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"Geographical Distribution Patterns of Various Genes": Genetic studies of human variation after 1945☆

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ABSTRACT

After WWII, physical anthropologists and human geneticists struggled hard to demonstrate distance from 'racial science' and 'eugenics'. This was a crucial factor in the 'revolution' of physical anthropology in the 1950s, as contemporary accounts referred to it. My paper examines the apparent turn during this period from anthropometric measurements to blood-group analysis, and from 'races' to 'small endogamous populations', or 'isolates', as the unit of study. I demonstrate that anthropometry and blood-group analysis were used simultaneously and in the same research projects until the 1960s. Isolated populations were the new target groups of human population geneticists, from large continental groups to small village populations. Colonial infrastructures provided suitable conditions for these kinds of transnational research projects. I argue that this new framework helped to translate much of the content of earlier racial studies into a less attackable approach to human variation.

1. Introduction

"Since World War II, and especially in the past dozen years", anthropologist Stanley M. Garn commented on the status of physical anthropology in 1962, "[…] anthropometry is virtually gone. Typology is gone. Craniology, with its indexes and skull types, is gone too. And gone for good is old-fashioned anomaly-anatomy […]".[1] What a story of success: a dozen years before, in 1950, anthropologist Sherwood Washburn and geneticist Theodosius Dobzhansky had gathered experts of both disciplines at a Cold Spring Harbor Symposium, titled "Origins and Evolution of Man", in order to reform physical anthropologists' understanding of human variation. Simultanously, Dobzhansky and other geneticists had launched a number of anti-racist campaigns and shaped the outcome of the UNESCO initiative that would result in two "Statements on Race" (1950 and 1951) (Barkan, 1996; Brattain, 2007; Gannett, 2001; Gormley, 2009; Reardon, 2005). The aim of their activities had been explicitly to introduce population genetics to the study of human variation.[2] In accordance with scientists like Ernst Mayr, numerous historical accounts have claimed that race science and anthropometry, together with typology, were abandoned soon after WWII.[3]

As Jenny Reardon (2004, 2005), Lisa Gannett (2001) and Nancy Stepan (2003) have argued, the shift from race science to population genetic studies of human variation was neither complete nor as fundamental as others have suggested. These scholars base their analysis on political statements and activities of scientists, most notably in the context of the UNESCO statements, and on single scientists' theoretical work, along with their popularizing books and pamphlets.[4] The newly adopted term of 'population', they argue, was a reformulation of race concepts and not a break away from 'race'. My paper adds to this literature with an analysis that focuses on research programs, research designs, conceptual tools, empirical approaches

☆ The title cites physical anthropologist Nigel Barnicot (1965), p. 86.

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[1] Garn (1962), p. 917.

[2] Reardon (2005), pp. 17–44.

[3] For example, see Stepan (1984); Barkan (1992). Stepan, though, later endorsed a more nuanced view: Stepan (2003).

[4] See Gannett (2001); Reardon (2004, 2005); Brattain (2007). See also: Gayon (2003). As an exception, see Sommer (2008a).

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and pragmatic decisions. I argue that a closer look into research practices reveals even more continuities and inconsistencies. With regard to sampling practices, group labels, narratives and the concept of the isolate, scientists held on to many of the crucial components of race concepts in their empirical work. Therefore, I have examined mainly publications of empirical results from transnational research endeavors based on population genetics.

This paper aims to contribute to the history of race concepts in the second half of the 20th century. Against recent diagnoses of a "re-emergence of race" in the life sciences, I argue that 'race' did not re-emerge, because it never disappeared.[5] I attempt to frame this process more broadly, as a *longue-durée* history of attempts to understand human variation. Concerns about 'human diversity' and 'human variation', with explicit usage of these very terms, date back to the 18th century. Human variation stood for that particular kind of difference between human groups that was (and is) perceived to be geographically patterned, transmitted from generation to generation and not easily changed in an individual's life time (Müller-Wille & Rheinberger, 2012). 'Race' was but one of several ways to speak about human variation, and yet the most dominant one in this history. The term 'race' already implies a certain pattern of human variation, as the much less prominent terms 'gradient' and 'isolate' do as well. All of these terms superimpose specific patterns of diversity, and each has its own history; in some cases they have been used as opposites of one another, and in others as complementing each other. One could point to endless complexities of human variation, and further that it is a moving target. But most scientists concerned with this issue believed they were capable of determining the patterns of human variation with the help of those terms.

