

Johann Friedrich Blumenbach

Race and Natural History, 1750–1850

Edited by

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 **Routledge**
Taylor & Francis Group
LONDON AND NEW YORK

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12 The origins of scientific racism and Huxley's rule

Nicolaas Rupke

Introduction

In rounding off our collection, I would like to address two interconnected sets of questions related to the assessment of Blumenbach's physical anthropology in terms of racist vs. non-racist.¹ The first set stems from his classic depiction of the five representative skulls in a horizontal row, with the Caucasian specimen placed in the center of that row (this volume, Figure 5.1) or, to use Blumenbach's words, in "first place":

I have allotted the first place [in a list of five human varieties] to the Caucasian, for the reasons given below, which make me esteem it the primeval one. This diverges in both directions into two, most remote and very different from each other; on the one side, namely, into the Ethiopian, and on the other into the Mongolian. The remaining two occupy the intermediate positions between that primeval one and these two extreme varieties; that is, the American between the Caucasian and Mongolian; the Malay between the same Caucasian and Ethiopian.

(Bendyshe 1865, 264–265; transl. of Blumenbach 1795, 286–287)

Thus the reasons for the central position of the Caucasian variety were its beauty and autochthony, both related to the belief that the Caucasus region was the cradle of humanity:

I have taken the name of this variety from Mount Caucasus, both because its neighbourhood, and especially its southern slope, produces the most beautiful race of men, I mean the Georgian; and because all physiological reasons converge to this, that in that region, if anywhere, it seems we ought with the greatest probability to place the autochthones of mankind.

(Bendyshe 1865, 269; transl. of Blumenbach 1795, 303)

How are we to make sense of Blumenbach's visual representation of the five skulls and of the particular place assigned to each of them in the horizontal row?

Did the image of a central, primordial skull, with two strands emanating from it, imply a vertical, tapered, and racist hierarchy with the white race at the top, as Gould has argued? Or are we dealing with a non-racist family tree that shows branches growing up and away from the original form at the bottom, as Junker (this volume) has conjectured?

In further development of the importance of geography (Spary, this volume) I would like to highlight a third possibility: Blumenbach's arrangement should be seen less in the light of taxonomy and more of geographical distribution and migration, and of the scientific construction of Eurocentricity that gained popularity during his lifetime. Göttingen took a leading part in these developments. Although in many instances patronizing or pejorative, the explicit and implicit contentions with respect to non-European populations of the world were not racist, especially not in the context of monogenism. Instead they expressed cultural conceit. In other words, the central and first place given by Blumenbach to the Caucasian skull reflected a Eurocentric perception that saw in certain features of the non-Caucasian varieties the wear-and-tear of migrations from the Caucasus to other continental regions, and had little if anything to do with taxonomic ranking.

The second set of questions relates to the following: if indeed it is wrong to see in Blumenbach's doctoral dissertation and his collection of human skulls a fountainhead of scientific racism, where then should we locate its beginnings? If not in Blumenbach's Göttingen, where else? What was the scientific context within which the notion of "race" became "racist"? Was it polygenism, with such representatives as the American physician and skull collector Samuel George Morton and his *Crania Americana* (1839), and his follower, the physician and surgeon Josiah Clark Nott, and his *Types of Mankind* (1854), and *Indigenous Races of the Earth* (1857), both co-authored with the English-born Egyptologist George Robbins Gliddon?

In a majority of instances, polygenism did go hand in hand with racist views, even though the theory as such did not require this. Yet my contention is that racism became scientific when the reverse took place – namely, when the scientific theory of human origins itself became an inherently racist thesis, even though the theory's advocates may have been on the side of the abolition of slavery and for "Negro emancipation." This happened – that is, a scientific theory of origins acquired racism as an intrinsic component – when Charles Darwin published his *On the Origin of Species* (1859) and some of his followers based the gradual evolution of *Homo sapiens* from ape-like ancestors on the interpretation of human varieties as lower-to-higher levels of humanization. More specifically, the turn to scientific racism took place in the wake of the so-called hippocampus controversy about the relationship between humans and apes. The protagonists were Thomas Henry Huxley, who formulated the Darwinian, racist "law" that came to be known as "Huxley's rule," and his *bête noire*, Richard Owen, who held on to a Blumenbachian/Prichardian belief that the differences between human varieties are insignificant compared to human-ape ones. Huxley was judged the winner, and scientific racism unfurled its banner.

