Genetic Nationalism: Scientific Communities and Ethnic Mythmaking in the Middle East

The Harvard community has made this article openly available. Please share how this access benefits you. Your story matters

<table>
<thead>
<tr>
<th>Citation</th>
<th>Burton, Elisabeth Katherine. 2017. Genetic Nationalism: Scientific Communities and Ethnic Mythmaking in the Middle East. Doctoral dissertation, Harvard University, Graduate School of Arts &amp; Sciences.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citable link</td>
<td><a href="http://nrs.harvard.edu/urn-3:HUL.InstRepos:41142077">http://nrs.harvard.edu/urn-3:HUL.InstRepos:41142077</a></td>
</tr>
<tr>
<td>Terms of Use</td>
<td>This article was downloaded from Harvard University’s DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at <a href="http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA">http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA</a></td>
</tr>
</tbody>
</table>
Genetic Nationalism:
Scientific Communities and Ethnic Mythmaking in the Middle East

A dissertation presented
by
Elisabeth Katherine Burton
to
The Committee on Middle Eastern Studies
in partial fulfillment of the requirements
for the degree of
Doctor of Philosophy
in the subject of
History and Middle East Studies
Harvard University
Cambridge, Massachusetts
April 2017
Genetic Nationalism: Scientific Communities and Ethnic Mythmaking in the Middle East

Abstract

“Genetic Nationalism” is a comparative history of human genetics research in Iran, Turkey, and Israel. Covering the century between the First World War and the present, I show how the technologies and discourses of racial anthropology and medical genetics have been locally adapted to construct national identities and control ethnic minorities in the Middle East. Furthermore, I investigate how the global biomedical infrastructure of the Cold War era reinscribed colonial patterns of scientific collaboration and technological development. Intervening in existing postcolonial critiques of science, I argue that even as Middle Eastern researchers have been marginalized in the Western-dominated international scientific community, they have simultaneously acted as technocratic elites to reinforce nationalist hegemonies within their own countries. I base this argument on an original analysis of over 350 scientific publications on inherited physiological traits, blood group frequencies, and DNA variations among Iranian, Turkish, and Israeli populations. My analysis juxtaposes these scientific texts with the archived correspondence and oral history records of Middle Eastern scientists and their Western colleagues, examining how the two groups interacted with each other and with their research subjects to produce a set of “ethnic myths” merging scientific inquiry with local understandings of heredity, identity, and nation. My comparative work shows that despite the massive advancements in technological sophistication between anthropometry and
whole-genome sequencing, geneticists have continuously relied on nationalist narratives of population origins to select research subjects and interpret their genetic data. Ultimately, these globally standardized research practices have reified sociopolitical categories into biological entities.
# Table of Contents

Acknowledgements........................................................................................................ vi

Note on Translations and Transliterations....................................................................... vii

Introduction......................................................................................................................... 1
  Concepts: Human genetics as a process of ethnic mythmaking .............................................. 3
  Regional context: Consolidating nation-states in the Middle East ........................................ 8
  Arguments: Integrating the Middle East into a global history of science ............................... 16
  Chapter overview ............................................................................................................. 23

Chapter 1: Seeking a Biological Identity: State Formation, Anthropometry, and Racial Classification ........................................................................................................................................ 26
  Colonialism, nationalism, and European race science ............................................................ 31
  Zionism and constructions of the Jewish race ....................................................................... 36
  The Turkish race, nation, and state: between Europe and Asia ............................................. 53
  Homogenizing “Aryan” Iran ................................................................................................. 71
  World War II and racial ideology in the Middle East ............................................................. 84

Chapter 2: The ABO Blood Groups as Racial Markers: Sero-Anthropology, 1919-1950 ......... 93
  Sero-anthropology vs. anthropometry in racial classification ............................................. 97
  Imagining endogamous communities in the Mandate-era Levant ..................................... 104
  Bringing Type A to Europe: Sero-anthropology in the Turkish Republic ............................ 113
  Middle Eastern data within an international debate ............................................................. 120
  The end of racial sero-anthropology? .................................................................................. 127

Chapter 3: Blood Lines: Human Population Genetics as an Inter/national Enterprise, 1948-1970s ....................................................................................................................................... 133
  Human genetics in the postwar world order ...................................................................... 137
  Israel: An outpost of Western science? ............................................................................... 148
  Parsing the Iranian population: Sketching an elusive majority .......................................... 187
  Reinventing the Eti-Turks .................................................................................................. 218
  Exporting national myths .................................................................................................... 236

Chapter 4: Revolutionary Biology: Genetic Anthropology Responds to Ethnic Politics, 1970s-1990s ...................................................................................................................................... 242
  Genetic anthropology and the threat of ethnic politics .......................................................... 247
  The limits of the Israeli “melting pot” .................................................................................. 255
  Revolutionizing Iranian biology .......................................................................................... 280
  Turkey: Interpreting the multi-ethnic empire ...................................................................... 308
  National belonging and political violence ........................................................................... 324

Chapter 5: Accidents of Geography: Creating Genetic Cartographies of the Middle East, 1990s-2010s ........................................................................................................................................ 329
  Trees onto maps: creating genetic migration narratives ....................................................... 335
  Reimagining pan-Turkism between Central Asia and the Balkans .................................... 345
  Iran as an “accident of geography” ...................................................................................... 366
  Rerouting Jewish roots and disputing Diaspora geography ............................................... 385
  Eternalizing the nation: genetics as revisionist geography ................................................. 409

Conclusion ........................................................................................................................... 413

Bibliography ........................................................................................................................ 422
Acknowledgements

This project was only possible with the support of a great many individuals and institutions. I am firstly indebted to my advisors and committee members, Afsaneh Najmabadi, Sarah Richardson, Janet Browne, and Cemal Kafadar, for their enthusiastic support during my graduate years at Harvard. I must also extend my deep gratitude for the mentorship of Susan Kahn and of Emily Gottreich, without which I would never have pursued graduate study.

This work was supported by an International Dissertation Research Fellowship from the Social Science Research Council, a Mellon Dissertation Research Fellowship administered by the Council on Library and Information Resources, a Dissertation Research Grant from the American Institute of Iranian Studies, a Merit Fellowship from the Harvard Graduate School of Arts and Sciences, and summer research funding from the Harvard Center for Middle Eastern Studies. I also received summer language study funding from the Institute for Turkish Studies and the Critical Language Scholarship Program.

I am especially grateful to Ehsan Amini, who acted as my research assistant in Tehran and went above and beyond the call of duty to conduct interviews and secure copies of extremely rare texts. Out of the many archives and libraries I visited, I offer a special thanks to Christian George, director of the archives of Johannes-Gutenberg University in Mainz, and Ofer Tzemach and Michael Vinegrad, who administer the central archives of the Hebrew University of Jerusalem, for their provision of uncatalogued material during my visits.

My work has benefited immensely from repeated presentations at Harvard workshops, including Middle East Beyond Borders, the Modern Sciences Working Group, and the Science, Technology, and Society Circle at the Harvard Kennedy School. I thank the organizers and attendees of these workshops for their invitations to participate and their thoughtful feedback. I
enjoyed opportunities to present the work in progress at symposia on “Turkish Studies from an Interdisciplinary Perspective” at Georgetown University (2014) and “The Molecularization of Identity” at Harvard (2016), as well as the annual meetings of the Middle East Studies Association (2014 and 2016) and the History of Science Society (2016).

In the early stages of my research on Turkey, I was inspired by meetings in Istanbul with Sanem Güvenç-Salgırlı, Murat Ergin, and Nazan Maksudyan. I thank them for their time and encouragement. I also thank Murat Gülsaçan for sharing his discovery of a rare Turkish high school biology textbook from 1939. In Israel, I benefited extensively from the hospitality and generosity of Michal Hasson and Ohad Shamir, who made Jerusalem and Rehovot feel like home. Other colleagues and friends at Harvard who offered an exceptional degree of advice, support, and feedback on my work over the years include Shireen Hamza, Mou Banerjee, Mircea Raianu, Ceyhun Arslan, Ian McGonigle, Kathryn Schwartz, Bethany Kibler, Andrew McDowell, and Arslan Tazeem.

Finally, of course, I owe a great deal of thanks to the encouragement of my parents and of my husband, whose patience and good humor is immeasurable.

**Note on Translations and Transliterations**

Unless otherwise noted, all translations from Hebrew, Turkish, Persian, French, German, and Italian are my own. While others provided assistance and corrections, I am fully responsible for any and all errors. Transliterations from Hebrew and Persian follow Library of Congress standards.
Introduction

For the December 4, 2015 episode of Iran’s Channel 3 talk show Imzā’, host Ehsan Karami interviewed the University of Tehran professor and self-professed “father of Iranian genetics,” Dariush Daneshvar Farhud. Over the course of an hour, Farhud, aged 77 at the time, recounted his family background and childhood in Tehran, high school and university education in West Germany, and subsequent career as a prominent medical and anthropological geneticist after returning to Iran in 1972. Farhud explained that he had refused to leave Iran during and after the 1979 revolution because of his deeply felt nationalism (īrān-dūstī) and patriotism (mīhan-parastī), proclaiming, “I was born here and I’ll die here.” Farhud claimed that his sentiments were “genetically” inherited, since his “parents were the same way.” When pressed by the dubious Karami, “Do you mean that all patriotic people in the world have patriotic offspring?” Farhud clarified with other traits that he considered to result from parental genetic and environmental contributions, such as self-discipline (munzabaṭ būdan), as well as talents in calligraphy and music (referring to the musical Shajarian family of Iran and the Bach family of Europe). The conversation then turned to Farhud’s research, namely his comparative investigations into the different human populations of Iran, such as Turkic-speakers (turkhā) and Baloch tribes, to discover the genetic structure of different Iranian ethnicities (sākhtār-i zhinitīk-i qawmiyyāt-i īrān).

Later, Karami asked Farhud for his opinion on “genetic drain” (farār-i zhinhā), an extrapolation of the concept of “brain drain.” Farhud began, “I never want to talk about politics,” but, he asserted, “some countries of the world” were benefiting from the “human resources” of

developing countries. When young people migrate, “they take their genes with them,” causing not only a brain drain in developing regions but also the loss of their potential children. Finally, Karami asked, “how are Iranian genes different” from others? For example, are Iranians smarter than Koreans, Japanese, and Americans? Farhud affirmed that “genetically,” Iranians are more intelligent than many other peoples (mardum), but not “the smartest in the world,” and that they suffer from a customary lack of perseverance and work ethic. Farhud ended his interview with an entreaty to Iranian youth to cultivate a stronger sense of patriotism and honor their identity (huviyat), citing the alleged saying of the prophet Muhammad that “love of homeland is part of faith” (hubb al-waṭan min al-īmān).

Farhud’s self-narrative throws into sharp relief many questions about human genetic research (and about scientific activity more generally) in non-Western regions that otherwise remain implicit and unexplored. What is the relationship between his identities as a professional geneticist and an ardent nationalist? Why does he slip easily between speaking about the genetic differences between “Iranian ethnicities” and declaring intelligence to be an essential Iranian trait? While his gestures to genetic essentialism may seem jarring, Farhud is no peddler of pseudoscience. In addition to holding leadership positions in the Iranian biomedical community, he collaborates extensively with geneticists from all over Europe and North America, publishes regularly in well-recognized international scientific journals, and serves on World Health Organization committees for bioethics and medical genetics. Addressing these questions therefore entails an investigation into his experiences not only as a scientist within his home country, but also as an Iranian abroad interfacing with a global research infrastructure. As a native of the country for which the concept of “brain drain” was coined in the 1960s, Farhud’s comments about the migration of genes reflect both shifting geopolitical anxieties and the
discursive and technological transformation of human genetic data into socially meaningful claims. In order to understand what Farhud’s interview indicates about the globally standardized practices of biomedical research versus the specific contingencies of pursuing such research in Iran or the broader Middle East, I begin with a brief overview of the entanglements between genetics and social knowledge.

