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Introduction

Human heredity after 1945: Moving populations centre stage



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ABSTRACT

The essays in this issue look at the contested history of human heredity after 1945 from a new analytical angle, that of populations and the ways in which they were constructed and studied. One consequence of this approach is that we do not limit our attention to the disciplinary study of genetics. After the Second World War, populations became a central topic for an array of fields, including demography, anthropology, epidemiology, and public health. Human heredity had a role in all of these: demographers carried out mental surveys in efforts to distinguish hereditary from environmental factors, doctors screened newborns and tested pregnant women for chromosome disorders; anthropologists collected blood from remote locations to gain insights into the evolutionary history of human populations; geneticists monitored people exposed to radiation. Through this work, populations were labelled as clinical, normal, primitive, pure, vulnerable or exotic. We ask: how were populations chosen, who qualified as members, and how was the study of human heredity shaped by technical, institutional and geopolitical conditions? By following the practical and conceptual work to define populations as objects of research, the essays trace the circulation of practices across different fields and contexts, bringing into view new actors, institutions, and geographies. By doing so the collection shows how human heredity research was linked to the broader politics of the postwar world, one profoundly conditioned by Cold War tensions, by nationalist concerns, by colonial and post-colonial struggles, by modernisation projects and by a new internationalism.

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The essays collected in this issue take a fresh look at the contested history of human heredity after 1945. In spite of the field's perceived association with racial policies and mass murder, the study of human heredity was invigorated in the postwar decade, marked, for example, by the First International Congress of Human Genetics, the founding and re-launch of several key journals, and the establishment of the first genetic counselling clinics. Existing accounts of human heredity research in this period tend to deal with the continued resonance of eugenic concerns or the promises of molecular approaches to the field (Comfort, 2012; Kevles, 1995; Mazumdar, 1992; Müller-Wille & Rheinberger, 2012; Paul, 1995; Paul, 1998). In this issue we propose to take the study of human populations as an analytical focus. By following the construction

and study of populations, the essays show how human heredity research was linked to the broader politics of the postwar world, one profoundly conditioned by Cold War tensions, by nationalist concerns, by colonial and post-colonial struggles, by modernisation projects and by a new internationalism.

One important virtue of directing attention to populations as a focal point for the study of human heredity is that we do not limit our perspective to disciplinary studies of genetics.¹ Throughout the

¹ Following Staffan Müller-Wille & Hans-Jörg Rheinberger (2012) we take the term 'heredity' to encompass a broader range of questions and practices than those falling under 'genetics' in a more narrow disciplinary sense. For another recent collection that takes into account a wider range of disciplines with respect to human heredity, see: Gausemeier, Müller-Wille, & Ramsden (2013). Human populations are a major theme of a recent special issue of *Current Anthropology* that offers a comparative international perspective on the past, present and future of biological anthropology; see Linde & Santos (2012).

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twentieth century, populations were a central topic for a wide array of fields, including demography, anthropology, epidemiology, and public health. Human heredity had a role in all of these; physical anthropologists were fundamentally concerned with the study of heritable morphological traits, while eugenic thinking made heredity a central concern to practitioners engaged with epidemiology, public health and demography. These trends persisted in the postwar era, under changed technical and political constellations that the essays in this issue aim to address.

Closely related, since the 1920s ‘population’ had been an area of significant political concern. The League of Nations made populations central to the geopolitical issues of migration, demography, land economies and colonial expansion, themes also addressed by, for example, the International Union for the Scientific Investigation of Population Problems.² After the destruction inflicted by the Second World War and with the Cold War, these geopolitical concerns were taken up by national governments, private foundations such as the Rockefeller Foundation, and new international institutions devoted to the monitoring and administration of public health, education, food production and science.³ The new United Nations (UN) and its allied agencies, including the United Nations Educational, Scientific and Cultural Organization (UNESCO), the World Health Organization (WHO) and the Food and Agriculture Organization, all worked to sustain population-related issues as central to the reshaping of international communities, the politics of decolonisation, and the negotiation of global public health standards. Over the next three decades, these organisations maintained a focus on populations as central to policies of development, migration, and reproduction, facilitating the circulation of technologies between contexts and disciplines.⁴