Eurocentrism

In his *Handbuch der Naturgeschichte* as well as the *Beyträge zur Naturgeschichte*, Blumenbach described and illustrated his human varieties in terms of their cultures and geographical locations – ethnographically – more than he had done in his doctoral dissertation. This geographical approach was part of a wider attempt to describe and interpret nature as well as human variety not only in terms of the taxonomy of their structural properties but more so in relation to the spaces of their occurrence. One of the scientific breakthroughs of the late eighteenth and early nineteenth centuries was the discovery of a lawlike distribution of life's diversity across the globe. This discovery went hand in hand with the development of cartography and the use of isolines (Rupke 2001; see also Withers 2017, and on spatiality in the historiography of science, Livingstone 2003, and Livingstone and Withers 2011).

Late eighteenth-century Göttingen was a hub of this preoccupation with the spatial distribution of natural and cultural phenomena. One of Blumenbach's senior colleagues, Johann Friedrich Gatterer, a leading figure in the school of universal history, used global physiographical maps to illustrate his lectures and help elucidate historical events (Plewe 1940). The encouragement by several professors of learned travel to foreign parts considerably contributed to the development of the geographical paradigm, not least in the case of Alexander von Humboldt and his journey of exploration of the equatorial Americas (1799–1804). Humboldt's scientific style represented a major component of the nineteenth-century study of nature, and was characterized by a preoccupation with precision measurements of environmental parameters and their lawlike interrelations on a global scale. Land masses, rock formations, ocean currents, rainfall, temperature, geomagnetism, plants, and animals were all studied in terms of their spatial interrelations. Perhaps the most famous mapping venture of the period was the international Geomagnetic Project, organized and led by Humboldt and the Göttingen astronomer and mathematician Carl Friedrich Gauß, in cooperation with the Royal Society and the British Association for the Advancement of Science. Measurements of environmental parameters in distant parts of the globe, which in the past had remained mostly isolated observations, were now plotted on isoline maps and made an integral part of the international effort, connected to Göttingen, London, Paris, and other European centers (Rupke, in press).

An exceptionally successful collection of Humboldtian charts and maps was the *Physikalischer Atlas* (Berghaus 2nd edn. 1849–1852; the first maps were circulated as early as 1837) by the cartographer Heinrich Berghaus.² He separately published selections from the main atlas, such as the *Allgemeiner anthropographischer Atlas* (Berghaus 1852) (General anthropographical atlas), which contained four maps of the global distribution of *Homo sapiens*, in terms of both physical anthropology and ethnography. In this context the Humboldtians turned geographical spaces into ideologically colored, sociopolitical spaces, constructing the maps in such a way as to make their own location appear at once central, superior, and the natural site of world domination (Rupke 1999; see Kiernan 1969).

In a variety of ways the interest in global distribution served to place the people who made the maps in the geographical center. For example, Berghaus's atlas and its several imitations showed Europe (or just northwestern Europe) as the world's pivotal region where race, salubrious climate, means of subsistence, clothing, mental development, religion, form of government, and more all reached their global optimum. Crudely Eurocentric subtexts underscored the message. One inset graphically documented the onset of puberty in different regions of the northern hemisphere, from equator to north pole. It was believed that in "primitive" society adolescent boys and girls reach sexual maturity at an earlier age than in "advanced" society, and accordingly the diagram showed that in Europe's temperate zone, puberty is reached relatively late, indicative of the height of its civilization. The very latest onset in fact was shown for Göttingen (Rupke 1996).

To rephrase: the Georgia Augusta was a major site in the construction of scientific Eurocentrism. Blumenbach's row of five horizontally arranged skulls, with the Caucasian variety in the center, is best understood as a geographical representation of human variety. His forerunners already had used geography as a criterion of classification, in particular Carl Linnaeus. Blumenbach refined this approach, adding the element of migration. His five varieties loosely corresponded to "the five parts of the world" (Bendyshe 1865, 267–268; transl. of Blumenbach 1795, 296–302). Eurocentric prejudice made him place his own variety in the center, being well aware of the cultural relativity of doing so. White people, he wrote, are "*to European perceptions of beauty the best formed humans*" (italics added; Blumenbach 1790, 82).³ Deviations from the original had happened in the course of migrations and were due to environmental influences. These explained why the Mongolian and Ethiopian varieties were the extremes and the American and Malay the intermediary forms; moreover, resettlement also explained why the American variety is a link between the Caucasian and Mongolian, and not between the Caucasian and Ethiopian.