Concepts: Human genetics as a process of ethnic mythmaking

At present, genetic research on human subjects occurs within a number of specialized subfields, and my principal concerns with racial classification and ethnic ancestry are now commonly associated with that subfield known variously as molecular anthropology, anthropological genetics, genetic anthropology, or genetic history. However, during most of the twentieth century, even the broader category of “genetics” was not a well-defined field of inquiry and many of its practitioners identified as medical professionals. Indeed, many of the individuals in my narrative worked for hospitals or blood banks and received their research funding from national and international healthcare agencies. Accordingly, I approach the history of human genetics not as a single discipline with a clear trajectory, but rather as a conglomeration of knowledge about human history and prehistory predicated upon tracing the relationships of individuals to groups and of groups to each other. Throughout the dissertation, I use “geneticists” as a shorthand for the scientists and physicians trained in physical anthropology, evolutionary biology, biochemistry, and medical pathology (especially hematology and serology, the study of blood and serum, respectively) whose careers converged around the application of inherited traits to questions of human identity.
These geneticists, in turn, did not apply consistent labels to the field they were building. In 1965, the prominent British hematologist Arthur Ernest Mourant, the director of the Blood Group Reference Laboratory in London and a close collaborator with many Middle Eastern geneticists, mused at length over the name of his proposed new research unit, the Serological Population Genetics Laboratory:

As regards the first part of the name, designating the subject of research, it would appear that the [Medical Research] Council have raised no objections. I take it that the word ‘Serological’ sufficiently distinguishes it from the Population Genetics Research Unit. We cannot have yet another unit with its name beginning with ‘Blood Group’, there is already far too much misdirecting of specimens between the existing ones. One other possibility would be ‘Serological Anthropology’.  

Yet the lack of nominal conventions for this enterprise, suspended between medicine and anthropology, belies certain remarkable consistencies that unite fin-de-siècle cranial measurements, Cold War surveys of blood-group frequencies, and the much-maligned Human Genome Diversity Project. For example, geneticists from the 1920s to the present have repeatedly justified the urgency of their research, especially on rural and remote tribal communities, using a notion of “salvage genetics.” The logic underpinning this notion argues that the unique genetic composition of such communities must be documented before it inevitably disappeared due to state-imposed projects of “modernization” and/or Westernization that aimed to disrupt traditional group identities and ways of life. This disruption was expected to cause, in scientific terms, “admixture”—the intermarriage of previously isolated social groups with other populations, and therefore the loss of their characteristic distribution of genetic traits.

---


The predominantly negative associations of admixture with a loss of biological identity are rooted not only in ethnonational ideologies, but also in the limitations of scientific methodology. National histories, of course, seek to project the existence of a qualitatively distinct population (“the nation”) back in time to a fixed temporal and geographical origin point. Meanwhile, the medical and evolutionary information sought by geneticists—e.g., the inheritance patterns of known disorders, rates of gene mutation and allele fixation, the relative significance of selection and genetic drift, and the biological relationships between different living and ancient human populations—were all simply more difficult to study in admixed populations (until the advent of efficient computer-based techniques beginning in the late 1970s). The problems were especially acute for the reconstruction of ancient human migrations, as philosophers of science Lisa Gannett and James R. Griesemer explain:

We cannot speak of group origins or unique common ancestors without well-delineated “primordial” groups locatable in space and time. We cannot speak of dates and routes of group migrations without assuming the constancy and integrity of these groups over space and time. We cannot speak of genealogical relationships other than between “qualitatively distinct” groups for which there are sorting criteria for inclusion and exclusion. We cannot speak of the admixture of groups without some modified sense of “purity” in terms of the relative homogeneity and heterogeneity of “qualitatively distinct” “gene pools” with characteristic compositions. The bounding of genes—and the people who possess and pass on these genes—across space and time is a necessary a priori assumption for all such narratives or explanations.4

In practice, historian Veronika Lipphardt points out, this meant that geneticists “required a clearly demarcable, empirically manageable endogamous population,” i.e., groups that could be reliably identified as “reproductively isolated” and therefore “evolutionarily coherent.” This requirement meant that “non-biological knowledge entered the research design” as “linguists, ethnographers, historians, sociologists and others, as well as myths and claims of collective

---

identity” provided geneticists with the necessary evidence to identify ideal communities for genetic research.⁵ The biological data collected from such research, in turn, cannot be interpreted without reference to “non-biological knowledge,” and is therefore not a truly independent source of information about human history.

This process of epistemological layering and cycling through social and intellectual networks, which I refer to as “ethnic mythmaking,” is therefore a fundamental component of all genetic research concerning human subjects. By invoking the term “mythmaking,” I do not mean to suggest the deliberate falsification or contradiction of knowable information (as does Robert Vitalis),⁶ but rather a process of narrative formation that combines historical and cultural notions of group origins in the distant past with contemporary political and social ideas about defining and maintaining group identity. This process resembles the “feedback loop” identified by Gavin Schaffer in the context of British immigration policy, wherein he argues that “folk concepts” of race and ethnicity feed into the assumptions and interpretations of scientific research, whose practitioners in turn feed their work back into the original popular discourse.⁷ Through this mythmaking process, genetic researchers effectively built up particular ethnic, religious, and linguistic minorities (such as Zoroastrians in Iran or Samaritans in Israel) to be “imagined endogamous communities” in contradistinction to a heavily admixed majority population. Interactions between geneticists and their subject populations reified and reinforced communal identities through a hyperbolized sense of a group’s historical isolation from others, via socially or geographically enforced endogamy. Emphasizing this isolation became configured as positive

---


and desirable for researchers and community members alike, since strict practices of endogamy were believed to preserve a community’s authenticity through an unbroken and undiluted genetic relationship to its ancestors.

However, geneticists also use national labels to identify populations (e.g. “Iranian” or “Turkish”), despite the fact that they do not constitute biologically meaningful categories. Here, ethnic mythmaking collides with the logistical pragmatism of “methodological nationalism,” that is, an unquestioned acceptance of the nation-state as a natural unit of analysis. Whether used with a conscious ideological aim to identify the biological unity of a “nation” or with a practical need for an ostensibly neutral geographic label, geneticists compare these admixed or agglomerated national populations to test hypotheses about national origins and trace historical migrations through the course of human evolution. Advances in technology and methodology promise to reach farther and farther back in time with greater resolution, but our concepts and terminology for geography and human groups are inevitably presentist and therefore burdened by the larger problem of uncertainty regarding how extant populations are related to historical and prehistorical human groups. The same questions about national ancestry, with the same underlying assumptions, are thus tested again and again with newer and newer methods, but the results can never truly disprove the political logic of the historical moment. As anthropologist Nadia Abu El-Haj notes for the case of Jewish origins, attempts to reconstruct national histories through genetic data “can never live up to their positivist commitments” because “biological

---

evidence is incapable of undermining the original hypothesis” produced by other sources of knowledge. I examine how these patterns of ethnic mythmaking and methodological nationalism manifest in the Middle Eastern context, considering how they have affected the development of professional scientific communities at both the national and international level.

Regional context: Consolidating nation-states in the Middle East

Every aspect of human genetic research has been, and continues to be, affected and shaped by contemporary geopolitics. Scientists face various legal and logistical restrictions in their collection of body parts (i.e. blood, saliva, and other tissue samples) and anthropometric measurements, requiring national, local, and/or individual permissions for their research. The conditions under which this raw material was/is collected varies widely, ranging from hospital-based blood banks to remote locations far from any laboratory or clinic. In the latter scenario, biological materials must be preserved and transported to the nearest accessible testing facility, often at great financial cost to the investigators. Once they have analyzed their data, researchers face additional language and financial barriers affecting their ability to publish and disseminate their work. Bookending each individual scientific career are innumerable constraints on opportunities for higher education and collaboration with international colleagues, as determined by the local scale of class and social privilege and the global scale of visa regimes and post/colonial patronage networks.

In the contemporary Middle East, the geopolitical context is predominantly shaped by the historical interactions between the region’s empires and European powers dating from the 18th century onward. This colonial legacy in the Middle East is the root of both real and perceived “lag” or “lack” of scientific productivity in the region. Since the nineteenth century, much of the

---

literature on the history of science produced by Western and Middle Eastern scholars alike has perpetuated the notion that the Arabic-speaking world made no significant scientific achievements after the Abbasid period. This apparent lack of productivity has often been attributed to cultural factors, such as anti-intellectual strains of Islamic theology or the Mongol conquests of the thirteenth century. Only in recent years have historians begun to question and systematically dismantle this thesis of scientific decline, demonstrating continuous scientific activity under the early modern Muslim empires and showing how political and economic conditions rather than cultural or religious constraints marginalized Middle Eastern scientific actors in favor of European ones.\(^\text{10}\) While Mughal India and Algeria faced military invasion and direct colonial administration under Britain and France, the core regions of the Ottoman Empire and Qajar Iran retained political sovereignty. However, the latter became “semi-colonial” polities under the pressure of European economic imperialism and Russian military aggression during the nineteenth century. These factors, more than activity by anti-modern reactionaries, hindered the development of industrial, educational, and scientific institutions in the Middle East.

Historian Cyrus Schayegh shows how this semi-colonial position rendered Iran even more peripheral to global scientific networks than directly colonized regions, where administrative and economic necessity drove intensive data accumulation and methodological innovation. He argues convincingly that while late Qajar and early Pahlavi Iran did not experience the “comprehensive scientific colonialism” of India, modern science in Iran emerged through colonial patterns of knowledge transfer, which emphasized applied science and medicine over basic research, privileged Western educators and scientists over local ones, and provided a

foundational discourse for professional class formation. I find that the legacy of this semi-colonial experience continues to shape Iranian science today. Even after the Islamic Republic strove to shake off Iran’s dependence on Western scientists and technicians, its integration into global scientific community was hindered by economic problems and sanctions that limited the financial and logistical support for basic research and accelerated the country’s “brain drain,” as well as by difficulties in publishing and disseminating scientific knowledge abroad due to language and visa barriers. Sociologists studying the formation of the Iranian scientific community have observed a sort of “inferiority complex” among Iranian scientists who believe they will never be able to keep pace with Western scientific achievement due to their fewer material and professional resources. As such, I argue that the “shift from formal political and economic imperialism to the neocolonial intellectual hegemony of science and technical reason” traced by Warwick Anderson and Hans Pols in twentieth-century Southeast Asia can also be found in the semi-colonial and postcolonial Middle East.

In contrast to the rest of the region, the history of genetic research in Israel has been relatively well studied. Historians and anthropologists have critically examined how the structuring assumptions of Jewish race science in early 20th-century Europe and North America, and its political counterpart of Zionist nationalism, reverberate within the genetic studies of Jewish populations by Israeli scientists from the 1950s to the present. Because most early Jewish

race scientists lived and worked in “the West,” they have been readily incorporated and theorized into the generally Eurocentric literature on the history of science. But how should scholars best understand the practices of Israeli geneticists working not only on Jewish communities, but also other “Middle Eastern” populations like Samaritans, Armenians, Christian and Muslim Palestinians, and Sinai Bedouins? Existing scholarship on Israeli genetics emphasizes its settler-colonial nature by identifying its scientists as Western transplants or focusing on the unique research opportunities presented by its Jewish populations. In contrast, I contextualize Israeli genetics as a reflection of regional geopolitics, in terms of both nationalist political objectives and of the local development of biomedical research infrastructures.

