



FAULT A PRIMER ON RACE, SCIENCE AND SOCIETY LINES

EDITORS

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Reinterrogating Race in Scientific Research

A view from the history of physical anthropology

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Introduction

It might come as a surprise to some to learn that the concept of race is a fairly recent phenomenon in the history of humanity. Race, as a marker of human difference, was only introduced in the sixteenth century. However, over the course of a few centuries, the world would witness a powerful transformation in the “perceptions of human difference” as framed by the concept of race.¹ First, there was the introduction of racial variation based on observable differences, then the idea of racial categorisation, followed by the idea that these categories could be organised according to a human hierarchy.

Coinciding with these new understandings of race was the development of a methodology to study race in all its perceived manifestations. From the late eighteenth century onwards, scientific understandings of race postulated that it was something that could be “known” through rigorous scientific study that relied on observation and measurement. The idea was premised on a few core assumptions related to race. Most importantly, these studies were premised on the assumption that race existed in plural form – i.e. that many different racial “types” (categories) existed. It was further believed that each of these racial categories had an encompassing set of characteristics that were unique to the category. Thus, scientists believed that these characteristics could be used to identify a person’s “race”. It was assumed that race was an essentialised entity, as it could be summed up in a fixed, unchanging list

of characteristics. Such an understanding of race was also premised on the belief that each racial category was a homogeneous collective – meaning all members of a particular “race” were alike. In other words, a specific racial category was believed to illustrate uniformity in terms of both appearance and behaviour. This meant that scientific conclusions about a few members of the group could be extended to include the entire group. These core assumptions culminated in a shorthand act of sense-making: when it came to the study of race (and of various “races”), there was an inherent or inborn “essence” to be found, and this essence was believed to produce preexisting characteristics related to both visible traits (the most obvious being skin colour) and invisible or behavioural traits (which included intellectual ability and temperament). These traits were believed to be inherent and inescapable. Such beliefs formed the foundation of scientific curiosity and inquiry as it pertained to the study of race in the eighteenth, nineteenth and early twentieth centuries.

These assumptions and beliefs were, of course, uniformly false. By providing a brief history of physical anthropology as it developed globally, and as it eventually made its way to Stellenbosch University in the 1920s, this chapter seeks to reinterrogate the concept of race. It will be illustrated here how biological understandings of race were applied and made concrete through human measurement. But more importantly, it will be illustrated how these understandings of race were employed in pursuit of political ideals rather than scientific objectivity. In hindsight, the scientific project to study and conceptualise race reveals blatant practices of power that manifested through acts of inclusion and exclusion, and practices of silencing and marginalising some, while its own voice grew boisterous. While race has become a taken-for-granted part of South African vocabularies, and often continues to be a taken-for-granted concept in scientific research (as recently illustrated by the publication of the Sport Science article), this chapter invites critical reflection on the common understandings of race as well as its utility in scientific practice.

A short history of physical anthropology

The discipline of physical anthropology largely developed in the latter half of the nineteenth century. But it developed on the back of existing formulations of human diversity that can be traced back to the eighteenth century. Central to the developing understandings of race was scientific categorisation, as found in the work of Carl Linnaeus, who offered the first comprehensive attempt to scientifically classify and categorise human populations in *Systema Naturae*.² Postulating the existence of four human varieties premised on skin colour and place of origin (Europe, America, Asia and Africa), Linnaeus relied on physical, observable differences to aid his categorical classifications. This logic for classification relied on (and promulgated)

an essentialised understanding of these “human varieties” as each sharing unique characteristics with members of the respective category.

But of course, human variation is such that true uniformity is hard to find. While people might share certain features, no two people look exactly alike (with the exception of identical twins). Thus, the scientific classificatory system of Linnaeus, which was also applied beyond the human species, postulated that while not all members of the group possessed exactly the same characteristics, racial groupings could nonetheless be determined by the appearance of common characteristics found in the group. The notion of aggregates, or an “estimate of the degree of overall similarity”,³ was thus employed to categorise individuals into the main racial groupings. This marked the beginnings of racial essentialism: ignoring variation within so-called designated categories in favour of a few shared characteristics that would come to define the entire group.