It was justly observed by the first Europeans who visited the new continent, that the Americans came very near to the Mongolians, which adds fresh weight to the very probable opinion that the Americans came from northern Asia, and derived their origin from the Mongolian nation. It is probable that migrations of that kind took place at different times, after considerable intervals, according as various physical, geological, or political catastrophes gave occasion to them; and hence, if any place is allowed for conjecture in these investigations, the reason may probably be derived, why the Esquimaux have still much more of the Mongolian appearance about them than the rest of the Americans: partly, because the catastrophe which drove them from northern Asia must be much more recent, and so they are a much later arrival; and partly because the climate of the new country, which they now inhabit, is much more homogenous with that of their original country.

(Bendyshe 1865, 274; transl. of
Blumenbach 1795, 317–318)

Perhaps tongue-in-cheek, Blumenbach compared humans with pigs, in the sense that both are omnivores with a cosmopolitan distribution and have developed into geographical varieties under the influence of environmental factors:

No other of our commonly called domestic animals has experienced such a manifold influence of climate as the hog; for no other has been so widely scattered as this over the five parts of the world. None has been subjected so much to the operation of variety of aliment; for no animal is so omnivorous as the hog, etc. There is only one domestic animal besides (domestic in the true sense, if not in the ordinary acceptation of this word) that also surpasses all others in these respects, and that is man. The difference between him and other domestic animals is only this, that they are not so completely born to domestication as he is, having been created by nature immediately a domestic animal. The exact original wild condition of most of the domestic animals is known. But no one knows the original wild condition of man. There is none, for nature has limited him in no wise, but has created him for every mode of life, for every climate, and every sort of aliment, and has set before him the whole world as his own and given him both organic kingdoms for his aliment. But the consequence of this is that there is no second animal besides him in the creation upon whose *solidum vivum* [totality of life or life force] so endless a quantity of various *stimuli*, and therefore so endless a quantity of concurring causes of degeneration, must needs operate.

(Bendyshe 1865, 293–294; transl. of
Blumenbach 1790, 47–49)

Thus the Caucasian variety is located in its original, temperate region, and least affected by the ravages of migration and severe climate. The extreme varieties of humankind are the ones that suffered the full brunt of the tropical climate (Ethiopian) or of both the tropics and the Arctic, combined with high altitude conditions in Central Asia (Mongolian, which included a geographical range of peoples from the Arctic to the Indian subcontinent). The Americans, migrating from the Asian North to the milder, mostly temperate regions of the New Continent, became intermediary; while the Malay, spread over more than just the severe tropics, were not as much impacted as the African variety, only in certain regions, such as Australia.

The climate- and food-induced modifications did not change the taxonomic status of the non-Caucasian varieties, even though their beauty and level of civilization were considered to have become inferior to Europe's. Blumenbach, like-minded colleagues, and pupils such as Humboldt were not racists, but followed the then common trend of Eurocentrism – a fashion of cultural conceit that accompanied power – a conceit that today is present, for example, in the notion of American exceptionalism. Such self-regard may be reprehensible, but need not be racist, however ramshackle the intellectual scaffolding of centristic and exceptionalist constructions was and continues to be – ramshackle, because the criteria for comparison and contrast are selected and weighted by those who see themselves at the hub of power or in “a city that is set on a hill.” The horizontal

arrangement of the five skulls and the centrality of the Caucasian one reflected Eurocentric perceptions rather than a racist taxonomy. A Caucasian was not an intrinsically higher human being, but *primus inter pares* – first among equals.