In both aspects, Turkey and Iran offer compelling comparisons for the Israeli case. Firstly, the governing ideologies in all three states claimed to represent European civilization within the Middle East, and forcibly suppressed the cultural expression of social groups that did not meet the ideal of the “new Jew” or the secularized Turkish- or Persian-speaking subject. This project of national self-definition in turn presented analogous challenges to Turkish, Iranian, and Zionist nationalism. All had to reconcile the readily apparent physical, linguistic, and cultural diversity of their citizenry with an ideology of national homogeneity strongly informed by race science, aiming to reconfigure patterns of group identification along ethnic lines. Here, too, the problem of diaspora and transforming the religious identity of recent immigrants into an ethno-national one is not as unique to Israel as scholars of Jewish history have imagined, as evidenced by the experiences of Balkan Muslim immigrants to the Turkish Republic in the 1920s, and especially the victims of the compulsory “population exchange” between Greece and Turkey in

---

Furthermore, each of these nation-states had to establish autochthonous legitimacy of Turks, Iranians, or Jews within arbitrary territorial boundaries settled partially by international treaties and partially by the armed conflicts those treaties had provoked. Not content with their initial borders, Turkish and Zionist nationalists would also seek to “prove,” drawing on the scientific evidence of archaeology and population genetics, that Turkey and Israel had legitimate claims to annex desirable neighboring territories, such as “Hatay” (the Sanjak of Alexandretta) or “Judea and Samaria” (the West Bank). In Iran as well as in Turkey and Israel, data from such scientific projects became political ammunition to control the historical narratives of ethnic and religious minorities (such as Arabs, Kurds, and Armenians) within their borders and to delegitimize the territorial claims of competing nationalisms. The consolidation of a strong central government thus hinged on the enforcement of “internal colonialisms” through political, military, and economic institutions while sharply inhibiting the social visibility and cultural expression of minority groups. Scientiﬁc discourses on race, medicine, and hygiene were explicitly deployed for the purpose of these projects of internal colonialism.

Secondly, Turkey, Iran, and Israel undertook similar trajectories in developing infrastructures for medical and academic science, with exiled German Jewish scientists playing a

---


notable role in reforming and revitalizing the major universities of all three countries. To outline a history of the institutions that have supported and structured the current scientific communities in the region, I begin the story of Middle Eastern human genetics in the aftermath of World War I. The interwar period forms the context for the emergence of today’s Middle Eastern nation-states. Through an array of international treaties, the Ottoman Empire was dissolved and much of its territory divided into protectorates, mandates, and client states of France and the United Kingdom. For example, British military control over Palestine dating to 1918 was administratively formalized as the British Mandate for Palestine, recognized by the League of Nations in 1923. The same year, after three years of armed struggle against the Allied occupation of Anatolia, the Turkish National Movement led by Mustafa Kemal Atatürk proclaimed the establishment of the Republic of Turkey. Meanwhile, in Iran, Reza Khan deposed the ruling Qajar dynasty in 1925 and established his own hereditary rule as the first shah of the Pahlavi dynasty. However, the apparently abrupt changes in political structure and ideology are in fact outgrowths of already-ongoing historical trends. Similarly, while most of the Middle Eastern scientists of this period are considered to represent a “new generation” of scholars, they worked amidst an already-established academic paradigm of race science and its social interpretation into eugenics policy.

As is well known, the drive to Westernize education in the Ottoman and Qajar empires began early in the 19th century, motivated primarily by military reform in the face of advancing European colonialism. By the 1830s, dozens of Middle Eastern students traveled to Europe (especially France) on government scholarships to study technical fields like medicine and engineering. Meanwhile, schools within the Middle East were reformed or newly constructed with the assistance of European advisors (again, mostly French). While built upon these imperial
foundations, the development of national infrastructures for academic science in the Middle East was largely defined during the 1930s. In the cases of Iran and Turkey, this development was heralded by state-initiated education reforms that aimed to reconfigure existing higher education facilities (i.e., the Darülfünun in Istanbul and the Dār ul-funūn in Tehran) into “modern” universities. This time, the model was German rather than French. However, many of the German scholars who advised these reforms were not representatives of the German government, but rather refugees from the Nazi regime who would stay for many years, some even permanently, in the Middle East. The Turkish Darülfünun was drastically reorganized by Atatürk’s 1933 education reforms, reopening as the University of Istanbul after a major purge of the faculty. Sociologist Murat Ergin has traced in detail how the Kemalist government recruited dozens of displaced German academics in the natural and social sciences to head the new university departments, and how the knowledge produced by these “emigré” scholars contributed directly and indirectly to the historical, linguistic, and racial claims of Turkish nationalism.19 The Iranian Dār ul-funūn absorbed several other schools to become the University of Tehran in 1934. As in Turkey, the Iranian government hired a number of German-Jewish scholars, primarily specialists in psychology, medicine and engineering, to serve as professors and pedagogical advisors for the new university faculties.20 One of these men, Wilhelm (or William) Haas, played


20 Letter from German Legation in Tehran to German Foreign Ministry on the appointment of Wilhelm Haas, November 17, 1934; list of professoral candidates submitted by Ali Akbar Daftari to the German Foreign Ministry, March 5, 1935, Higher Education in Iran (Hochschulwesen und Studium im Iran), R64067; letter from German Legation in Tehran to German Foreign Ministry, August 24, 1935, Higher Education in Iran, R64068. Political Archive of the German Foreign Ministry (hereafter PAAA), Berlin.
such a foundational role in the local development of racial anthropology that the French
government mistook him for a Nazi agent sent to promote Aryan identity among Iranians.\textsuperscript{21}

In the Yishuv of Mandate Palestine, wholly new institutions had to be created, as opposed
to the reform of older ones; however, early developments in research infrastructure follow a
similar chronology. The Hebrew University of Jerusalem was formally opened at Mount Scopus
in 1925, but its growth in faculty and research was anemic until the 1930s, again spurred by the
arrival of scholars exiled from Germany, who constituted nearly all of the pioneers of Israeli
genetics.\textsuperscript{22} The Science Faculty was formed in 1935 and facilities for medical research became
available with the opening of Hadassah Hospital on Mount Scopus in 1939. While these Yishuv
institutions provided the foundations of the Israeli state’s research infrastructure, the Mount
Scopus medical campus had to be abandoned in 1948 as it became an exclave within Jordanian
territory. The first generation of Israeli medical researchers and geneticists at the Hebrew
University relocated their work to buildings rented throughout West Jerusalem. Meanwhile,
government hospitals such as Tel-Hashomer (a converted mandate-era barracks on the outskirts
of Tel Aviv) provided the other major site for genetic research until the late 1960s, when
specialized genetics departments were formed at the Hebrew University and Tel Aviv
University.

Of course, the ideological and infrastructural similarities between Israel, Turkey, and Iran
are not deterministic, and major domestic and regional fluctuations in the political economy of
each state have led to divergent trajectories in the development of human genetics specifically
and scientific research more generally. Furthermore, from the beginning of the Cold War to the

\textsuperscript{21} Nematollah Fazeli, \textit{Politics of Culture in Iran: Anthropology, Politics and Society in the Twentieth Century}

\textsuperscript{22} Nurit Kirsh, “Genetic Studies of Ethnic Communities in Israel: A Case of Values-Motivated Research Work,” \textit{Leo
late 1970s, each of these countries branded themselves as culturally Western nation-states, and their efforts to develop national scientific communities focused more on building professional collaborations with researchers in Europe and North America than on forging ties to one another. Regardless, Israeli, Turkish, and Iranian scientists had much in common and must be understood not only in terms of their aspirations to Western modernity but also in terms of their Middle Eastern working conditions. They worked on the same hereditary disorders and overlapping population categories, which formed the logical basis of a regional network. My comparative approach thus provides a framework for analyzing the research interests and practices of these geneticists not only in terms of national self-fashioning, but also in terms of their regional and global positionality.

*Arguments: Integrating the Middle East into a global history of science*

This dissertation advances three distinct but closely intertwined arguments. My first two claims center specifically on the Middle East as a geopolitical region, while the last reaches beyond the Middle East to intervene in global histories of science, considering the field of human genetics in particular and the international infrastructure of professional science in general.

First, I contribute to recent scholarship in Middle Eastern history that reveals the importance of European sciences of heredity to nationalist movements from the late nineteenth century onward. In addition to the well-established literature on the ethnic, linguistic, and religious dimensions of Turkish, Iranian, and Zionist nationalism, the past decade has seen a proliferation of work demonstrating how early twentieth-century Turkish, Iranian, and Zionist physicians, anthropologists, and historians adapted the concepts and methods of international
race science and promoted eugenic ideas for local political and social agendas.\textsuperscript{23} The literature on Turkish and Iranian race science has noted the lasting effects of racial discourse on contemporary society.\textsuperscript{24} However, in contrast to the Israeli case, these analyses have not been systematically extended to the post-World War II growth of human genetics in Turkey and Iran. Here, I demonstrate that internationally circulating biomedical discourses on population genetics consistently informed Middle Eastern states’ foundational concerns with ethnonational borders, group origins and autochthony, and historical and contemporary migration, intermarriage and religious conversion. Simultaneously, I trace the mutually constitutive relationship between the emergence of ethnic nationalism and the development of genetic research programs in all three countries across the twentieth century.

Second, I argue that Middle Eastern research subjects and scientific actors have played a substantial role in international research developments concerning human evolution and population genetics. While the literature mentioned above shows how European race science was localized and adapted into Middle Eastern contexts to serve particular national interests—namely, defining the characteristics of a nation-state’s population and meeting its medical needs—it does not explore the interests of the international scientific community in studying


Middle Eastern populations. Western scientists generally sought out data from the Middle East not as an end in itself, but rather as part of larger efforts to trace European population history or very ancient human migration. Yet Middle Eastern scientists had an immense degree of influence over how Western geneticists collected, used, and interpreted data from their countries, because the latter rarely possessed independent knowledge of local political and social history. In many cases, they therefore uncritically accepted and perpetuated the use of labels that connote ambiguous civic or social rather than purely biological identities (such as “Turks,” “Iranians” or “non-Ashkenazi” Jews), reflect nationalist identity manipulation (such as “Eti-Turks” for Alawites in Turkey), or are considered derogatory by the population in question (such as “gueber” or gabr for Zoroastrians). The influence of Middle Eastern geneticists in this regard is not merely symbolic; these labels were attached to nationalist-inflected historical narratives of migration, endogamy, or admixture that promoted certain populations as “model systems” to study universal mechanisms for the inheritance of congenital disorders or the reconstruction of human evolution. The work of Western scientists, in turn, has often reinforced categories and narratives originally produced in these particular contexts of ethnic nationalism.

By highlighting this circulation of knowledge about human genetics between West and Middle East, I build on Christopher Houston’s observation that postcolonial critiques of anthropology and race science have tended to be Eurocentric by framing the discipline’s history exclusively in terms of Western colonial power, thus overlooking the “internal colonialisms” of non-Western nationalist regimes. Anthropology and genetics constitute “circuits of knowledge that secure a sovereign subject status” for titular Middle Eastern nationalities (such as Turks, Iranians, and Israelis) over the marginalized ethnic, linguistic or religious minorities residing...
within their nation-state borders. Israelis as well as Turks and Iranians occupied a similar status as outsiders to the communities on whose blood they built their careers, reflecting the “internal colonialism” inherent to Zionism and Turkish and Iranian nationalism. The Israeli physicians and anthropologists involved in genetic research all had Ashkenazi backgrounds, while their research subjects were predominantly new Jewish immigrants from the Middle East and North Africa (i.e., Mizrahim), as well as Samaritans, Bedouins, and Armenians. Their counterparts in Turkey similarly identified as native Turkish speakers of the Sunni Muslim majority, although they chose to elide or downplay the significance of ethnolinguistic and religious diversity to their findings on the “Turkish” population. Meanwhile, genetic research in Iran overwhelmingly concentrated on Zoroastrians, Armenians, and Kurds, but members of these communities tended to serve only as consultants rather than primary investigators. Regardless, the elite professional identity of (Ashkenazi) Israeli, (Sunni) Turkish, and (Shi’ite Persian) Iranian scientists and physicians granted them the authority to manipulate their research subjects and to make claims about their biological and historical identities. Accordingly, scientists in these countries wielded a similar role as representatives of state hegemony investigating “exotic” and socioculturally marginalized populations in the service of national and international agendas of biomedical research.

