectives, the second to cognitive and physical perspectives. We hope that these two volumes may contribute significant new insights on the process of replacement and on interactions between Neanderthals and modern humans, and hence on the origins of prehistoric modern cultures.

The editors of this volume are greatly indebted to all our colleagues who supported the publication with their reviews and comments: Ofer Bar-Yosef (Harvard University), Marcus W. Feldman (Stanford University), Hitoshige Hayaki (Kobe Gakuin University), Yasuo Ihara (University of Tokyo), Seiji Kadowaki (Nagoya University), Ryosuke Kimura (University of the Ryukyus), Yutaka Kobayashi (Meiji University), Sachiko Kubota (Kobe University), Steven L. Kuhn (University of Arizona), Laurent Lehmann (University of Lausanne), Wataru Nakahashi (University of the Ryukyus), Keiichi Omura (Osaka University), Akira Takada (Kyoto University), Kohei Tamura (University of Tokyo), Hideaki Terashima (Kobe Gakuin University), Joe Yuichiro Wakano (Meiji University). These colleagues read the manuscripts and made critical but constructive comments on the early drafts; this valuable input greatly improved the quality of the volume. Many thanks to all of them.

We are pleased to acknowledge the Japanese Ministry of Education, Culture, Science, and Technology for their interest in our project and for their financial support, which has made possible our RNMH Project, the conference, and the preparation of this volume.

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March 2013

Takeru Akazawa
Yoshihiro Nishiaki
Kenichi Aoki

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