Blumenbach's physical anthropology was conceived within a geographical paradigm, not a taxonomic one that involved Gould's "fateful geometric shift [. . .] from cartography to hierarchy" (Gould 1996, 406). In his study of feral children, in particular of "Wild Peter" or "Peter the Wild Boy" of Hameln, Blumenbach asserted that a truly wild human being could never be generated through "Abar-tung" or degeneration (Blumenbach 1811, 13–44). All humans, he maintained, are domesticated by nature and therefore human beings do not merge with animals such as apes. This view was authoritatively supported by Friedrich Tiedemann, whose anti-racist monograph "On the Brain of the Negro, Compared With That of the European and the Orang-outan" (Tiedemann 1836) in recent decades has begun to receive the attention it deserves (Tiedemann 1984).

Huxley's rule

Still, also the geographical approach to human variety could go hand in hand with racism, mainly depending on one's view of human origins – monogenist or polygenist (for various complexities see Haller 1971, 70–88). Through the second half of the eighteenth century, supernatural causes – for example, God-the-Creator – were gradually removed from the study of the physical world, not least under the influence of Immanuel Kant and his pre-critical *Allgemeine Naturgeschichte und Theorie des Himmels* ([Kant] 1755) (*General History of Nature and Theory of the Heavens*). A Supreme Designer was no longer appealed to in explaining the solar system, the earth, and life or its diversity; instead, nature itself, natural processes, were believed to hold the keys to the origin of the world. Not uncommonly, Darwin and his *On the Origin of Species* have been credited with the introduction of biological naturalism; this may be true for the restricted sphere of England (Scotland requires separate attention) but does not apply to the European continent, where, well before Darwin, Blumenbach was the academic teacher to cross the Rubicon that separated creationist biology from evolutionary life sciences, followed by several of his many students, among whom Gottfried Reinhold Treviranus (Treviranus 1802). A central figure in the development of these speculations, Blumenbach was one of the early naturalists cautiously to express the likelihood of the naturalistic generation of species, tactfully transitioning from special creation to natural origin, retaining the word "Schöpfung" while investing it with the meaning of "Natur" (Rupke 2010, 146–148).

With the removal of "divine fiat" from the epistemological tool kit of natural history, physicochemical agents were increasingly called upon. The primary process by which species had come into existence – it was widely held – had been *mutterlose Urzeugung*, a form of primordial self-organization that had produced specific germs (see also Seehan and Wahrmann 2015). Thus each species had originated by the autogenesis of one, two, or many germs of its kind. Several lines of evidence were brought to bear on the issue. Probably more than any other field,

biogeography adopted autogenesis as a central, organizing concept. Some species might have migrated from one region to another, but the majority of them were believed to be true natives or autochthons. Most dramatic in its consequences was the adoption of autogenesis as an organizing concept in Romantic anthropology. Nearly to a man, its star representatives in the German-speaking world believed in the *mutterlose Urzeugung* of humans (Rupke 2005, passim; 2008, 79–81).

As we have seen, Blumenbach, although a monogenist, believed that only the Caucasian variety was a true autochthon. The polygenists, by contrast, considered every one of the five racial categories as autochthonous, each having originated in their own province of distribution. Karl Asmund Rudolphi, for example, argued that all human races are true “aborigines” (Rudolphi 1821, 50–57). A similar view was expressed by Carl Gustav Carus; humans had neither originated as told in the Bible, as a single individual or a single pair of adults, like Adam and Eve in the Garden of Eden, nor evolved from apes by the transformation of monkeys into men.⁴ The human species – he asserted – had its origins in primordial vesicles that developed in enormous numbers in water under mild and stable climatic conditions (Carus 1838, 112–113); the different climatic zones had given rise to tribes with different, unequal levels of mental talent (Carus 1849, passim). Thus polygenism made it easy – although not scientifically necessary – to separate the races into distinct lower and higher taxonomic categories. Morton, Nott, and others were polygenetic racists, working within the geographical model of independent, multiple, and autochthonous origins. By geographically clustering “indigenous races” with wildlife, especially apes and monkeys that were typical of each province of distribution, they contributed to the animalization of races other than the Caucasian and bolstered white supremacist science and sociopolitics (Nott and Glidden 1857, see especially p. 641, “Illustrative of the Geographical Distribution of Monkeys, in Their Relation to That of Some Inferior Types of Men”).