From this examination of the power dynamics involved in human genetics research at the local level, I extrapolate to my final argument about the interaction of scientific communities at the national versus the international scale. Specifically, I explore the fluctuating positionalities occupied by Middle Eastern geneticists embedded within the networks of professional collaboration that tie together these layers of research infrastructure. In doing so, I adapt Cyrus

---

Schayegh’s notion of an “interstitial” social positionality occupied by practitioners and promoters of modern science in early twentieth-century Iran, which was “located at the overlap between a local society thrown open to foreign intervention and a world defined by the shifting hierarchies and-interactions of metropolitan and colonial social classes and states.”

I emphasized above how Turkish, Iranian, and Israel scientists, as representatives of a technocratic elite in their home countries, marshaled their national identities to speak on behalf of their fellow citizens, even when they did not belong to the specific minority communities under investigation. In this sense, Middle Eastern scientists behaved as “native informants” to their Western colleagues by defining the latter’s access to local populations and shaping their understanding of local history and culture. Yet even while Western geneticists depended heavily on the collaboration of these native informants for the collection of biological and historical material, they often marginalized their non-Western collaborators at the final stages of interpreting and publishing data, relegating these figures to a subordinate status as secondary authors, technicians, or field assistants. In the postwar era, this marginalization was reinforced by the emergence of international agencies, such as the World Health Organization and UNESCO, which financed a global biomedical infrastructure that unofficially enforced a particular scientific division of labor in which “first world” countries controlled the intellectual agenda and administrative management, while less developed “third world” nations only contributed “basic data” (i.e., blood samples collected from exotic populations). As a result, the collaborative

---


relationships between Western and non-Western scientists have been shaped by not only a professional, but also a geopolitical hierarchy of scientific prestige.

Historians of science now acknowledge that the modern natural sciences emerged as a process of mercantile, colonial and imperial interaction between the West and the rest of the world, dependent on the work of “go-betweens” and “intermediaries” who both physically and intellectually transported ideas, objects, and technologies across the globe. For example, Londa Schiebinger describes how European naturalists in the 18th-century New World relied heavily on the botanical knowledge of Native Americans and enslaved Africans, although these “local informants” were not always willing to divulge this knowledge to the people who had conquered and exploited them. The case of human genetics in the Cold War period of decolonization is even more fraught with the negotiation of asymmetrical power relations and the assertion of new professional and national identities. Jenny Bangham refers to the extensive use of local medical staff, i.e. “local experts” or “local assistants” to help collect blood from their own communities for the use of foreign scientists. Susan Lindee and Ricardo Ventura Santos call such “assistant” figures “indigenous or subject intellectuals.”

These terms do not quite capture the dynamics of sociopolitical power experienced by Middle Eastern scientists in their interstitial role between Western geneticists and doubly marginalized research subjects. As mediators of medical and anthropological knowledge, they

---

29 Simon Schaffer et al., eds., The Brokered World: Go-Betweens and Global Intelligence, 1770-1820 (Sagamore Beach, MA: Science History Publications, 2009), xxi–xxx.


were engaged not only in the intellectual work of Jewish, Turkish, and Persian ethnic nationalism, but also in what Greggor Mattson calls “nation-state science,” namely “the scientific work that helped imagine a national population fitted to state borders.”32 Scholars working on other non-Western contexts, ranging from Japan and India to Mexico and Brazil, have observed similar patterns wherein local scientists simultaneously strove to wrest narrative control of the nation’s biology from Western scientists and supported the transformation of that biology through nationalist social and demographic policies.33 Furthermore, these processes occurred not through an outright rejection of Western models of scientific practice, but through relationships of scientific collaboration. The non-Western scientific actors I consider here do not identify themselves as go-betweens, intermediaries, local assistants, or subject intellectuals; instead, they imagine themselves as collaborators in a global scientific enterprise. Generally, the notion of scholarly collaboration has positive connotations of sharing knowledge and the capacity for its production. However, in postwar and postcolonial politics, “collaborator” is also a loaded term, often posed as a derogatory opposite to heroic nationalists. The positive and negative valences of this label invite us to reconsider the broader sociopolitical implications of scientific collaboration: with what kinds of asymmetrical power structures do these scientists collaborate?

Here, I take the figure of the scientific collaborator in the Middle East as a provocation to scrutinize the relationship of genetic research to the promotion of national interests in the global scientific community and enforcement of different versions of colonialism at home. Using


scientific publications, personal correspondence, and oral histories, I investigate the collaborative interactions between Western scientists, their Middle Eastern counterparts, and the human subjects of genetic research. I highlight the basic tensions between Middle Eastern geneticists’ (conscious or unconscious) interests in consolidating the dominant national culture to which they belonged, and the quest of Western researchers, who set the agenda of the major international organizations, to locate unique, isolated populations that could yield more universal information about human evolutionary history. These tensions allow us to consider how national scientific communities, composed of technocratic elites, reshape or resist the standard practices and assumptions of the same international scientific community through which they claim local legitimacy.

Chapter overview

The structure of this study follows an overlapping chronology tied loosely to shifts in both the political geography of the Middle East and the dominant methodological approaches within human genetic research. The first two chapters cover approximately the same period, the years during and between the First and Second World Wars, and analyze the tensions between racial classification and national identity in Middle Eastern scientific discourse. Chapter One briefly addresses the political and ideological background of European colonialism and race science in the nineteenth century, then analyzes the initiation of Middle Eastern participation in anthropometric studies as physicians, anthropologists, and “native informants.” I argue that the racial discourses produced by European anthropometry research on Middle Eastern subjects significantly influenced the transformation of the Ottoman and Qajar empires into the nation-states of Turkey and Iran, particularly in the development of nationalist ideologies and the
orientation of academic and medical institutions. The use of such research to address the
question of Jewish racial identity similarly played a major role in debates concerning Zionism
and the state-building efforts of Jewish settlers in Palestine. Many of the population labels and
origin narratives still used in Middle Eastern genomic research can be traced back to this period.
Out of the three emerging states, the Turkish government provided the most direct support to
building up a local cadre of anthropologists and physicians, for the express purpose of countering
European narratives about Turks as "Mongoloids" and consolidating a uniform and
autochthonous Turkish identity.

Chapter Two shows the importance of Middle Eastern research subjects to the emergence
of the field of "sero-anthropology" (the application of ABO blood-type frequencies to racial
classification), first practiced by an Allied physician on the Balkan-Ottoman front of World War
I. During the 1930s, this method of population genetics was readily embraced by Turkish and
Zionist physicians and utilized as further scientific evidence to legitimate nationalist visions of
history and social organization. At the same time, American and British scientists such as
William C. Boyd and J. B. S. Haldane incorporated the data produced by Middle Eastern
researchers into an international debate about the relevance of sero-anthropology to the history of
human evolution and racial differentiation.

The third chapter focuses on the significance of the aforementioned nationalist scientific
practices in Turkey, Iran, and the new Israeli state to the development of population genetics
research specifically and the development of a postwar global scientific infrastructure more
generally. I analyze how various dynamics of power play out in international scientific
collaboration, arguing that scientists in so-called developing regions like the Middle East were
marginalized within the global scientific community in particular ways. On the other hand,
Turkish, Iranian, and Israeli scientists were not subalterns, especially vis-à-vis their research subjects, who were primarily ethnic or religious minorities subject to social and political discrimination. I show how the collaborative nature of genetic research, namely the circulation of ethnic labels and origin myths between Middle Eastern scientists, their research subjects, and their Western collaborators, ultimately reinforced nationalist categories.

Chapter Four considers the temporal coincidence of ethnically inflected political turmoil in Turkey, Israel, and Iran with the re-entry of local anthropologists into blood-group genetics and/or the emergence of explicit research programs in genetic anthropology. I show that these political and scientific changes belie an overall continuity in research practices in Turkey, where anthropologists continued to downplay the presence of ethnic minorities like Kurds, and in Israel, where Ashkenazi scientists continued to highlight ethnic differences in a fashion that privileged their own status. Meanwhile, in Iran, I argue that the influence of genetic anthropologists precipitated a shift in blood collection practices away from a strategy that resembles Turkey toward approaches resembling those of Israel. However, in all three cases, the collaborative research networks forming around genetic anthropology did not challenge the underlying nationalist narratives of population boundaries and origins.

The final chapter covers the shift to direct DNA sequencing with a particular focus on human biogeography and geneticists’ attempts to reconstruct ancient human migrations out of Africa. I incorporate a visual analysis of the phylogenetic trees and geographic maps used in publications involving Turkish, Iranian, and Israeli populations to show how these methods relate to nationalist practices of cartography in the Middle East. These trees and maps are not representations of “family trees” or actual human movement through time and space, but rather tools for conceptualizing the region’s physical territory as both a historical “crossroads” of
human migration and the birthplace of distinct gene sequences and civilizations, alternately blurring and sharpening the racial and geographic boundaries between Europe and Asia. The graphic rendering of genetic data into national genealogies, especially when juxtaposed alongside state borders, renders visual the local political stakes of the international research norms followed by Middle Eastern scientists.

Chapter 1: Seeking a Biological Identity: State Formation, Anthropometry, and Racial Classification

I cannot help drawing attention to certain scientific facts, usually wrongly interpreted, which have a close connection with the question of races. I wish to speak of craniological science... the formal differences in the human skull [are] of no value except for the classification of races. While we are as yet unable to agree on the rational conditions of a natural classification even of mushrooms, it would be premature and arbitrary to divide humanity into two or four great classes, or to say that there are European heads and Asiatic heads in the moral sense, and to suppose that the Asiatic head is much inferior to the European in this respect.34

These lines, addressed by Ottoman physician, politician, and philosopher Riza Tevfik to the Universal Races Congress in London in July 1911, convey the common theme underlying the Middle Eastern reception, and later practice, of European-developed race science at the beginning of the 20th century. Namely, many intellectuals of the late Ottoman and Qajar empires, particularly those who attended the Congress, embraced science both in its broader promise of objective, rational discourse and its specific subfields and methodologies, such as craniology and racial classification. However, they protested, their European and American counterparts habitually “wrongly interpreted” empirical data, particularly when it came to the study of human physical differences, which were constantly imbued with moral (i.e., intellectual and

psychological) characteristics. By doing so, Riza Tevfik argued, many works produced by Western physicians, zoologists, and anthropologists on human racial classification did not satisfy even the standards of scientific rigor applied to the lowly mushroom. A truly objective race science, agreed many delegates from across the Middle East, Asia, and Africa, had the potential to ameliorate the various racial and national antagonisms the Congress had explicitly set out to resolve—the rifts between East and West, Jew and Gentile, civilized and primitive. On the other hand, they argued, this could only be achieved if Western scholars would set aside their colonial prejudices; acknowledge that their ideas of racial superiority and inferiority, “like everything else, [are] relative;” and avoid “dragging in certain kinds of sociological and political facts which have no place in a province that is ruled by a biological principle.”

Since its beginnings in the 18th century, the race science to which Riza Tevfik appealed in 1911 has never been a single academic discipline but rather an assemblage of concepts, theories and methodologies concerned with the classification and evolution of human diversity. Similarly, anthropometry, the primary focus of this chapter, is not a discipline but a methodology, which involves the recording and comparison of sets of various physical measurements of the human body. These measurements range from body weight and height to quite small dimensions of the face and skull (Riza Tevfik’s “craniological science”), features which the measurers understood to be determined partially by environment and partially by inheritance. In the absence of molecular techniques, let alone a solid understanding of the molecular basis of heredity, the phenotypic variations detected by anthropometry provided an approximation, however imperfect, of otherwise undetectable genetic difference. In this sense, anthropometry is the original methodology of human genetics.