Seen from this perspective, the study of human variation entailed broader moral and epistemic concerns, stakes and curiosities than simply 'racism', or the classification and discrimination of certain human groups called 'races'. The study of human variation could serve many purposes. This was particularly the case if researchers focused not on the entirety of humankind, but on the diversity of only one region or on the differences between a small number of (locally sampled) groups. Interest in human variation sometimes arose as a side-product of a medical study on certain diseases or demographies. For some researchers, studying human variation could be a useful preparation for genetic studies, for the manifold epistemic benefits of working with supposedly 'stable' differences. In other instances, the study of human variation went hand-in-hand with an interest in origin, history and evolution. For researchers in this field, even the smallest genetic difference between human groups might potentially hint at a major insight into human evolution. Digging for difference, and stabilizing it for further studies, was one of the main preoccupations of that field. Hence, what looked like a medical genetic study of some striking local pathological differences could have profound implications for evolutionary biology; conversely, mere narratives of *longue durée* group history could have profound consequences for the medical treatment of contemporary populations.[6]

This is not to say that this broader field was innocent, harmless or free of racism, biological determinism, political influences and eugenic beliefs[7]—quite the contrary. The whole field has always been soaked with judgmental power, independent of whether the term 'race' was praised or condemned. To better understand how such judgments played a role in the empirical work of scientists studying human variation—in a supposedly innocent, harmless and objective way—my paper focuses on the continuities of conceptual tools, methods, biohistorical narratives and intellectual curiosities linked with human variation. The 1950s are a particularly important period in this regard, but I will also briefly allude to a transformation of that research field occurring in the 1960s.

2. Global institutions and networks

The early 1950s saw the emergence of new research designs and programs, as well as the foundation of new institutes and departments for the 'study of human variation'. Pioneering empirical case studies were carried out, which helped to formulate and refine those new programs, approaches and institutionalizations. This section briefly outlines some of the relevant networks and institutions in this field.

After WWII, studies of human variation were more often than not transnational collaborative endeavors. Several intertwined research objectives—medical, evolutionary, biochemical, genetic and physiological—could all be pursued at once, in one and the same research expedition, with a multidisciplinary set of methods, and play out in many publications aiming at different audiences. The teams did not follow one main research question, but many diverse questions at the same time. The ambitions of collaborative research teams were global in their dimension; the rationale they followed was to visit as many populations as possible around the globe, and they were all-encompassing in their scope, as they sought to collect as much data and as many samples as possible. There were some preferred locations, often in contexts with a colonial past or present, that seemed to offer particularly interesting patterns of diversity: for example, the Pacific islands as a pattern of many small isolates; Africa; Latin America; or India with its caste system. Most of the groups that scientists chose to study constituted social minorities in politically tense situations, and researchers gratefully drew on the infrastructure provided by administrations and health services. The case study by Edna Suárez-Díaz in this issue offers an example: Mexican anthropologist Ruben Lisker approached indigenous people through institutions, networks and political programs which sought to modernize the nation state.[8]

The Rockefeller Foundation, as well as other funding bodies, allocated enormous financial sources for genetic research on populations around the globe. New research institutions, such as the "Institute for the Study of Human Variation" at Columbia University, the "Laboratory for Human Genetics" at the Federal University of Paranà in Brazil, and the "Laboratory for the Study of Human Variation" in Bombay, all founded in the early 1950s, helped to foster transnational exchange (Gormley, 2009).[9] The latter two institutions were founded by researchers born in Brazil and India, respectively. Prominent geneticists promoted human variation studies in their preferred host countries, including Haldane in India and Dobzhansky in Brazil. Gradually, as Luigi Luca Cavalli-Sforza, who partook in the new paradigm as a young researcher, later put it: "a body of data began to accumulate", one from which many

[5] For "re-emergence of race" see Rose (2007). For an extended discussion, see Reardon (2005); Müller-Wille & Rheinberger (2008).

[6] As in the case of Sickle Cell Anemia: Tapper (1999); Wailoo & Pemberton (2006).

[7] There is a great deal of literature on the history of human genetics in connection with the legacies of eugenics, which addresses the implications of 'race' for human genetics, mostly with respect to its entanglements with 'racial hygiene'. Not so many studies touch upon the question of how human genetics was involved in studies of human variation before and after WWII. See Marks (1996); Mazumdar (1996); Mendelsohn (2001); Gannett & Griesemer (2004); Pogliano (2005); Spörri (2012).

[8] To name some examples: the Duncker community 1952 (Glass, Sacks, Jahn, & Hess, 1952); some African "tribes" (by Jean Hiernaux, see below); the Western Apaches (Kraus & White, 1956); Australian Aborigines (Phillips, 1928; Simmons, Graydon, & Semple, 1954); the Walser and Romansh in Switzerland (Moor-Jankowski & Huser, 1956); Brazilian Indian Tribes (Kalmus, 1957); the Amish and the Basques.

[9] Gormley (2009).