Not infrequently, the term “scientific racism” has been equated with the use by racially prejudiced scientists of miscellaneous evidence from physical and social anthropology.⁵ I would like to propose a more precise definition by focusing less on the prejudices of the scientists and more on the racism implicit in the scientific theories of human origins to which they adhered. Agreeing with Gould that the crucial turn toward scientific racism took place when the horizontal, geographical perception of human variety was changed to a vertical, taxonomic one, I add to this definition the moment when the theory of human evolution itself required, as part of its proof, the vertical ranking of Blumenbach’s varieties, and when the scientific theory no longer allowed for a non-racist or anti-racist view. As stated earlier, neither the monogenist nor the polygenist theory made racism necessary. Scientific racism received its mature, late-modern expression in the form of what became known as “Huxley’s law” or, more accurately, “Huxley’s rule,” and was the outcome of an (in)famous clash between Huxley and Owen that took place during the early 1860s, known as the “hippocampus controversy.” This clash represented a frontline battle over the question of the origin of *Homo sapiens*, pitching Huxley’s Darwinian, racist model against Owen’s Blumenbachian, non-racist one.

Surreptitiously introducing into English science a Germanic, naturalistic theory of organic origins, Owen was concerned to preserve the Blumenbachian/Prichardian notion of humankind's unity, and of its separateness from anthropoid apes.⁶ He demonstrated the "men-animals" gap in the form of cross sections of the skulls of humans and apes (Figure 12.1), also using for the same purpose other anatomical features, such as the muscles and tendons in the human foot compared to those of the gorilla. Additionally, Owen compared and contrasted the brains of humans to those of anthropoid apes, based largely on his own unique chimpanzee and gorilla material, provided by the explorer Paul du Chaillu and others. He also drew on the work of continentals, such as Louis Pierre Gratiolet in Paris, the leading expert on cerebral convolutions, and Rudolf Wagner, Blumenbach's successor at Göttingen University, who in his collection had the "ultimate" human brain – namely, of Gauss. As with the skulls, Owen argued for a monogenist similarity among human varieties and a contrasting gap with apes, stressing various features, in particular the hippocampus minor (Rupke 2009, 182–208).

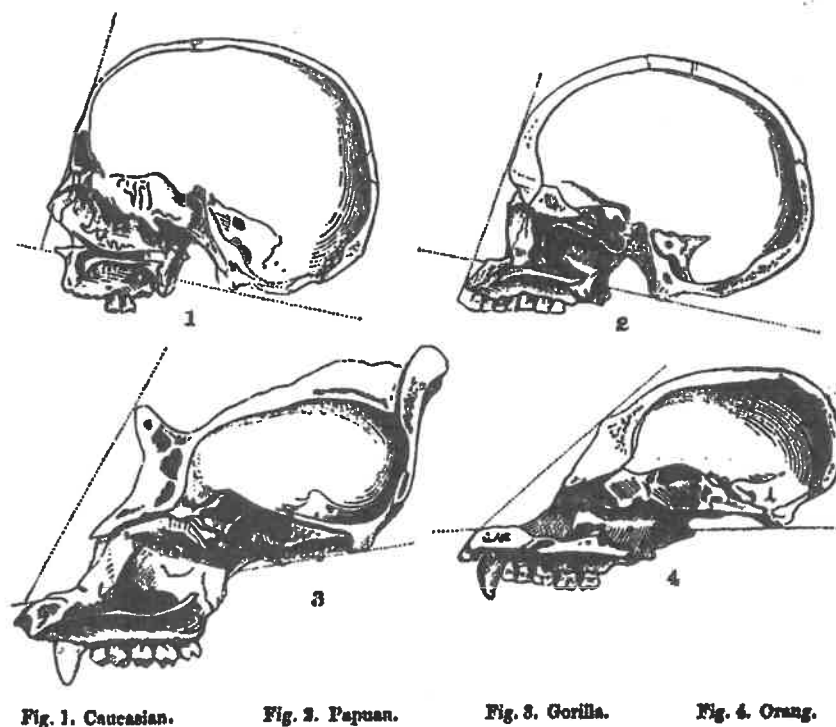


Figure 12.1 Owen's 1851 cross sections of skulls of "men and apes," to illustrate the similarity between the human examples and the gap with the simians (from Owen 1851, 777, figs. 1–4).