---

In its heyday (circa 1880-1930), anthropometry was utilized by scholars of diverse educational backgrounds towards diverse ideological ends. Accordingly, the first “human geneticists” of the Middle East earned degrees and subsequently held teaching posts not only in expected fields like medicine or anthropology, but also history and sociology. While this phenomenon could be dismissed as a mere reflection of the fact that the paths to academic professionalization, as well as disciplinary boundaries within the academy, used to be much more flexible than they are now, it is more fruitful to recognize that during this period, race science and hereditary concepts generally had pervaded all fields of academic inquiry. For example, many historians (Western and non-Western alike) referenced events of racial mixture and migration as explanations for major historical change.\(^{36}\) Anthropometry, as the methodological arbiter of racial identity, accordingly became a precursor to (re-)writing the history of the nation, a project of immense political and social importance to all new states.

In this chapter, I trace how the intersectional and contested meanings of race and nation shaped anthropometric studies of Middle Eastern groups according to particular patterns which, in turn, have informed all later genetics studies, even as methodologies changed over time. While these race/nation categories were often blurred or conflated, \textit{race} was primarily invoked in relation to an international conceptual space, wherein states could be hierarchically ordered according to the racial classification of their inhabitants. The international popularity of eugenics movements, which professed to improve the quality of humanity as a whole, enhanced the universalist associations of the discourse on race. \textit{Nation}, meanwhile, was treated as a more narrowly defined subgroup of race around which political sovereignty should be built. The ideology involved in the creation of Middle Eastern nation-states entailed a homogenizing force

that strove to break down diverse local identities in favor of a single population unified by language, religion, and above all a shared genealogical history. Anthropometry provided an epistemological imaginary for the study of human difference, which could be amplified or minimized at will by the researchers’ choices of subject populations and presentation of data. The performance of anthropometric research in the context of fervent state nationalism therefore structures the patterns by which entire categories of people were invented (the “titular” national population, e.g., Turks) or erased (competing or subnational populations, e.g., Kurds and Arabs in Turkey) through descriptions and calculations of average physical traits.

Research on the Jewish populations in the Middle East by Western scholars must be considered within the dialectic of antisemitism and Zionism, both of which emphasized an essential biological difference between Jews and non-Jews, versus assimilationism, which denied such difference. Middle Eastern Jewish populations were often compared with Ashkenazi Jews residing in Europe and North America to argue for or against the racial unity of the Jewish people. While the Jewish anthropometrists who conducted these studies always took a defensive posture against antisemitic scholars, their conclusions on the racial status of the Jews can generally be correlated with their acceptance or rejection of Zionism—specifically, the creation of a Jewish nation-state—as a solution to antisemitic politics. Within the context of the New Yishuv, the Zionist settler-colonist community in Palestine during the late Ottoman and British Mandate periods, the ideological stakes of Jewish ethnocultural diversity were different. The Ashkenazi immigrants to Palestine, as they established the political and social institutions that would form the infrastructure of the future Israeli state, had to reconcile their claims of Jewish racial unity with their de facto creation of a society that systematically disadvantaged non-
Ashkenazim, especially “Arab Jews” like the Yemenites. The definition of the Jewish “race” was accordingly transformed to justify the primacy of the Ashkenazim within the Jewish nation.

Similarly, Turkish scholars in the early Republican period recorded the physical characteristics of the national population as part of a reactionary project against previous Western characterizations of Turks as Asian migrants to Anatolia who were racially inferior to Europeans. Anthropometry was mobilized with the political goal of establishing Turks as the autochthonous inhabitants within the new Republic’s territorial boundaries, and as inherently equal to Europeans, to defend the sovereignty of the Turkish state. Simultaneously, state-employed scholars worked to redefine peoples with competing nationalist movements within Turkey, especially the Kurds, as members of the Turkish race who needed to be reacquainted with their true Turkish culture, which was imposed through the national education system and stringent regulations on public linguistic and cultural expression.

Because of a longer tradition of European linguistic scholarship that favored the ancestral relationship between Iranians and Europeans, the case of Iran is somewhat different. In Pahlavi Iran, local elites assisted and participated in anthropometric studies, but the leading roles were left to European and American anthropologists. While the Pahlavi regime was indeed preoccupied with identifying Iran as an “Aryan” nation, it could rely on the previous and ongoing work of certain Western scholars to support these claims in the international sphere. A more significant problem was the imposition of this identity on the diverse population within Iran, meaning the training of native scientists and the performance of new research took a backseat to social projects like forming a centralized national education system and forcing the sedentarization of nomadic populations.
Colonialism, nationalism, and European race science

The political discourses of colonialism and nationalism have a mutually constitutive relationship with the development of human taxonomy and racial classification in 18th-20th century European science. Thanks to the emergence of a reflexive, self-critical anthropological literature in the mid-1960s, it is now widely accepted that the history of physical anthropology as a discipline is fundamentally intertwined with the governance of European colonial empires over vast stretches of Asia, Africa, Oceania and the Americas.\(^{37}\) However, as anthropologist Christopher Houston has pointed out, postcolonial critiques of anthropology have largely framed this history in terms of Western colonial power and overlooked the practices of anthropological research developed by Turkish and Iranian “nationalist regimes that had their own long and evolving pre-history of colonial governance over varied language-speakers (the Ottoman and Qajar empires, for example).”\(^{38}\)

The development of anthropometry, and thus human genetics, in the 20th-century Middle East accordingly reflects the concerns of nation-state ideologies that simultaneously agitate against external (Western) colonialism while supporting and justifying internal colonialism, i.e., the establishment of a hegemonic national identity.

These dual concerns suggest that, rather than a simple genealogy of French, British, and German Orientalist scholarship gaining currency within local nationalist movements, a stronger parallel can be drawn between the new nationalist regimes of the Middle East and 19th-century Sweden, the birthplace of both human taxonomy and the principal calculation of racial anthropometry, the cephalic index. Sociologist Gregor Mattson has convincingly argued that the political transition from a 17th-century multiethnic Swedish empire to a 19th-century peninsular


\(^{38}\) Houston, “An Anti-History of a Non-People,” 30.
nation-state with a “homogenous” racial identity was achieved, in fact, by the presence—not the absence—of non-Swedish minorities within the state, especially the “Lapps” (i.e., Saami). Carl Linnaeus, the 18th-century Swedish botanist and physician who developed the system of binomial nomenclature for biological taxonomy, suggested a five-part racial division of *Homo sapiens*: white, black, yellow, red, and “monstrosities.” He placed the Lapps into this last category, definitively excluding this “degenerate” people from the white European race to which, of course, the Swedes belonged. Yet, when Linnaeus met with scientists on the continent, he enjoyed wearing an ostentatious Lapp costume to highlight his identity as an exotic Swede.

Linnaeus’s students, the German Johann Friedrich Blumenbach and the Swede Anders Retzius, extended and refined their mentor’s attempt at human racial classification with an emphasis on comparative skull morphology. In the early 1840s, Retzius created the iconic cephalic index measurement (the ratio of the maximum width of the head, or skull, divided by its maximum length) to compare the Swedes to the two largest minority groups in Sweden, Lapps and Finns. Subsequently, through the 1850s, he produced cephalic index averages for nearly all the peoples of Europe.

While these core innovations of race science emerged in the context of a homogenizing Swedish nation-state, their acceptance and adaptation by scholars working in the vast overseas colonies of European empires enabled the creation of comprehensive theories of human evolution and racial differentiation. The new methodological tools of anthropometry were brought to bear on existing human classification schemes derived from philology, as in the

---


40 Ibid., 335.

transformation of the concept of an Indo-European or Aryan language family into a racial category. The colonial domination of India, of course, played a key role in this invention of Aryan racialism. During the 1860s, for example, the German-born Oxford philologist Friedrich Max Müller emphasized the possibility of shared biological as well as linguistic ancestry between Europeans and Indians, referring to them as “brethren” who both belonged to an “Aryan race.” Müller intended his rhetoric of racial kinship to critique the violence of British colonialism in India as a sort of internecine struggle. However, Müller’s original intentions were quickly swept away as the Aryan race concept gained popularity, and by the end of the 19th century it had mutated into an ideological construct in service of white racial supremacy that justified European colonial domination of the rest of the world.

Of course, even as the “Aryan race” came to refer to the civilized white race standing at the top of any colonial hierarchy over the conquered “colored” races, its scientific meaning was embroiled in nationalist chauvinism within Europe. Among the European scientists who believed in the existence of a primordial Aryan race, no consensus was ever reached on any characteristic of its hypothesized members. Unsurprisingly, the most heated debates centered on the Aryans’ geographic origin, direction of migration, and physical traits, from which claims about the Aryans’ representative living descendants could be made. This is where anthropometry, and particularly Retzius’s cephalic index, found its most contentious application. Certain ranges of cephalic index measurements, labeled at one extreme “dolichocephalic” (long-headed) and at the other “brachycephalic” (broad-headed) were assigned to racial subtypes, which in turn became strongly associated with specific regions and nationalities (i.e., the dolichocephalic “Nordics” in Germany and Scandinavia, and the brachycephalic “Alpine” French). This racial subdivision of

---

Europeans was projected into the prehistoric past through the excavation and measurement of ancient human remains; the presence of dolichocephalic or brachycephalic skulls at a given geographic location indicated the presence of a racial subtype, which was subsequently incorporated into nationally-inflected historical narratives of origin, migration, and conquest. Thus, although the term “Aryan” comprised a broader Indo-European racial category, numerous competing theories emerged as to whether the Aryans had originated as a brachycephalic people in Asia and migrated westward to civilize Europe, or in Scandinavia or the Danube Valley as a dolichocephalic people that migrated south to populate the world, etc. Depending on one’s preferred hypothesis, either the Germans, the French, the British, or even North Indians or Iranians, could proudly claim to represent the biological and cultural traits of the original Aryans.

Although in professional settings these debates were always expressed in a scientific vocabulary, many race scientists readily acknowledged that the true stakes were moral and political, supporting or undermining various European colonial endeavors or nationalist movements. Whenever “objective” anthropometric data was collected, it was marshaled in favor of one or another position on Aryanism, and its value was understood to be ultimately allegorical. The Ottoman and Qajar imperial subjects who were sent to study in Europe in ever-increasing numbers during the 19th and early 20th centuries easily recognized the political significance of both Aryanist discourse and the methodologies of racial classification. As described in my introduction, Middle Eastern imperial governments funded these students to learn medicine, engineering, and other practical forms of knowledge relevant to the military reforms that sought to stave off the encroaching forces of European colonialism. As race science reached its European zenith in the 1880s and 90s, the European-educated Ottoman and Persian intellectual elite began to adapt and instrumentalize specific threads of Aryanist discourse and
race-science narratives in service of emerging forms of Turkish and Iranian nationalism. Meanwhile, antisemitic strains of thought within race science prompted the formulation of Zionism by European Jewish intellectuals, who felt forced to “face the realities of [Jewish] biological existence.” This mobilization of the vocabulary and methodology of anthropometric race science for Middle Eastern and Jewish nationalist causes would intensify dramatically at the turn of the 20th century, namely in the decade preceding the First World War.