The ways in which the newly racialised human could be studied and categorised would expand tremendously over the course of a few centuries. Many scientists contributed, in their own way, to the refinement of human categorisation through scientific study. Shortly after Linnaeus postulated his four varieties, German anatomist Johann Friedrich Blumenbach suggested the existence of five races, based on his studies of human skulls in 1779. For him the skull was the most significant indicator of racial difference.⁴ Through his scientific engagements, Blumenbach linked observable difference (in the form of skin colour) with skull size – thereby adding another characteristic to a growing list of attributes used for racial classification.⁵

Petrus Camper, a Dutch anatomist and zoologist who showed similar enthusiasm for the study of the skull, proposed that the angle of the jaw was another determining factor for racial difference. He developed tools for the exact measurement of the jaw and other features of the skull. In fact, the centrality of studying the skull became a science in itself during the eighteenth and early nineteenth centuries. Craniology (the study of the skull as related to racial difference) was given scientific credence through the work of Pierre Paul Broca, who invented a number of instruments used for precise measurements of the skull and, through this, propagated the standardisation of these measuring techniques.⁶ The work of Camper and Broca was significant, because it gave the study of race “the aura of an exact science”.⁷ As noted by David Bindman, “Their work of classification made possible theories of human categories based on deductions drawn from carefully considered evidence, at least by the standards of the time.”⁸ The ability to measure human attributes and draw conclusions based on those measurements greatly contributed to the developing methodology of racial categorisation. It also informed the developing discipline of

physical anthropology. The study of racial traits (as related to racial categorisation), coupled with a scientific methodology that relied on observation and measurement, became the domain of the physical anthropologist.

Race was conceptualised as something that was visible and also legible through human measurement. Skin colour, eye colour, hair colour and texture, the shape of the skull, the protrusion of the jaw, the shape of the nose and even the lips all became relevant characteristics in distinguishing racial categories. Understandings of race saw it as an essentialised entity that spoke to intricate connections between the visible, the invisible, and inherent qualities. These understandings and assumptions informed the point of departure for most scientific engagements with race – most of which tried to confirm instead of challenge these basic assumptions.

By the early twentieth century, the discipline of physical anthropology acquired all the characteristics of a legitimate scientific field of study. Relying on observation and measurement, physical anthropology was guided by standard methods for measurement, as prescribed by an international committee between 1910 and 1914.⁹ This was followed by the publication of the authoritative textbook for physical anthropology, written by Rudolf Martin, in 1914. Martin's book offered the first comprehensive standardisation of, and detailed instructions for, human measurement.¹⁰ It was in this publication that Martin conceptualised “type”, “kind”, and “variety” as expressions of human differentiation.¹¹ Anthropometry, a science that subjected the human body in its entirety to measurement, became a widespread paradigmatic frame, as well as a set of practices in scientific circles and in the field of physical anthropology. The practice of anthropometry became the cornerstone for classification, as it was perceived to offer objective scientific proof of the differences to be found amongst various human races. A prescribed toolkit for measurement contributed to the global operation of this science.

Coupled with an attempt to standardise the methods of anthropometry, tables for the measurement of hair, skin and eye colour were produced in the early twentieth century to aid the identification and measurement of visual markers.¹² The aim of such standardised approaches to human measurement, as prescribed in Martin's textbook, was “to secure a uniformity of techniques” in the face of increased scrutiny of the accuracy of human measurement. And thus, with the use of Martin's toolkit, consisting of a calliper compass, a beam compass, a sliding compass, a craniometer, an anthropometer, a tape measure and about eight other tools for various measurements of the human body, human diversity could be quantified and ultimately categorised. Detailed prescriptions, along with a shared *instrumentarium* (or universally recognised instruments for the practice of physical anthropology), thus ensured uniformity in studies conducted around the globe. It similarly ensured the comparability of the results of these respective studies.¹³