When in 1859 Darwin published *On the Origin of Species*, Huxley, who through the late 1840s and the 1850s had been a staunch anti-evolutionist, threw in his lot with the Darwinians. The same was true for the German zoologist and materialist philosopher Carl Vogt. Both Huxley and Vogt changed their party allegiance and took on one of the two challenges that Darwin did not meet in his magnum opus – namely, human evolution (the other was the origin of life). In the Darwinian-Lyellian model of evolution by small and gradual changes, cumulatively preserved in the struggle for life, the evolution of *Homo sapiens* had occurred in a series of small steps from animal to human; proof of this would exist in the form of intermediary stages and, for the purpose of providing this proof, Blumenbach's non-Caucasian varieties were used, either to represent successive stages of humanization or different levels of parallel lines of evolution from one or more ape ancestors. In this way, racism became baked into the scientific cake.

Huxley took on Owen at a number of consecutive meetings of the British Association for the Advancement of Science, in Oxford, Manchester, and Cambridge – the “hippocampus controversy” (Rupke 2009, 182–243). The results appeared in papers and in Huxley's *Evidence as to Man's Place in Nature* (Huxley 1863). Vogt followed suit with *Vorlesungen über den Menschen, seine Stellung in der Schöpfung und in der Geschichte der Erde* (Vogt 1863) (Lectures about man, his place in creation and in the history of the earth). The differences between Blumenbach's human varieties were changed from geographical ones, monogenously clustered around a Eurocentric Caucasian archetype, to hierarchical stages in the Darwinian evolution of ape-like ancestors to humans, and ultimately to Europeans. The horizontal line was irrevocably changed to the vertical, showing indigenous races as closest to anthropoids – in Huxley's case the indigenous people were Australian aborigines (Figure 12.2). In Darwinian evolution theory, racist ranking constituted a pillar of proof of human descent from animal ancestors.

While attacking Owen's classic picture of the contrast between the skulls of humans and of anthropoid apes, Huxley developed a “law” or “rule” that canonically encapsulated modern scientific racism. It states that, anatomically speaking, the difference between the purportedly highest human race and the supposedly lowest is larger than the difference between the lowest human race and the highest ape. The reverse perspective, starting with the apes, expressed the exact same racist thing: the difference between the lowest and highest anthropoids is larger than the difference between the highest anthropoid and the lowest human (which is a false comparison, implying that human races are equivalent to species; a proper comparison would have been of humans with races of gorilla or, instead, races of chimp) (Rupke 2009, 209–213). Huxley concluded,

Thus, even in the important matter of cranial capacity, Men differ more widely from one another than they do from the Apes; while the lowest Apes differ as much, in proportion, from the highest, as the latter does from Man.

(Huxley 1863, 95)

