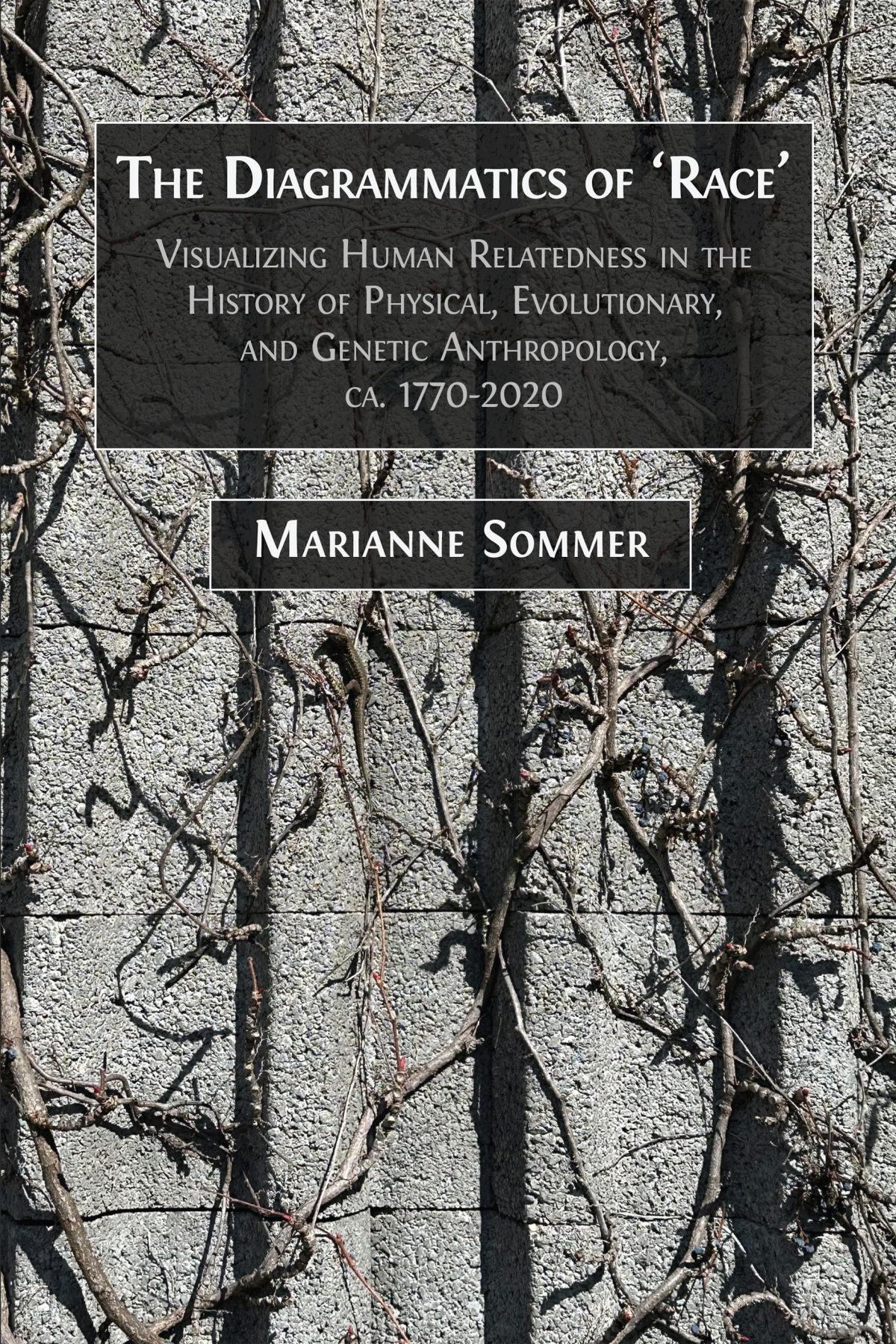

The Diagrammatics of 'Race'