Thus, by the early twentieth century, physical anthropology was well established as a powerful force in the conceptualisation and study of the perceived plurality of “races”. The science had international prescriptions for measurement and a single textbook with prescribed instruments, and it was supported by a fairly global consensus regarding its practice and the results it rendered. Based on this information, it would seem that studies had an air of validity and replicability – in theory, it could be replicated and compared with other studies of its kind. What started in the late eighteenth and the nineteenth century as the study of visible physical differences found in humans was transformed into a seemingly exact science of measurement by the early twentieth century. “Callipers, footrules, [and] measuring apparatus are without preconceived ideas” wrote the Swiss anthropologist Eugène Pittard.¹⁴ Indeed, Pittard believed that the use of instruments for measurement had brought “an ensemble of exact morphological characters”¹⁵ for classification purposes. The standardisation of measurements and the resultant statistics that could be acquired thus became an integral part of physical anthropology. There was a firm belief that scientific measurements, as determined by a range of scientific instruments, could bring forth objective knowledge. But while instruments designed for human measurement might, supposedly, be “without preconceived ideas”, the scientist certainly is not. Any perception that scientific practice can be removed from the broader political, social and ideological context in which it is practised is, indeed, a false one.

Some of the most poignant examples illustrating the connections between science, politics and ideology are to be found in the “scientific” study and construction of race over the course of the eighteenth, nineteenth and twentieth centuries. This new scientific field, namely the study of racial difference through physical anthropology, gained a foothold through its utilitarian nature. This science could be rendered useful to support and enforce the existence of a racial hierarchy within colonial governments and state policies. In the United States, the likes of Samuel Morton, Louis Agassiz and Josiah Nott all pursued the new science of human measurement to establish what they regarded as the inferiority of the “American Negro”.¹⁶

Playing into the political context of nineteenth century America, their theories were often drawn upon to justify legislation, institutional discrimination, and public perceptions of race (so-called common-sense understandings that lacked, up until that point, scientific foundations). The relation between the rise of anthropology as a discipline and its use in the disfranchisement of “non-European” populations was certainly not limited to the United States. The case was very similar in other parts of the world, where European expansion, encounters with the racial “other”, and subsequent colonial rule, were often supported by the employment of scientific (often anthropological) knowledge. In this regard, Henrika Kuklick has observed

that “anthropology’s academic gains [were] correlated with practitioners’ turn toward promoting the discipline’s utility for colonial rulers”.¹⁷ It is thus the utility of the discipline, the fact that it could be utilised for political gain, that proved to be one of its greatest strengths.

The use of anthropological racial constructs to support legislation, and the use of legislation to in turn support the validity of these racial constructs often resulted in circular and reciprocal arguments that cemented the existence of racial categories, as well as a hierarchy that entitled some to rule and others to be ruled, some to be included and others excluded. In this sense, the recognition of racial difference more often than not implied the rejection of a shared humanity in favour of forms of political, economic and social control that saw the dehumanisation of particular groups.

This practice continued well into the twentieth century. Ideas about a natural hierarchy of race, alongside a growing eugenics movement that postulated the improvement of the human race through selective breeding, manifested in the formulation of immigration policies in the United States. The Immigration Act of 1924, otherwise known as the Johnson-Reed Act, restricted the number of immigrants allowed into the United States. These restrictions applied mostly to those coming from Asia, those coming from Southern and Eastern Europe, and those generally coming from the southern hemisphere. Western Europeans and those who came from Britain remained largely unaffected. The passing of the act came as a victory to more radical American anthropologists, who saw their racial theories come to fruition. But while these anthropologists celebrated their victory in the United States, physical anthropology found a new home halfway across the world when it was introduced to the students of Stellenbosch University.

Physical anthropology comes to Stellenbosch University

In 1924, as the Johnson-Reed Act took effect in the United States, physical anthropology was introduced for the first time at Stellenbosch University. Under the guidance of Professor C.G.S. (Con) de Villiers and Dr Coert Grobelaar, both of whom completed their doctoral studies in Europe in the early 1920s, the discipline was introduced in the Zoology Department. A global science had landed in the local setting of South Africa’s first Afrikaans university. Elsewhere in South Africa, at historically English universities, the likes of Matthew Drennan, at the University of Cape Town, and Raymond Dart, at the University of the Witwatersrand, focused their attention on the study of human origins and “indigenous racial types”, as found in southern Africa. At Stellenbosch, the pursuit and practice of physical anthropology departed from these concerns.