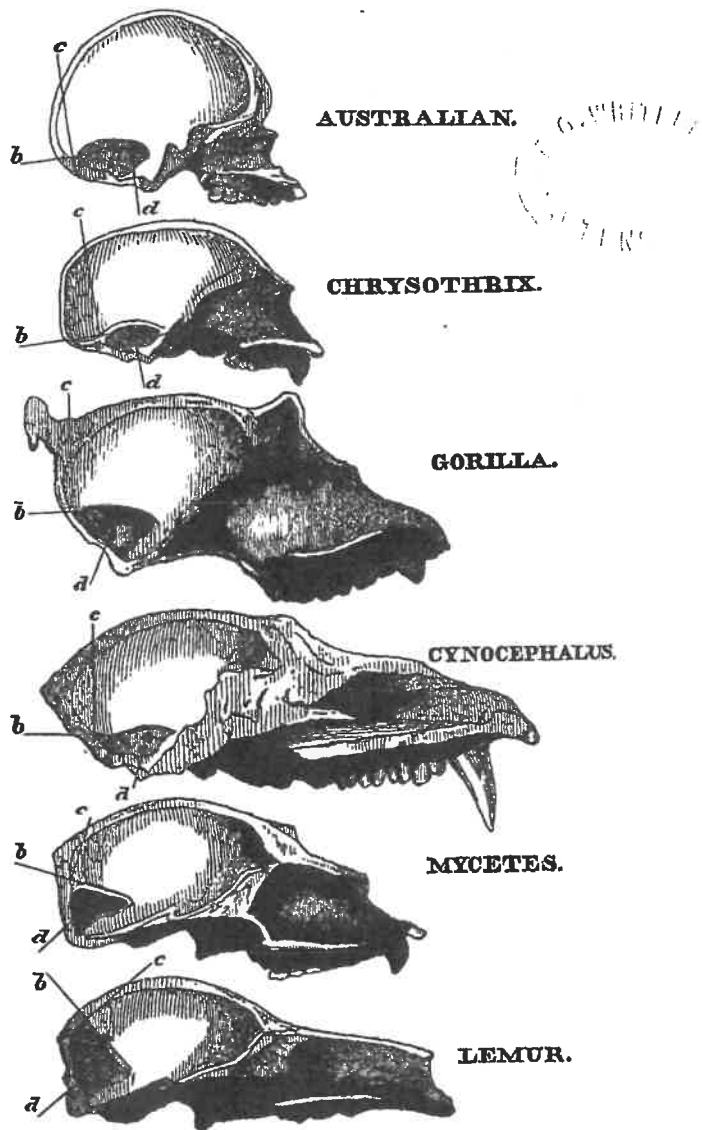
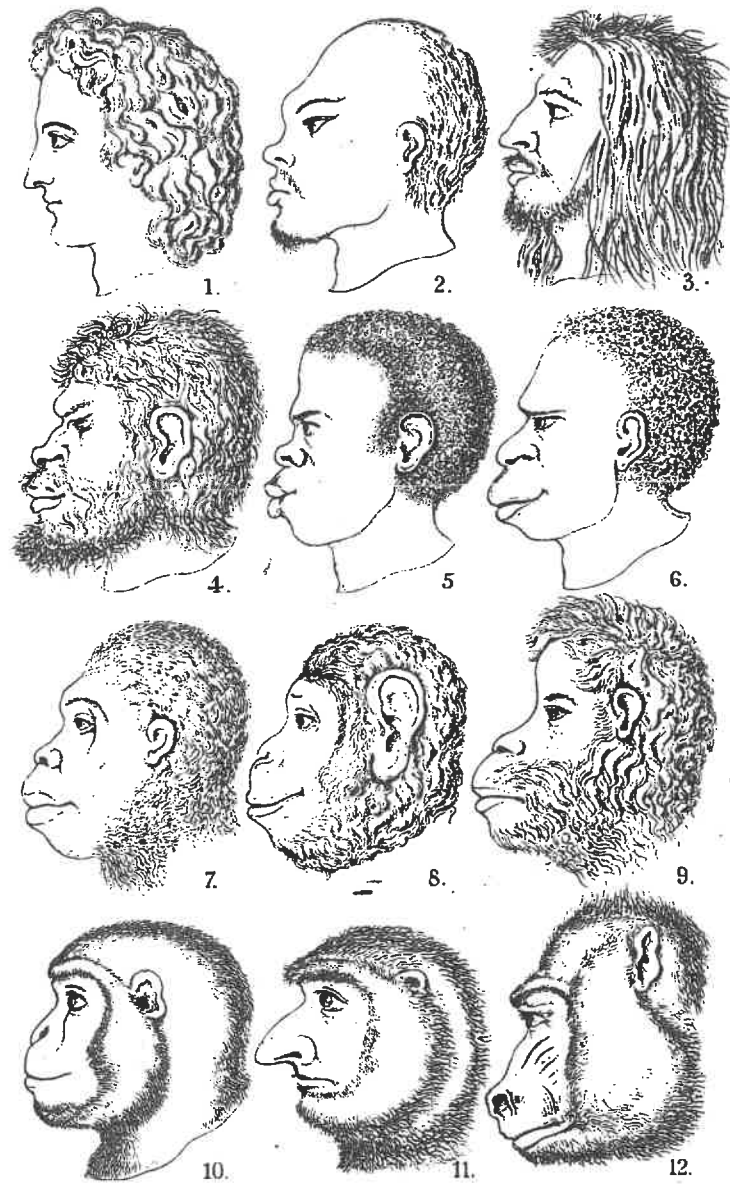


FIG. 17.—Sections of the skulls of Man and various Apes, drawn so as to give the cerebral cavity the same length in each case, thereby displaying the varying

Figure 12.2 Huxley's depiction of a monkeys-to-humans skull sequence, highlighting cranial capacity (from Huxley 1863, 79, fig. 17). Note that the top skull is identified not as human but as "Australian."



Die Familiengruppe der Katarrhinen (siehe Seite 555).