Meanwhile the embrace of nuclear energy for military and industrial purposes raised concerns over the hereditary and somatic effects of atomic radiation (Beatty, 1991; Creager, 2013; Lindee, 1994). This provided justification for placing special emphasis on epidemiological surveillance, a task supported by the WHO. UNESCO, too, with its mandate to foster peace through science, culture and education, initiated several projects that coalesced around the issue of population (Selcer, 2009). Directly relevant to some of the essays in this issue, UNESCO organised a campaign to educate the public about the scientific study of race, with a view to reducing racial prejudices.⁵ Several researchers successfully argued that genetics, based on the study of physiological and molecular markers, offered a way of turning the study of ‘race’ into the unprejudiced and objective study of populations.⁶ Many existing histories deal with the conceptual and rhetorical changes to race science during this period.⁷ The essays in this issue contribute to this literature by focussing on practices. They ask how populations were chosen, who qualified as members, and what technical, institutional and geopolitical conditions shaped the research. Taking population

studies as an analytic focus, the essays trace the circulation of practices across different fields and contexts, bringing into view new actors, institutions, geographies, and geopolitical contexts.

1. Unique and normal, pure and mixed populations

Populations were not simply given. As Alexandra Widmer puts it in her contribution, much practical and conceptual work went into making populations into appropriate social and biological entities. How populations were defined and which were singled out for study depended both on the research questions asked and on the political status of those populations. Several fields and research programmes particularly valued the study of populations that were unusual, distinctive or remote. Many of these were already subjects of intense study in colonial, post-colonial or ‘enclave’ settings.⁸ Such populations—as, for instance, the inhabitants of islands, or groups that were otherwise geographically, culturally and reproductively isolated—could serve a range of different purposes. Some researchers believed that ‘parental’ or ancestrally ‘pure’ populations—such as the Basques and Sami, which had supposedly remained unmixed for thousands of years—could give access to the evolutionary and migratory history of *Homo sapiens*; only once data on those populations were collected would researchers understand population structure sufficiently to probe more subtle questions. Joanna Radin has shown how Cold War anxieties about the future of human adaptability in a scenario of nuclear war, were used to justify the study of ‘primitives,’ characterised as unique portals to a pre-technological age (Radin, 2013). The study of populations ‘marked as vulnerable or closer to nature’ became vital ‘salvage’ work, relevant to reflections on the maintenance of the future health and adaptive potential of the species. Elsewhere, the study of indigenous populations became incorporated into modernisation programmes; Edna Suárez-Díaz in her contribution explores research done by population geneticists in the context of Mexico’s *indigenista* programme—a double-sided endeavour to bring health and education services to rural communities, while reinforcing the segregation of indigenous communities in their role as representatives of Mexico’s glorious past.

Because of founder effects and inbreeding, these same groups were sometimes viewed as reservoirs for rare disease genes and as particularly well-suited for studying gene–disease associations and epidemiological correlations. A well-known example is that of the Amish people in Pennsylvania, Ohio and Indiana, whose genetic traits were studied in the 1960s by Victor McKusick, a pioneer of medical genetics (Lindee, 2005). Soraya de Chadarevian’s essay shows how clinical populations, such as the inmates of mental institutions, were recruited to perform similar functions. In an expanding postwar public health system that made space for new technological approaches, the clinic became a site for the construction of new kinds of populations—such as pregnant women, foetuses, and patients with Down’s syndrome—that contributed to knowledge about heredity, disease and risk (Löwy, in this issue; Santesmases, in this issue). Common statistical approaches to population development and risk assessments linked these various studies.

The construction of ‘normal’ populations and their relevant parameters was a more general issue that required extensive negotiation. Defining normal genetic variation achieved new valence in the Cold War period; specifically, the characterisation of elevated mutation rates from atomic exposure demanded a sense of the range of variation in unexposed or ‘control’ populations, against

² There was general agreement within the League of Nations that ‘population densities and war were directly linked’ (Bashford, 2008). For a discussion of how ‘population’ was made into a boundary object between sociology, biology, anthropology, economics and psychology, see Ramsden (2002).

³ See Iriye (2002), Solomon, Murard, & Zylberman (2008).

⁴ One of the actors who contributed to this shift was evolutionary biologist Julian Huxley, first president of UNESCO, who moved population planning to centre stage in his vision for “material and spiritual betterment”, see e.g. Connelly (2012), Bashford (2008), Huxley (1947, p. 12).

⁵ De Souza & Santos (in this issue). For the UNESCO statements and their commentary, see UNESCO (1952).

⁶ For a parallel discussion in the field of molecular evolution see Suárez-Díaz (2007).

⁷ See especially Reardon (2005), Lindee & Santos (2012), and other contributions in that special issue: ‘The Biological Anthropology of Living Human Populations: World Histories, National Styles and International Networks’.

⁸ For a longer history of the construction of *a priori* racial, national and geographical categories in human population genetics see Gannett & Griesemer (2004).

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