Within the first year of introducing the discipline, Rudolf Martin's textbook and the prescribed instruments for measurement were acquired. By the very next year, the science was put to work when the department embarked on its first project of human measurement in 1925. Over the next four decades, other studies would follow. The studies produced by the Zoology Department over the course of the 1920s, 1930s, 1940s, and 1950s imply that the utility of physical anthropology was also recognised by those who introduced and practised it at Stellenbosch University. These studies are revealing of the political and ideological landscape of a growing Afrikaner nationalist movement in the 1920s and 1930s, as well as the rising tide of early formulations of racial categorisation that would come to be implemented during apartheid. In fact, the first two major projects of human measurement launched by the Zoology Department are compelling examples of a science informed by politics. While physical anthropologists in southern Africa were generally looking to the racial "other" as an object of study, those at Stellenbosch University chose to have their very first study of human measurement focus on the racial "self".

In 1925, a project was launched to measure the white, Dutch-speaking students of Stellenbosch University. The study consisted of 130 participants, who were subjected to 70 bodily measurements, 49 measurements of the head and facial features, and observations that related to their skin, eye and hair colour.¹⁸ When the results were published, the researchers offered two main conclusions. One, these participants were of Western European descent. And two, the participants ranked amongst the tall races of Europe (at the time considered to be a visible sign of racial superiority). The conclusions drawn were extended to the entire South African population of Dutch descent (read Afrikaners) – linking particular characteristics to this designated group of people. The political context in which this study occurred was informed by an Afrikaner nationalist movement then gaining momentum; by a global eugenics movement; and also by a concern with a growing number of poor whites in South Africa that both challenged notions of white superiority and provided an electorate to secure political control. The published results of the study left the reader with a stark reminder of the European likeness found in the Dutch-speaking (or Afrikaner) subjects.

In the era of eugenics, this conclusion established the Afrikaner amongst the ranks of the perceived racially superior nations of Western Europe. Similar to European anthropological studies of the *volk* or the 'nation', the study at Stellenbosch confirmed the existence of "transnational communities of blood, history and destiny"¹⁹ – the type of conclusion on which the nationalisms of the time were built. Through their physical manifestation, the Afrikaners had, seemingly, proved themselves worthy of rule. But these stated conclusions masked one of the more important deductions

made by the researchers: framing those of Dutch-descent, or the Afrikaners, as a racialised homogeneous collective.

Over the course of the next few decades, more such studies would follow. In 1937, the Zoology Department launched a similar project to measure the “coloured” males of the Stellenbosch area. For this study, 133 pre-identified “coloured” males were subjected to the prescribed measurements of physical anthropology. The study at Stellenbosch concluded that the individuals examined were “quite representative of the Coloured Population”²⁰ – thereby postulating the existence of a “coloured” type. In this regard, it needs to be kept in mind that the political context of this decade was informed by a growing paranoia about the threat of racial mixture that could compromise white purity. This paranoia was fueled by a publication by George Findlay in 1936, in which he controversially claimed that many individuals who should be classified as “coloured” were instead passing for white. Clear identification, or the ability to distinguish clearly between those considered to be “white” and those considered to be “coloured”, was seemingly an important step in the right direction. The context was similarly informed by government commissions launched specifically to study the “Cape Coloured” population – of which the most (in)famous was the Wilcocks Commission.²¹ Further investigations also included an inquiry into mixed marriages in the latter half of the 1930s. Fears of miscegenation were driving the nationalist agenda and the distinction between “white” and “coloured” became central to this debate in the 1930s. And the copious amounts of studies produced during the 1930s and early 1940s, including the one produced by the Zoology Department at Stellenbosch, marked the beginnings of a categorical definition of the “coloured” population.