Visualizing Human Relatedness in the History of Physical, Evolutionary, and Genetic Anthropology, ca. 1770-2020

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Marianne Sommer, *The Diagrammatics of 'Race': Visualizing Human Relatedness in the History of Physical, Evolutionary, and Genetic Anthropology, ca. 1770–2020*. Cambridge, UK: Open Book Publishers, 2024, https://doi.org/10.11647/OBP.0396

ISBN Paperback: 978-1-80511-260-0
ISBN Hardback: 978-1-80511-261-7
ISBN Digital (PDF): 978-1-80511-262-4
ISBN Digital eBook (EPUB): 978-1-80511-263-1
ISBN HTML: 978-1-80511-265-5

DOI: 10.11647/OBP.0396

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PART IV. THE TREE, THE MAP, THE MOSAIC, AND THE NETWORK IN GENETIC ANTHROPOLOGY

In Part III we have witnessed controversies about the adequacy of the tree diagram to represent the nature of human evolution and kinship. In the beginning, when paleoanthropologists could expand their view of hominid evolution into the deeper past with the fossil remains of *Pithecanthropus erectus* (*Homo erectus*) at the end of the nineteenth century, this evolution appeared to be a straight line of descent. However, the notion soon gained ground that the relic, just like the remains of Neanderthals, were those of a genus and a species not on the direct line leading to modern humans. Hominid and human evolution was branching. The tendency of pushing modern human anatomy further back in time, thus relegating known and postulated fossil forms to branches of the main human stem, was carried to a point where the tree seems to have deteriorated into other, sometimes bizarre forms expressing parallel evolution between apes and humans and between different hominid types, even between the human 'races'. In effect, however, such bizarre forms only accentuated the tree diagram's typological, divisive, and essentializing tendencies. It was a trend towards downplaying, if not denying kinship.

Part III ended with the uptake of blood group studies by some anthropologists as a 'cleaner' way of doing the old race science. Indeed, human population genetics was increasingly mathematical and computational, associated with the notion of a statistical and automatized approach that, with its focus on the innermost essence of the human being – the level of the gene – did not seem to be amenable to political impregnation. In fact, the gene advanced to the historical document favored by many (Sommer 2008). In Part IV, I am interested in how the phylogeny – the history, kinship, and diversity – of humans

 https://doi.org/10.11647/OBP.0396.19

was visualized in human population genetics and genomics, including ancient DNA (aDNA) studies. As hinted at at the end of Part III, especially with drivers of the field of human population genetics like Luigi Luca Cavalli-Sforza, the populational and genetic approach upheld the tree diagram, and indeed gave the tree of human evolution and kinship new vigor. However, human population genetics developed from the evolutionary synthesis of Darwinian theory and Mendelian genetics and its mathematization. Being interested in genetic variation within and between populations and the evolutionary factors that could explain this variation, the conceptual and methodological outlook was markedly different from that of the preceding physical anthropology and paleoanthropology. Instead of types, there were now 'races' or populations marked by genetic variability and openness. Gone were extravagances like species or genus status for the human 'races' and preordained evolutionary paths through which taxa evolved in parallel. Nonetheless, we will see how the interest in inner-human diversity, or populations, and its evolutionary history made it difficult to shake off all the baggage from racial anthropology. And with the tree of human populations was also still associated the map or narrative of human origins and independent dispersal across the globe.