Figure 12.3 Huxley's rule as depicted by Haeckel, animalizing "lower" humans by making them seem closer to higher apes than to "higher" humans (from Haeckel 1868, frontispiece).

Whatever part of the animal fabric – whatever series of muscles, whatever viscera might be selected for comparison – the result would be the same – the lower Apes and the Gorilla would differ more than the Gorilla and the Man.
(Ibid., 101)

Thus, whatever system of organs be studied, the comparison of their modifications in the ape series leads to one and the same result – that the structural differences which separate Man from the Gorilla and the Chimpanzee are not so great as those which separate the Gorilla from the lower apes.
(Ibid., 123)

In Victorian London, Huxley was crowned the winner of the hippocampus debate. Human races had to be defined by their place in the hierarchy of morphological sequences. The lowest were considered half animals, the highest demigods – a view that provided scientific legitimacy for treating native peoples in the overseas colonies as part of anthropoid wildlife.⁷ The so-called Hottentot Venus, Saartjie Baartman, supposedly was a closer relative of gorillas than of William Shakespeare or Carl Friedrich Gauß (Crais and Scully 2009). Darwinian opinion concurred that among human races a gradual animalization downwards and humanization upwards existed. Ernst Haeckel, Jena's leading evolutionary biologist and talented illustrator, formulated Huxley's rule with the following translation: "that in every morphological respect the differences between the highest and the lowest apes are greater than the respective differences between the highest apes and man"⁸ (Haeckel 1902, 706; see also 1868, 491, 496; 1874, 489); the frontispiece to his *Natürliche Schöpfungsgeschichte* (1868) visually made the same point (Figure 12.3).

In conclusion, the fountainhead of scientific racism was not Blumenbach's doctoral dissertation but Huxley's contributions to the hippocampus controversy, which resulted in Huxley's rule. Bronowski's "particular cloud" (Rupke and Lauer, this volume) – that is, a connection between scientific racism and the Jewish holocaust – did not hang over Göttingen. The extent to which it hung over Huxley's London or Haeckel's Jena is a matter of ongoing controversy, exceeding the scope of this volume.

Notes

- 1 This chapter picks up on points made in preceding chapters and in the process repeats a few quotations for the sake of clarity of argumentation.
- 2 World distribution maps were of course no Humboldtian invention (Robinson 1982; Browne 1983). An early example of a global zoogeographical map was the "Tabula mundi geographico zoologica sistens quadrupedes hucusque notos sedibusque suis adscriptos," prepared by the Brunswick professor of mathematics and physics and patron to young Gauß E.A.W. Zimmermann, to accompany his three-volume *Geographische Geschichte des Menschen und der allgemein verbreiteten vierfüßigen Thiere* (1778–1783).
- 3 "Nach den Europäischen Begriffen von Schönheit die bestgebildetsten Menschen" (Blumenbach 1790, 82).

- 4 As widely known, Jean Baptiste de Lamarck, in his *Philosophie zoologique* (1809), adopted the theory of autogenetic, independent origins of species, but added the notion of transformation of existing forms of life, an idea that was carried to its extreme by Darwin, who avoided the problem of the origin of life and put forward a theory of descent-with-modification from "some one primordial form, into which life was first breathed" (Darwin 1859, 484; see also 490).
- 5 In recent decades, the very notion of race has been repudiated as pseudoscientific and racist (see Wikipedia entry).
- 6 The development of Owen's evolutionary thinking and that of many like-minded colleagues from the autogenesis of species towards evolution by descent is poorly known and needs more work.
- 7 The impact of evolutionary biology on racist policies in the colonies – New Zealand, Australia, South Africa, Canada – towards the aborigines was limited. "Each colony cobbled together a particular racial policy without reference to an overarching imperial message. The intellectual and policy vacuum permitted the colonies to indulge in any conduct they wished towards their native peoples during the late nineteenth century. The racialist policies which ensued were not British imperial ones, but Australian, New Zealand, Canadian and South African" (Francis 1994, 212).
- 8 "Daß in jeder morphologischen Beziehung die Unterschiede zwischen den höchsten und niedersten Affen größer sind als die betreffenden Unterschiede zwischen den höchsten Affen und dem Menschen" (Haeckel 1902, 706).

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