These studies were products of their time. They stemmed from the field of physical anthropology at the height of the global eugenics movement and a burgeoning Afrikaner nationalist movement. It came at a time when race, in all its assumed manifestations, was regularly employed in scientific studies as a determining factor – meaning “race” was seen as an explanation for everything about a person or a group. But these studies also cannot be removed from the broader political context in which they operated at the time. In this context, such studies can be viewed as attempts to constitute or create subjects of the state – in this case, producing race-based groupings that became the target of state policies and laws. They contributed to a narrative of fixed racial categories that could be measured, defined and identified – a narrative that eventually found its expression in the Population Registration Act of 1950 under the apartheid government.

A lesson from history

What do the above history and examples tell us about race? They tell us that for the longest time scientists tried to make race their constant – the unchangeable factor to which everything else could be related. The certainty with which conclusions were drawn, and racial types described, completely disguised the shaky foundations on which the science was built. At no point was there any real consensus about the number of races found on earth. By the early twentieth century, some postulated the existence of three separate races, others as many as 60 (and a range of varying numbers in between). In terms of human measurement, and the conclusions drawn from it, it was also fairly common to find that studies of the same collective (or type) could render polar opposite results (depending on who was doing the study and dictating the results). And finally, no generalisation pertaining to a specific category would ever hold. There is a related question here: what do this history and these examples tell us about racial science? They tell us that for the longest time scientist tried to make race their constant, and for the longest time they got it wrong. The science was flawed because it was fixated on a false determining factor – the idea that there were a plurality of “races” to be found; that these “races” each had inherent and unique characteristics shared by the group; and, as a result, that these “races” could be studied and known through meticulous measurement and observation.

Some scientists identified this flaw fairly early on. By 1913, anthropologist Franz Boas used the science of measurement to illustrate that environmental conditions were far more influential in the development of human beings than biological determinism. W.E. du Bois had also, by this time, brought attention to the findings of leading scientists who claimed that there was no link between physical characteristics and mental characteristics. By 1911, Du Bois stated, “Race offers no index to its innate or inherited capacities.”²² Their ideas were mostly rejected at the time, only to be embraced a few decades later.

In the wake of World War II, a committee of academics appointed by the United Nations Education, Scientific and Cultural Organisation (UNESCO) was beginning to craft a response to the racially motivated atrocities of Nazi Germany. The resulting UNESCO statement of 1950, with a revised statement following in 1952 that contained greater input from geneticists and physical anthropologists, most famously proclaimed that “‘race’ [was] not so much a biological phenomenon as a social myth”.²³ It further stated, “Scientists are generally agreed that all men living today belong to a single species, *Homo sapiens*, and are derived from a common stock.”²⁴

The UNESCO statement declared race to be a social myth almost 70 years ago. By the 1970s, more than 40 years ago, these claims were backed up by genetic science, when it was discovered that the genetic differences amongst two people classified as belonging to the same racial group can be greater than differences found between two people classified as belonging to different racial groups.²⁵ “Race” or designated “racial categories” were not visible in the genes. More recently, the American Association of Physical Anthropologists released a Statement on Race and Racism,²⁶ of which the opening line of the executive summary reads, “Race does not provide an accurate representation of human biological variation. It was never accurate in the past, and it remains inaccurate when referencing contemporary human populations.” These denunciations of race shared common conclusions: Supposed racial categories are not homogenous, cannot be essentialised, and are not determinant and inescapable; and we are a single human race, not plural “races”.

While we can acknowledge that visible and invisible variations exist as the result of evolution over thousands of years that occurred in accordance with immediate geographical environment, these visible manifestations of difference cannot be neatly categorised into homogenous groups. These visible manifestations also cannot tell us much about behaviour or capability. They merely point to physical adaptations to survive various environmental conditions found in the world.²⁷

Yet with all this information available, nothing could truly reverse the detrimental impact of racial science – neither the UNESCO statement, nor the denunciations stemming from the science itself. Over the course of centuries, these ideas were entrenched in the minds of the public, in the minds of politicians and policymakers, and in the legal frameworks of countries across the globe. Over the course of a few centuries, these ideas infused societal structures and institutions the world over. Through the discriminatory regulation of access to resources – including, but certainly not limited to, education, healthcare, jobs, and political power – society came to reflect these schisms that it had postulated from the very beginning. South Africa is a particularly good example. The country was not only affected by a colonial history, but also by a more recent history with race-based discriminatory legislation. While UNESCO was declaring race to be a myth in 1950, South Africa was in the process of implementing laws to govern what they perceived to be four designated racial categories. And through scientific study, these categories were solidified in South Africa. And through daily practices of racial categorisation, they were solidified in South African minds.