The new Middle Eastern states that formed in the wake of the First World War accordingly held a range of relationships to European colonialism, which co-produced the scientific infrastructure and research agenda. Zionism in Palestine was a form of nationalism explicitly based on colonialism. Even before the establishment of the Israeli state, the Jewish settler population of the Yishuv strove to create new national institutions, such as universities and hospitals, which at once served to meet the settlers’ practical needs and to reinforce ideological sensibilities about Jewish self-sufficiency, indigeneity and homogeneity within Palestine. The nationalism of the Turkish Republic, molded in response to the European dismemberment of the Ottoman Empire and several years of war to maintain an independent Turkish state in Anatolia and Eastern Thrace, was strongly opposed to European imperialism. The Kemalist government quickly set about reforming and creating new state institutions, as well as directly funding race science, to support the Republic’s territorial claims and attempts to socially and culturally homogenize the population. Finally, the Iranian nationalism endorsed by Reza Shah had a generally anti-colonial bent, but anthropometric and medical research in Iran


was substantially dependent on the initiative and financial resources of foreign scholars with access to a semi-colonial infrastructure, such as the Anglo-Iranian Oil Company in the southwestern provinces.

Zionism and constructions of the Jewish race

In 1916, in the midst of the First World War, Professor Louis D. Covitt of Clark University set out to write a review of anthropological studies on the Jews, choosing to highlight only “a few general facts” on the basis of which the reader could “pass the verdict whether or not the Jews are to be considered as a race. The main fault with the majority of theories lies in their one-sided attitude of partiality. The Jew is not considered collectively as an integral part of an exceedingly complicated organism which we call mankind, but he is measured generally through the horoscope of one's special line of interest.” Covitt was referring explicitly to “antisemites” and “philosemites,” but his complaint easily applies to the political division between Zionists and assimilationists among Jewish race scientists. Namely, Zionists, such as the Austrian Ignaz Zollschan and the German Felix Theilhaber, tended to use anthropometric studies to argue that Jews shared specific inherited traits wherever they lived, regardless of variations between communities, and therefore did constitute a race. Assimilationists, such as the Russian-American Maurice Fishberg, relied on virtually the same data to argue the opposite: Jews were not truly a racial entity because Jewish communities more closely resembled their non-Jewish neighbors rather than their co-religionists in far-flung locales. This data was, effectively, incidental to the epistemic authority of the methodology. By referencing Jewish biology, anthropometric

researchers argued for their preferred course of political action: should Jews seek further integration in the Diaspora, or should they establish a nation-state of their own?

This Jewish self-study through anthropometry is distinct from that of the Turks and Iranians in that it involved a primarily transnational, rather than primarily internal, colonial encounter. In the 19th century, Jewish race science was initially approached as a problem internal to Europe and focused predominantly on European Jewish, i.e. Ashkenazi, populations. Only later did Ashkenazi scientists, even those with Zionist proclivities, take an increasing interest in the large Jewish communities spread across the Middle East and North Africa. Middle Eastern Jews’ ties to Europe were generally mediated by assimilationist organizations, particularly the Francophone Alliance Israélite Universelle, whose educational and social services reinforced local Jewish identification with colonial powers rather than Jewish nationalism. Meanwhile, the chiefly Anglo- and Germanophone ideological core of the Zionist movement paid far more attention to the problems of Eastern European, rather than Middle Eastern, Jewish communities. These patterns reflect both the initial unpopularity of Zionism in Europe and, especially, the lack of a solid Zionist commitment to Palestine as the Jewish homeland until the turn of the 20th century.46 World War I represents a significant turning point. The entry of the Ottoman Empire into the war and its expected defeat, in the eyes of Zionist skeptics, made the possibility of Jewish settlement in Palestine seem much more viable. Meanwhile, wartime military service brought some unconvinced Zionists to the Middle East for the first time, bringing them into contact with both native Jewish communities and the pioneers of the Yishuv. A year after

46 While certain factions within the Zionist movement uncompromisingly focused on Palestine from the outset, others took a pragmatic stance that a Jewish state should be formed wherever possible. For example, in the 1880s-90s, Argentina was considered a suitable destination due to its open immigration policies. Between 1903-1905, the British Colonial Secretary offered the Zionist Congress a portion of British East Africa for Jewish settlement (the “Uganda Program”); after a delegation of investigators reported back negatively, the offer was declined.
Covitt’s review was published, in November 1917, the British government indicated its support for a Jewish homeland in Palestine through the Balfour Declaration (even as other British governmental representatives made contradictory arrangements for the post-Ottoman Middle East with the Sharif of Mecca and French diplomats).

The race science literature on the Jews as a collective body is simply too vast to deal with here; furthermore, many excellent works have already analyzed the subject of the Jew in European racial anthropology, the reactionary project of Jewish anthropological self-study, and the nuanced relationship between Jewish scholars’ scientific work and their political convictions, covering the period between 1850 and the Second World War.⁴⁷ Here, I focus on anthropological research carried out within the context of the New Yishuv in Palestine between 1900 and WWII, highlighting three local groups that presented a particular challenge to a European Zionist ideology of Jewish racial unity: the “Old Yishuv” of predominantly Sephardic Jews in the Levant; the early wave of Yemenite Jewish immigrants to Palestine (1882-1914); and the Samaritans of Nablus. The colonial encounter between Ashkenazi Zionist settlers and these Arabic-speaking, but not quite “Arab,” groups presaged the ethno-religious patterns of both socioeconomic discrimination and scientific research in the future Israeli state. The first of these trends was a gradual reversal of the 19th-century romanticization of Sephardic and/or Middle Eastern Jewish communities as more authentic representatives (than Ashkenazim) of an original, biblical Jewish racial type. The second was the instrumentalization of the Samaritan community and its historical narratives in service to Zionist scientific projects and, in turn, political aims.

The vast physical and cultural diversity of Jewish communities within Europe alone plagued all attempts by European race scientists to identify a universally applicable physical description of Jews as a single race. A persistent dichotomy was drawn between two main Jewish “racial types,” the Yiddish-speaking Ashkenazim of Northern and Eastern Europe and the Ladino-speaking Sephardim, the Iberian Jews who had been dispersed since 1492 across the Mediterranean Basin. As historian John Efron recounts in detail, during the 19th century, race science literature by Jews and non-Jews alike regularly assigned all the negative traits of Jewish mental and physical degeneracy propounded by antisemitism to the impoverished and sickly Ashkenazi communities of Eastern Europe. Meanwhile, because the proud and beautiful Sephardim were believed to have maintained a greater degree of racial purity during the period of exile, they “were conflated in the European mind with ancient Israelites,” representing a direct link not only to the golden age of convivencia in Medieval Iberia, but also to the glorious days of biblical Jewish statehood in Palestine. Despite the popularity of this narrative, almost no effort was made to pursue anthropometric studies on Sephardim or Middle Eastern Jewish communities until the decade prior to World War I, when the Russian-Jewish physician Samuel Weissenberg took it upon himself to identify the closest living descendants of the ancient Israelites, i.e., those Jews who embodied the Jewish “Urtypus,” or original racial type.

Weissenberg first rose to prominence in anthropological circles in the 1890s with his ethnographic work on the Jews of southern Russia. Overall, he was ambivalent about the political ambitions of Zionism, but like many who took the movement more seriously, Weissenberg believed that the Jewish people constituted not simply a “community of faith” but a

---

national entity, with distinct cultural, social, and biological properties. In particular, he was fascinated with the prospect of rediscovering the original, authentic Jew of biblical Palestine. In 1908, Weissenberg traveled to Palestine with financial support from the Rudolf Virchow Foundation, hoping to find “not only Jews from all over the world… but also the remains of the autochthonous population.” In the course of this trip, he conducted the most comprehensive anthropometric survey to that date of Jewish communities outside of Europe. Within Palestine, he recorded data on Jews originating from Yemen, Central Asia, and Persia, alongside members of the Old Yishuv; he also briefly visited Syria to study a sample of Damascus and Aleppo Jews.

In his analyses of most of these groups, Weissenberg interpreted their significant variations in cephalic index in terms of variable admixture between local indigenes with an originally pure Jewish race, which he assumed to be uniformly dolichocephalic and brunet, with “Semitic” facial features. For example, with regard to the Syrian Jews, he was seemingly unfazed by the need to invent different admixture narratives to explain the striking physical differences between the Aleppo and Damascus communities. However, he found the Yemenite Jews to be an enigma. On the basis of his own data, derived from 92 Yemenites residing in Jerusalem and Jaffa, he declared that he could not resolve the standing racial question on whether the dark-complexioned, dolichocephalic Yemenite community descended from the original Israelites, or were southern Arabians who had converted to Judaism. He could only conclude with certainty that “physically speaking, no tie of kinship exists” between European and


Yemenite Jews;\textsuperscript{53} that is, the two groups differed significantly on every anthropometric index, which initially inclined him toward the position that the Yemenites were indeed Arab converts. Only after he left the Yishuv, when he traveled to the Caucasus Mountains to study the Jewish communities there, did Weissenberg decide for certain that “it was the isolated Yemenites who had maintained their racial purity, in contrast to the Jews of the Caucasus,” who themselves might only be converted Caucasian indigenes.\textsuperscript{54} For Weissenberg himself, the Yemenites were thus redeemed as authentic descendants of the ancient Israelites. However, the fact that he was not able to reach this conclusion while confronted with the Yemenites in the context of the Yishuv foreshadows the negative attitudes that the Ashkenazi settlers in Palestine, whose numbers grew dramatically in the interwar period, would come to hold toward Arab Jews.

Weissenberg represented a consensus among Jewish race scientists that Sephardic Jews, rather than Ashkenazim, better approximated the Jewish \textit{Urtypus}. The British-Jewish physician and botanist Redcliffe Nathan Salaman not only rejected this consensus, to the point of demonstrating an explicit Ashkenazi chauvinism, but also took an unorthodox approach to Jewish race science. Salaman, an affluent gentleman-scholar with close ties to Cambridge but no formal position there, devoted much of his life from 1906 onward to the genetic study of the potato, based on the hereditary principles derived from the 1900 rediscovery of Gregor Mendel’s work on pea plants. Meanwhile, he developed a strong side interest in Jewish anthropology, due in no small part to his wife’s deep involvement in Zionist circles of the Jewish community and his close relationship with his brother-in-law, the Cambridge anthropologist Charles Seligman. Rather than relying on the standard anthropometric measurements like the cephalic index,

\textsuperscript{53} “Aus obiger Analyse darf ohne Zögerung der Schluss gezogen werden, daß zwischen den europäischen Juden und ihren jemenitischen Glaubensbrüdern in physischer Beziehung kein Verwandtschaftsband existiert.” Ibid., 321.

\textsuperscript{54} Efron, \textit{Defenders of the Race}, 116.
Salaman brought his enthusiasm for Mendelian genetics to bear upon the question of the “peculiar facial expression” which, as even Weissenberg agreed, was shared by all types of Jews: “whether blonde or dark, tall or short, long headed or round headed, the Jew is a Jew because he looks like one.” In 1911, Salaman suggested this facial expression was the product of a single recessive gene, inherited according to the same pattern as purple-colored flowers in pea plants: “In this way one would be able to explain on the one hand the practically constant presence of the Jewish facial character, and on the other, the wide divergence of head characters and the rest, which is found throughout the Jewish communities of Europe.” In making his case for a recessive inheritance pattern, Salaman ironically had to acknowledge the existence of a great many Jews who did not, in fact, look Jewish. Among the Ashkenazim, he labeled such individuals “pseudo-Gentiles” and attributed their divergent appearance not to admixture with non-Jewish Europeans—which he stubbornly insisted was “absolutely minimal”—but rather to the genetic variation present within the ancient, pre-Diaspora Jewish race. Meanwhile, the Sephardim had “absorbed in no small quantity both Moorish and Iberian blood,” explaining why they generally resembled Southern Europeans but occasionally produced Ashkenazi-looking individuals. As his crowning evidence, Salaman turned to “exotic” Jewish populations such as those of colonial India:

The Beni-Israel of India have been settled in India at any rate since 1400 of the present era, but traditionally from preexilic times. They are essentially a black people quite unlike the European Jew. They have always been looked down on by their white brethren in India and they have lived as the natives amongst whom they dwell, and with whom there is little doubt they have freely mixed. In the description of them given by [Maurice] Fischberg, he agrees that they are non-

56 Ibid., 290.
57 Ibid., 275–6.
Jewish looking and dark skinned; he remarks, however, that every now and again a practically ordinary white skinned individual with Jewish features occurs amongst them. If, as is probable, the Jewish facial features are recessive to the native, then it is only what one should expect to find that the great majority of this isolated community are native-looking and that an occasional recessive should crop out from the mating of two hybrids.  