This persistence of the tree as a relating diagram in anthropological approaches brings to mind Gilles Deleuze's and Félix Guattari's critique of tree thinking as the classical kind of Western reasoning that assumes single origins and proceeds in a dichotomous way. In the introduction to their book *A Thousand Plateaus: Capitalism and Schizophrenia* (1987 [1980]) that was originally published in 1976, they discussed how it dominated the 'Occident', from agriculture and botany to biology, anatomy, psychology, linguistics, structuralism, informatics, epistemology, theology, ontology, and philosophy. As counter-image to the genealogical tree that creates differences instead of multiplicities, Deleuze and Guattari introduced the dynamic, open, multi-dimensional, and heterogeneous rhizome. The rhizome is an anti-genealogy, it connects by other means than reproduction. In contrast to the rhizome, trees genealogically build hierarchical subject, 'racial', or species positions; they are structures of power. "We're tired of trees", Deleuze and Guattari stated, "[w]e should stop believing in trees,

roots, and radicles. They've made us suffer too much. All of arborescent culture is founded on them [...]" (1987 [1980], 15).[1]

Deleuze and Guattari made a special case of evolutionary biology. Even while the radical breaks between representation, represented object, and representing subject were rejected, and the rhizome described as devoid of genetic axes and deep structures, Deleuze and Guattari embraced what they saw as its move from the dendritic to the rhizomatic model: "More generally, evolutionary schemas may be forced to abandon the old model of the tree and descent", adopting "instead a rhizome operating immediately in the heterogeneous and jumping from one already differentiated line to another" (1987 [1980], 10). On the basis of viral horizontal gene transfer and the human technique of genetic engineering, they envisioned a future tree of life that has connecting branches between the phyletic lines. Drawing on knowledge from biology, they echoed the belief that reticulate models that connect branches after they have become differentiated would be more accurate in certain cases than the bush or tree schemas used to represent evolution at the time (endnote 5, 25–26).

In this part, I explore the roles of and tensions between tree, reticulation, and rhizome. Indeed, in genetic approaches to human evolution and kinship, the possibility of accessing entire genomes and of analyzing them in novel ways brought alternative relating diagrams to the fore. The twenty-first century ushered in something like an admixture paradigm. Instead of emphasizing the genetic distances and differences between human populations in a tree, images appeared that focused on the interrelatedness of human populations, breaking up the neat groups at the end of independent lines of descent and spreading them out besides each other in colored mosaics. Furthermore, with the advent of aDNA studies, the understanding of human history and diversity seems to have shifted considerably. The advancing field of aDNA research relied on population genetics, from which it adopted terminologies, methodologies, and visualization techniques (e.g.,

1 Michel Serres, on whom Deleuze and Guattari drew, has also argued for ways of reasoning and representing the world beyond dialectics that are network-shaped. In these approaches, the diagram seems to be an operational term that carries what is captured in the analysis to the side of the analysis itself (Serres 1968, 9–23; see Eco 1989; Gehring 1992, on the last point 95).

Morozova et al. 2016). At the same time, bringing in a deep-historical structure, the inclusion of aDNA data into population genetics shifted the focus more strongly towards processes of gene flow: trees became reticulate, with arrows "jumping from one already differentiated line to another" (Deleuze and Guattari 1987 [1980], 10). But was this really an abandonment of the tree, a replacement with "a rhizome operating immediately in the heterogeneous" (ibid.)?

To find out how the shift towards gene flow and aDNA was reflected – or not – in the field's relating diagrams, I focus on prominent models and tools, on the meaning representations seem to carry regarding human diversity, and on how this meaning fits the assumptions of practitioners. I show that behind the (re)presentation of individual and populational genetic kinship and diversity in terms of gene flow, as mosaic and reticulate, still lurks the hierarchically organized tree that suggests independent (unmixed) histories of discrete populations. At the same time, there are certain lines of reasoning and research in place that seem to have the potential to subvert our very understanding of individuality and identity. But before looking at such decentralizing practices, I pick up the thread where I left it in Part III, with the early human population genetics and its tree-structured diagrams and narratives. According to Deleuze and Guattari, Western dualistic (dendritic) reasoning tends to regard scientific practice and knowledge as insulated, while in reality there exists a rhizomatic formation that "ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles" (1987 [1980], 7). In Chapter 16, we will witness such heterogeneous connections being forged through population-genetic diagrams.