More recently, the Sport Science article revealed how these practices of racial categorisation have also become solidified in scientific practice. At first glance, I suspect, there are many who would not take issue with the article’s conclusions.

In fact, the article was produced by five authors, and submitted to, and accepted by, an international, accredited scientific journal – meaning it was reviewed by peers and read by the editor of the journal. And yet, at no point along the way was the article scrutinised for the problematic link it postulated between a specified “racial” group and low cognitive functioning. But this *is* highly problematic. In the article, it is simply assumed that “coloured” refers to a homogeneous collective that can be subjected to scientific study, and that this study could offer another “characteristic” related to this supposed homogeneous collective. Thus, in this study, the term “coloured” became the centre of generalised conclusions that could be seamlessly applied to a single, supposedly homogeneous, category of people.

Like so many studies produced during the height of racial science, the Sport Science study was premised on a false assumption. Or let me rephrase that: The framing of the study was entirely misguided. The researchers insisted on linking low cognitive functioning with a supposed racial group, yet failed to take into account that their conclusions could most likely pertain to *any* individual exposed to a similar set of environmental circumstances. And while we can admit that, in South Africa, the laws implemented by the apartheid state certainly shaped the conditions or environments in which designated racial categories had to engage daily life, and that this has left a lasting legacy in the form of structural inequalities, the conclusions offered by the Sport Science article still do not apply exclusively to the category of people historically identified as “coloured”. To pretend that it does is simply false.

Yet, the common understandings of apartheid-era racial categories that we have been left with, or that we inherited, seemingly remain plagued by notions of essentialism and homogeneity, and generalisations flow with relative ease from these assumptions. This speaks to a long history of racial science, where a causal link was made between a supposed racial category and some characteristic that one exhibits (or should exhibit): tall *because* you are of European descent;²⁸ a body that is predisposed for menial labour *because* you are black;²⁹ or low cognitive functioning *because* you are coloured.³⁰

These slippages still occur too quickly and too frequently. When dealing with race in research, the slippage occurs when the concept itself, or the designated racial category itself, is seen as the inherent explanation for any given occurrence. These slippages ignore the role of the environment and the forces that structured the conditions that allowed unequal outcomes. What they mostly ignore is that those conditions could only have been created for specific categories of people once the group itself was identified, constructed, and deemed as “other”. These slippages occur when we ignore that our conclusions could have pertained to *any* human being exposed to a particular set of environmental circumstance (as Franz Boas argued early in

the twentieth century). These slippages occur when race, or one's racial category, is accepted as a given, and specific characteristics (be they physical, behavioural or social) are related *only* to that category. This results in the perpetuation of a false narrative. We cannot continue along this path, for these categories in themselves cannot relay accurate information.

Conclusion

A critical engagement with the history of anthropology, and more specifically physical anthropology, and its engagements with race over the centuries, offers many lessons. It illustrates how science and politics hardly function in isolation. Therefore, any critical engagement must include a scrutiny of the science itself, the epistemology, the concepts employed, and the context in which it was put to work. For instance, the copious number of studies stemming from Stellenbosch University that relate to the so-called "coloured" population over the course of the twentieth century assumed that "coloured" was a homogeneous grouping and that scientific study could expand knowledge about this category of people. These studies never questioned the existence of racial categories themselves. It was simply taken-for-granted knowledge. This was the case in the 1937 study on "coloured males" discussed earlier. In it, the diversity of data was framed in a manner that spoke of homogeneity – thereby confirming the initial premise that various "races" exist and that they are measurable and observable and thereby identifiable. Given these assumptions, the only outcome of the study was to produce what is presumed to already exist.³¹ This is the fallacy of relying on taken-for-granted racial categories as a starting point for research. In matters of race, you can only end up confirming the category you set out to measure. This leaves an inherent bias in place.