Salaman’s outlandish hypothesis quickly met with well-deserved criticism in both scientific and Jewish community publications, but he was not deterred. In fact, the convictions of Jewish racial unity and especially Ashkenazi purity that he expressed in his articles on the heredity of the Jewish face seem to have only intensified in the subsequent years, alongside his increasing sympathy for Zionism and his volunteer service with the Jewish Legion in the British military during WWI. He served as a medical officer for the 39th Battalion of the Royal Fusiliers (unofficially, the 2nd Judean Battalion), deployed to Egypt and Palestine in April 1918. In Salaman’s letters home to his wife, he offered nothing but effusive praise for the Ashkenazi settlers who joined the volunteer regiment from the Zionist colonies of Palestine. In contrast, he had only contempt for the Sephardim (called “Halukah Jews” by Salaman) of the Old Yishuv and the Yemenite Jewish immigrants, and even sought out historical evidence to satisfy himself that these were less than “real Jews:”

The Jaffa colonists outclass the Halukah Jerusalemites as a shire stallion would a worn-out coster’s pony. The Yemenites are [for the most part] miserable undersized [and rather poor-] mean-spirited NATIVES. They are NOT [racially] Jews. They are black long-headed degraded Arabs. Last Saturday I worked with J. M. [in the library] and we got hold of every authority we could [and from the historical evidence,] it is at once clear that they have but a trace of Jewish blood in them, they have but little [though they probably have rather] more than the Falashas. The real Jew is the European Ashkenazi and I back him against all comers.

---

58 Ibid., 286.
60 Letter to Nina Davis Salaman from Cairo, July 19, 1918. Redcliffe Nathan Salaman Papers, MS Add.8171, Box 4, Department of Manuscripts and University Archives, Cambridge University Library. Emphasis original. Interpolations show Salaman’s additions to the original letter for publication in an edited compilation: Redcliffe
Describing his subsequent visits to the Jewish colonies in Rehovot and the Upper Galilee, Salaman expressed his relief that “white Jews” did not intermarry with the Yemenites, which ostensibly would have horrified his racial sensibilities. On the other hand, he complained in a vein of colonialist paternalism that the Yemenites, who “dressed and behaved as the crudest of Arabs [were] to [his] mind not being properly looked after. They are not being exploited, but they are not being Europeanised and it is essential that they should be made into Westerns and not left as degraded Arabic Jews.”

If Salaman’s genetic theories were not widely accepted, his blatant prejudices reflected the views of many Ashkenazi medical personnel who settled in Palestine in the wake of WWI. Sociologist Dafna Hirsch has thoroughly traced how the discourses of hygiene produced within the interwar New Yishuv were expressed in terms of a “civilizing mission” that sought to purge all Jewish immigrants from unhealthy Diaspora habits, but particularly targeted non-Ashkenazi Jews for criticism. While any failure of Ashkenazi settlers to live up to proper Western standards of hygiene was generally attributed to poverty or simple ignorance of modern medical knowledge, with regard to non-Ashkenazi Jewish groups like the Yemenites or the Old Yishuv Sephardim, such a failure (or often, the mere perception of such a failure) was treated as an inevitable consequence of their essentialized primitiveness. The sanitary practices of these

---

Nathan Salaman, *Palestine Reclaimed: Letters from a Jewish Officer in Palestine* (London: G. Routledge & Sons Ltd., 1920), 28. Further citations of Salaman’s wartime correspondence to his wife can also be found in this volume.

61 Letter to Nina Davis Salaman from the field [Surafend], August 12, 1918, Redcliffe Nathan Salaman Papers, MS Add.8171, Box 4, Department of Manuscripts and University Archives, Cambridge University Library.

62 Letter to Nina Davis Salaman from Ludd, February 14, 1919, Redcliffe Nathan Salaman Papers, MS Add.8171, Box 4, Department of Manuscripts and University Archives, Cambridge University Library.

groups, especially in relation to childcare, drew as much contempt from the Ashkenazi-dominated medical institutions as did the native Palestinian Arabs.64

On the other hand, many of these medical professionals also espoused the virtues of positive eugenics, through public lectures and popular periodicals, as central to the resurrection of a healthy Jewish nation. During the 1930s, these eugenic discourses transformed the negative associations of racial mixing in the Diaspora (i.e., the dilution of Jewish racial purity by intermarriage with non-Jews) into positive ones in the Yishuv context, strongly encouraging Jews of different ethnic origins to intermarry. This process of mizug galuyot (blending the exiles) would be crucial not only to help immigrants assimilate into a new Hebrew national culture, but also reinvigorate the Jewish race as a whole and reverse its physical degeneration.65 Thus, even while the Ashkenazi settlers constructed Middle Eastern Jews into racialized Others, many Zionist ideologues clung to the hope that these cultural and biological differences between Jews would quickly be erased within one or two generations.

While these eugenic ideals were mostly promoted through the language of medicine and hygiene, the emphasis on the shared Jewishness of all immigrants in the face of their cultural or biological differences also appeared in ethnographic work on the non-European Jewish settlers, which remained underdeveloped in the Mandate period. For example, the Hebrew University’s first trained anthropologist, the German-Jewish Erich Brauer, wrote the first comprehensive ethnography of the Yemenite Jews of Jerusalem in 1934, which included a chapter on anthropometry. Brauer only discussed Samuel Weissenberg’s decades-old data, rather than

---


contributing any new measurements, but his conclusions on this material reflect different concerns. He expressed a distinct ambivalence toward Weissenberg’s concept of race as a primarily biological category, emphasizing instead the intangible aspects of Yemenite membership in a broader Jewish racial collective:

This much is certain: dolichocephaly can be detected also among the South Arabians, and unquestionably the Yemenite Jews have taken up a lot of foreign blood. Still, it seems a mistake to call them Judaized Arabs. A large portion of proselytes was later certainly absorbed by Islam, and only the groups that possessed much Jewish blood are preserved. In any case, the Yemenite Jews today constitute a tribe that differs significantly from the South Arabians. Race is not only defined by the skull and body shape, [but also] includes, above all, inner connectedness and a will. Both are highly developed in the Yemenite Jews, and we will see that the Yemeni has created his own way of life amid the strictly-structured Arab environment.66

In Brauer’s view, the troublesome question of whether the Yemenites and other Jews share a biological (i.e., racial) history is of secondary importance to their “inner connectedness” as a single Jewish nation. Nonetheless, the fact that this paragraph concludes an entire chapter dealing with the racial classification of the Yemenites reflects the fundamental tensions between race, nation, and culture that permeated Zionist academic and popular writing during the Mandate period. The Zionist vision of the Jewish state, so eloquently framed by Theodor Herzl in 1896 as “a rampart of Europe against Asia, an outpost of civilization as opposed to barbarism,”67 was predicated on the Jewish assumption of the European role in its colonization


of Palestine. The fact that, to the Ashkenazi eye, the Old Yishuv Sephardim and Yemenite Jews were indistinguishable from the Arab natives profoundly complicated this presumed dichotomy—hence, the conflicting desires expressed by Salaman and Brauer to racially distance Ashkenazim from non-Ashkenazim, while simultaneously purging the latter of “Arabness” and absorbing them into a new, Ashkenazi-dominated Jewish national culture.

At the margins of the debate surrounding Jewish racial mixture and national revival in Palestine stood the Samaritans of Nablus, a sect claiming descent from the ancient Israelite tribes of Ephraim and Menashe, and allegedly preserving their original religious practices. By the turn of the 20th century, the number of Samaritans had dwindled to approximately 150, and their claims of longstanding endogamy and inbreeding would lead many scholars to assume the immanent extinction of the Samaritan community. The Samaritans’ status as a local curiosity drew the attention of men like Henry Minor Huxley, a young Harvard anthropologist, who traveled to the Levant between January 1900 and June 1901. He first arrived in Syria with an archaeological expedition jointly funded by the Peabody Museum and the American Museum of Natural History; as the specialist in physical anthropology, he stayed behind after the conclusion of the archaeological field season to collect anthropometric measurements and ethnographic data of 11 Levantine populations (categorized variously by geography, religion or language).68 In February 1901, Huxley traveled to Nablus to measure the Samaritan community, where he remarked on the tense social relations that seemed to preserve Samaritan endogamy:

Trustworthy evidence points to the fact that in modern times there has been but little if any intermarrying with the other peoples of Syria. The Samaritans themselves claim the perfect purity of their stock. Only as a last resort would they seek wives outside their own sect; and in this case they would naturally wish to marry among the people of the most closely allied religion, the Jewish. The Jews

hate and despise the Samaritans with the greatest bitterness, and would do all in their power to prevent marriages between the two sects. Syrian Christians and Moslems would be equally averse to intermarrying with the Samaritans, both on account of their natural antipathy to this sect, and on account of the hardships which women must endure according to the rules of the Samaritan religion. These two factors, the natural inclination of the Samaritans to marry strictly among themselves, and the difficulty of forming marriages with other sects of Syria, would combine to preserve the purity of the stock, and at the same time to promote degeneracy by close interbreeding.  

Accepting the narrative of total endogamy, Huxley compared the Samaritans’ physical characteristics not only to his own self-collected data on local populations, but also to published data on Ashkenazi Jews. On the basis of cephalic index measurements, and the range of hair and eye colors within the small community, Huxley concluded that:

The general type of physiognomy of the Samaritans is distinctly Jewish, the nose markedly so. […] The cephalic index, much lower than that of the modern Jews, may be accounted for by a former direct influence of the Semitic nomads, now represented by the Bedouins, whose cephalic index, according to measurements of 114 males, is 76.3. The Samaritans have thus preserved the ancient type in its purity; and they are to-day the sole, though degenerate, representatives of the ancient Hebrews.

The appearance of Huxley’s anthropometric observations on the Samaritans in the 1906 edition of the *Jewish Encyclopedia*, and their swift translation into German for the journal of the Berlin-based Bureau for Jewish Statistics, show the appeal of the Samaritans to Jewish scholarly circles in Europe and America. While the origins of various Jewish groups and their relative levels of admixture with non-Jews in Diaspora provoked constant and heated arguments among Jewish race scientists, the Samaritans offered a point of consensus. As a marginalized community seemingly without a political stake in the Zionist-assimilationist debate, no one disputed the basic authenticity of Samaritan claims to Palestinian autochthony and racial purity.


70 Ibid.
since the time of the Babylonian exile. Accordingly, the Samaritans became a scientific totem, a stand-in population for the ancient Hebrews/Israelites, against which modern Jewish communities could be compared to test their own ancestral claims. For example, during Samuel Weissenberg’s 1908 research trip to Palestine, he, like Huxley, accepted the basic premises of Samaritan purity and endogamy. However, in his pursuit of defining the ancient autochthonous population of Palestine, he compared the Samaritans only with the Palestinian fellahin (Arab farmer-villagers, whom he believed would have preserved a higher degree of racial purity than urbanites), and the small groups of local Jews who were “indistinguishable from the fellahin in language, dress and customs.” Ultimately, he argued that the dolichocephaly of the Samaritans offered “direct proof” to support his longstanding contention that both the ancient Israelites and the ancient indigenous population of Palestine (i.e., Canaanites) were dolichocephalic.