This history is presented to inspire critical reflection, but more importantly, to illustrate both the arbitrary nature of racial categorisation, and the absurdity and danger of ideologically informed "science". Its value and importance is located in one central revelation: racial science should be viewed as the product of social and political narratives, rather than the product of sound science.

What is race supposed to tell us? How useful is this concept in the majority of studies that we conduct? In South Africa, we have started using these designated racial categories as a shortcut to try to explain "what we are dealing with" in a seemingly all-encompassing way. But these categories still require critical engagement every time we choose to employ them. We constantly need to remind ourselves that these categories are social constructions; that they are not homogeneous; that they are not defined by an "essence"; that we cannot make generalisations based on them; and that, more often than not, the conclusions we arrive at might be related to

something other than our participants' racial categories. I ultimately rely on the words of anthropologist Anthony Appiah to drive the point home: "The truth is that there are no races: there is nothing in the world that can do all we ask 'race' to do for us."³²

Endnotes

- 1 Audrey Smedley, "Race' And the Construction of Human Identity", *American Anthropologist* 100, no. 3 (1998): 693, <https://doi.org/10.1525/aa.1998.100.3.690>
- 2 Carl Linnaeus, *Systema Naturae, sive Regna Tria Naturae, Systematice Proposita per Classes, Ordines, Genera, & Species* (Leiden: Lugduni Batavorum, 1735), <https://doi.org/10.5962/bhl.title.877>
- 3 Howell V. Daly, "Phenetic Classification and Typology", *Systematic Zoology* 10, no. 4 (1961): 176, <https://doi.org/10.2307/2411615>
- 4 "Germany", in *History of Physical Anthropology*, ed. Frank Spencer (New York: Garland), 427-28.
- 5 While Blumenbach linked skin colour to skull size, subsequent studies attempted to link skull size with innate intelligence. Race became something that was not only linked with visible differences, but also inherent capability and the potential for development or advancement. These scientific postulations fed into philosopher Immanuel Kant's idea of a human hierarchy in *Of the Different Human Races* (Immanuel Kant, *Von den Verschiedenen Racen der Menschen* [Königsberg: Hartung, 1775]). Here Kant claimed that particular racial groups were born inherently inferior to others with no hope or capability of improving their condition. These narratives would later be rendered useful for the justification of colonial rule and state policies aimed at the lower classes.
- 6 Alfred C. Haddon, *History of Anthropology* (London: Watts & Co., 1910), 38.
- 7 David Bindman, *Ape to Apollo: Aesthetics and the Idea of Race in the 18th Century* (Ithaca, NY: Cornell University Press, 2002), 201.
- 8 *Ibid.*, 153.
- 9 C.S. Grobbelaar, "Anthropometry and Its Role in South Africa. Presidential Address to Section 'D' of the South African Association for the Advancement of Science", *South African Journal of Science* 44 (1948): 53; G.F. van Wyk, "A Preliminary Account of the Physical Anthropology of The 'Cape Coloured People' (Males)", *Annale van die Universiteit van Stellenbosch, Reeks A* 17, no. 2 (1939): 61.
- 10 "Germany", 429.
- 11 Amos Morris-Reich, "Anthropology, Standardization and Measurement: Rudolf Martin and Anthropometric Photography", *BJHS The British Journal for the History of Science* 46, no. 170 (2013): 498, <https://doi.org/10.1017/S000708741200012X>
- 12 Rudolf Martin developed his eye colour table in 1903, Felix von Luschan developed the skin colour table in 1905, and Eugen Fischer developed his hair colour and texture table in 1907 (See "Eugen Fischer's Hair Colour Gauge", n.d., <https://www.ucl.ac.uk/culture/ucl-science-collections/eugen-fischers-hair-colour-gauge>). By 1917, these objects were mass produced and distributed around the world to aid scientists and researchers in their endeavours. The instruments also made their way to Stellenbosch University in the 1920s.

- 13 Jon Røyne Kyllingstad, *Measuring the Master Race* (Cambridge: Open Book Publishers, 2014), 164.
- 14 Eugène Pittard, *Race and History: An Ethnological Introduction to History* (London: Kegan Paul, 1927), 34.
- 15 Ibid., 35.
- 16 Lee D. Baker, *From Savage to Negro: Anthropology and the Construction of Race, 1896–1954* (Berkeley: University of California Press, 1998), 16, <https://www.jstor.org/stable/10.1525/j.ctt1pnh2d>
- 17 Henrika Kuklick, “Introduction”, in *New History of Anthropology* (Oxford: John Wiley & Sons, 2007), 60.
- 18 G.C.A. van der Westhuyzen, “An Account of Anthropometrical and Anthroposcopycal Observations Carried out on Male Students at the University of Stellenbosch”, *Annale van die Universiteit van Stellenbosch, Reeks A VII*, no. 5 (1929).
- 19 Richard McMahon, *The Races of Europe: Construction of National Identities in the Social Sciences, 1839–1939* (London: Palgrave Macmillan, 2016), 17–18, <https://doi.org/10.1057/978-1-137-31846-6>
- 20 G.F. van Wyk, “A Preliminary Account of the Physical Anthropology of The ‘Cape Coloured People’ (Males)”, 3.
- 21 See Raymond William Wilcocks, *Report of the Commission of Inquiry Regarding Cape Coloured Population of the Union* (Pretoria: Government Printer, 1937).
- 22 Cited in Anthony Appiah, “The Uncompleted Argument: Du Bois and the Illusion of Race”, *Critical Inquiry* 12, no. 1 (1985): 30, <https://doi.org/10.1086/448319>
- 23 UNESCO, *The Race Concept: Results of an Inquiry* (Paris: Unesco, 1952), 101.
- 24 Ibid., 11.
- 25 Richard C. Lewontin, “The Apportionment of Human Diversity”, in *Evolutionary Biology*, Vol. 6, ed. Theodosius Dobzhansky, Max K. Hecht and William C. Steere (New York: Springer, 1972), https://doi.org/10.1007/978-1-4684-9063-3_14
- 26 American Association of Physical Anthropologists, “AAPA Statement on Race & Racism” (2019), <https://bit.ly/37bullR>
- 27 A compelling example of this can be found in the work of Nina G. Jablonski (see *Living Color: The Biological and Social Meaning of Skin Color* [Berkeley: University of California Press, 2014]), who explains skin pigmentation in terms of evolutionary development as influenced by geographical setting and other environmental factors.
- 28 See Van der Westhuyzen, G.C.A. “An Account of Anthropometrical and Anthroposcopycal Observations Carried out on Male Students at the University of Stellenbosch”.
- 29 See Z.U. Potgieter, “A Study of Male Somatotypes among the South African Bantu Mine Labourers Compared with Other Groups (Sheldon’s Nomenclature)”, *Annals of the University of Stellenbosch* 35A, no. 3 (1959).
- 30 See Sharné Nieuwoudt et al., “Retracted Article: Age- and Education-Related Effects on Cognitive Functioning in Colored South African Women”, *Neuropsychology, Development, and Cognition. Section B: Aging, Neuropsychology and Cognition* (2019), <https://doi.org/10.1080/13825585.2019.1598538>

- 31 In her recent discussion of Jewish notions of selfhood (see *The Genealogical Science: The Search for Jewish Origins and the Politics of Epistemology* [Chicago: University of Chicago Press, 2012], 108, <https://doi.org/10.7208/chicago/9780226201429.001.0001>), Abu El-Haj illustrates how the notion of a Jewish “self” often relied on a biblical historical record that instilled notions of an existing collective. But this historical record has often offered a starting point for subsequent study – be it in the field of genetics or otherwise. In this regard, Abu El-Haj argues, “further studies will only produce a Jewish nation that it presumed already exist”.
- 32 Appiah, “The Uncompleted Argument: Du Bois and the Illusion of Race”, 35.

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