Similarly, Redcliffe Salaman, in making his scientific case for the heritability of the Jewish facial expression, referred to Huxley’s work to argue, “the Samaritans of to-day who live in the land of their fore-fathers, have an unmistakable Jewish expression, and this though their heads are dolichocephalic and those of the majority of Jews brachycephalic.” When Salaman had the chance to visit the Samaritans for himself at the end of his military service, he observed, to his satisfaction, “they are fair-skinned, much more so than the Yemenites and the native Arabs. […]  

---

71 In total, Weissenberg studied 62 fellahin from two populations, one coastal and one inland), 20 Samaritans, and 14 native Jews from Upper Galilee (although he also measured 62 Jewish settlers from Rishon LeTsiyon and Rosh Pinah, he does not include them in his tables or analysis). Weissenberg, “Die Autochthone Bevölkerung Palästinas in Anthropologischer Beziehung.” 131.

72 "Wir haben somit einen direkten Beweis für die Langköpfigkeit der alten Israeliten, und da die Kanaaniter in die Israeliten aufgegangen sind, so müssen auch sie langköpfig gewesen sein. Auf Grund aller dieser Tatsachen bleibt also nur die einzige Annahme möglich, daß die alten israeliten sowie auch die Urbevölkerung Palästinas überhaupt langköpfig waren." Ibid., 137.

They are infinitely more genuinely Jewish looking than the Yemenites and confirm my views as to the latter.”

Underlying the Samaritans’ identity claims, and their newfound usefulness to Jewish race science, was the community’s clear awareness of its own precarious demographic, political, and socioeconomic position within the context of the New Yishuv. Salaman reported, in his typically patronizing fashion, “[the Samaritans] are very short of women and are always begging for Jewish wives. […] On the whole a nice people, and I would willingly take them up into the body politic—indeed the Zionists I believe will start giving them schools and perhaps wives will follow.” Salaman somewhat overestimated the strength of the friendship between the Zionist settlers and the Samaritans, whom the former regarded as strategic but culturally backward local allies during the tense years of the British Mandate. As the Polish-Jewish anthropologist Henryk Szpidbaum reported in 1927, “The Samaritans believe themselves to be a vanishing tribe [due to] the insufficient number of women. [Footnote:] In order to counter the extinction, the Samaritans try to enter into mixed marriages with Jews. For the time being there is only one such a marriage.” Despite the alleged desire of Samaritan men to marry “more evolved” Jewish settler women, by the early 1930s, only two further Samaritan-Jewish mixed marriages had occurred, and at least one ended in divorce due to the Jewish Englishwoman’s inability to cope with the lifestyle restrictions imposed on Samaritan wives. Meanwhile, the eventual extinction of the

---

74 Letter from Salaman to his wife from Ludd, March 22, 1919, Redcliffe Nathan Salaman Papers, MS Add.8171, Box 4, Department of Manuscripts and University Archives, Cambridge University Library. See also Salaman, *Palestine Reclaimed*, 217.

75 Ibid.


Samaritans was taken completely for granted in European anthropological circles, such that anthropometric studies on the community began to take on a more explicit tone of salvage anthropology, making a concerted effort to measure as many community members as possible.

The collection of this data was sometimes justified in terms of specifically Jewish interests, as in Szpidbaum’s work for the anthropology laboratory of the Polish Society for the Exploration of the Mental and Physical Condition of the Jews (Gesellschaft zur Erforschung des psychischen und physischen Zustandes der Juden). In the introduction to his study, he described the Samaritans as “a real curiosity as a living monument [Denkmal] of the biblical period. This tribe can be traced back 2800 years, during which it should be noted that the Samaritans have never left their country of Palestine. Detailed knowledge of this tribe will hopefully help to solve many difficult problems concerning the anthropology of the former inhabitants of Canaan and partially [also of] today's Jews.” In keeping with these aims, Szpidbaum compared his measurements on 94 Samaritan individuals primarily to data on Polish Ashkenazim and “spaniolisch” Sephardim, seeking a “racial diagnosis” ("Rassendiagnostische Befunde") that would locate Samaritans among Jewish groups. Ultimately, he concluded, the Samaritans showed a “striking resemblance in almost all characteristics with the Sephardic Jews.”

In contrast, Italian statistician and sociologist Corrado Gini’s analyses of Samaritan demography in the 1930s reflected a more abstract interest in the Samaritans as a “degenerating” people. Gini expressed skepticism regarding the earlier Samaritan research: “The essential goal of most anthropological research has been to determine the original type of the ancient Israelite populations arising from the fusion of the Jews from Egypt, with the Canaanites. The Samaritans are generally regarded as the most characteristic, although from certain points of view

---

79 Ibid., 157.
degenerated, representatives of the ancient Israelites. However, this opinion, in my view, deserves to be considered critically.” The collection of Gini’s data on the Samaritans was funded by the Italian Committee for the Study of Population Problems, represented in the field by the anthropologist Giuseppe Genna. The goal of the study, which recorded ethnographic and demographic information as well as the anthropometric measurements of nearly every individual in the community (171 out of 213 members), was to observe characteristics that could be correlated with the Samaritans’ demographic decline (despite the fact that the community’s numbers had grown during the prior two decades).

Although the Italian study was not performed in service to particularly Jewish research interests, it was nevertheless conducted with the participation of an assortment of Jewish physicians and scholars of the New Yishuv: Dr. Reuben Kaznelson, the main local organizer of the expedition; Dena Joseph, an anthropometrist trained at the University of Chicago; and Jerusalem doctors Shimon Shimony and Jakub Cohen, who served as interpreters. The historian and future second president of Israel, Dr. Yitzhak Ben-Tsvi, served as a historical consultant. The Italian research team’s reliance on these individuals surely affected their interactions with the Samaritan subjects, and seemingly inclined Gini to presume the success of Zionism in Palestine. In his concluding comments on the social changes taking place in the Samaritan community under the influence of Zionist colonization, including the desire of Samaritan men to marry Jewish women, he predicted their “gradual fusion with the Jewish race.”

Such a fusion, desired neither by the Samaritans nor the Zionist settlers, was not to be, and interactions between the Samaritan community and Jewish immigrants would be temporarily hindered after the establishment of Israel in 1948, with Nablus solidly inside the West Bank territory absorbed by Jordan, until the Israeli occupation of the area in 1967. The Samaritans

---

were able to maintain a correspondence with Ben-Tsvi, who acted as their advocate within the Israeli state and helped to found a second Samaritan residential center in Holon, near Jaffa, in the 1950s. However, Israeli interest in the Samaritans continued to portray the community not as potential spouses but as relics of history, whose unique genetic traits could furnish Israeli Jews with useful medical and historical knowledge. Israeli scholars have consistently applied the latest genetic techniques—from sero-anthropology in the 1930s to DNA sequencing in the past decade—to biologically characterize the Samaritans’ distinctive relationship to Israeli Jews.

*The Turkish race, nation, and state: between Europe and Asia*

Dr. Edgar Jacob Fisher, a teacher and dean at Istanbul’s Robert College between 1917-1934, routinely assigned an essay on “a descriptive sample of human society” in the prestigious American-run high school’s course “Introduction to the Social Sciences.” Students were required to select some population group (i.e., Turks, Greeks, Romanians), and write about the historical, social, economic and physical (i.e., racial) characteristics of this group. By the end of the 1920s, the school’s enrollment was nearly 80% Turkish citizens, of whom about 64% (that is, 50% of all students) were identified as “Turks by nationality.”\(^81\) Unsurprisingly, then, many of the students chose to describe “the Turks” or sometimes “the Turks of Constantinople” (or “Stamboul”) for their assignment. Nejat Ferit, a student who wrote for the student publication *Robert College Herald* and became its editor-in-chief in 1931, confidently wrote in his October 1929 essay: “The Turks are one of the oldest known nations. The Bible which is one of the oldest historical

\(^{81}\) “Registration in Robert College for the years 1930-31 and 1931-32,” *The Robert College Herald*, October 24, 1931; Robert College Records, Box 49, Folder 3, Rare Book and Manuscript Library, Columbia University Library.
books speaks of the Turks.”

Several of his classmates wrote, more directly, “Turks are a branch of the white race,” or more defensively, “Although [Turks] are considered from the yellow race as a nation, but [sic] they are white.” The next year’s students similarly asserted the whiteness of the Turks in their essays. Student Zihni Haldun offered a more complex argument: “Those living in cities can hardly represent the Turkish type, as a result of mingling with many nationalities such as Georgian, Greeks, Circassians. Original Turk belongs to the Turanian Race, but it is not possible to find a pure Turk today.” Students who wrote on other ethnic groups, such as Greeks, Bulgarians, etc. tended to identify them as racially white without such additional commentary. As an amusing example, take the essay on Persians in Constantinople penned by Orhan Fikri, another editor of the Robert College Herald: “They are of the white, Aryan race. Their physical characteristics are subject to great variety. Most of them, however, grow fat at the ages of 35-40.”

Needless to say, the student essays cite no published sources; they are certainly not research papers in the contemporary sense. Rather, they offer a glimpse of the prominent ideas circulating about race and Turkish identity in the early years of the Republic. The young Turkish students of Robert College, largely the sons of elite urban families, echoed the narratives being formulated by the upper echelons of Turkish academia and disseminated by public lectures and print media. Atatürk and his supporters sought to legitimate their vision of an ethnic Turkish nation-state by recourse to Western models of epistemic authority, that is, through science.

---

82 Essay of Nejat Ferit, October 28, 1929, Edgar Jacob Fisher papers, Box 3, Folder 3, Hoover Institution Archives.

83 Essays of Mehmed Saki and Ali Feridoun, October 28, 1929, Edgar Jacob Fisher papers, Box 3, Folder 3, Hoover Institution Archives.

84 Essay of Zihni Haldun, October 14, 1930, Edgar Jacob Fisher papers, Box 3, Folder 4, Hoover Institution Archives.

85 Essay of Orhan Fikri, October 14, 1930, Edgar Jacob Fisher papers, Box 3, Folder 9, Hoover Institution Archives.
First Turkish History Congress, held in Ankara in 1932, was the vehicle for presenting the general outlines of the Turkish History Thesis, which effectively argued that Turks were indigenous both to Central Asia (thus being the ancestors to all European civilizations, which originated from the same region) and to Anatolia (because all of the civilizations established there, such as the Hittites, were ethnically Turkish). Although most of the conference’s attendees were middle and high school history teachers, even the minimal level of dissent that surfaced between some established Turkish historians against the proponents of the Thesis prompted an urgent drive to seek evidence beyond conventional documentary history. The Kemalists thus marshaled the more “objective” methods of linguistics, archaeology, and physical anthropology as tools to establish an incontrovertible history of ethnic Turkish autochthony in Anatolia.86 Therefore, human genetics research in Turkey, drawing on both anthropometric and seroanthropological methods, was initiated explicitly in the service of providing evidence for the Turkish History Thesis.

Given that these academic efforts were an explicit reaction against the existing European representations of Turkish origins and racial identity, the Kemalists considered the acceptance of the Turkish History Thesis by the international scholarly community just as important as, if not more than, its acceptance by the Turkish public. One of the most important European figures in these academic endeavors was the Swiss anthropologist Eugène Pittard. Born in 1867, Pittard first studied anthropology at the Paris School of Anthropology (founded by Paul Broca in 1859) before obtaining the University of Geneva’s first doctorate in the subject in 1899, eventually joining the faculty there in 1908. It seems that he became exceptionally popular with Ottoman students in Geneva, who otherwise lived in closed circles without much interaction with the

---
Swiss. Reşit Saffet Atabinen, the Turkish diplomat and parliamentarian, took credit for bringing Pittard’s work to the attention of Mustafa Kemal (soon to be Atatürk) in the early 1920s, after meeting Pittard during a lecture series in Geneva organized by the Turkish Student Union over the course of 1919-1920 to promote the Turkish national cause. The extent of Pittard’s ensuing involvement with the Kemalist elite, and his professional and personal support in creating their nationalist narrative of history, is remarkable given that apparently he had previously distanced himself from “constructions of race in the service of nationalist politicians.”

Before directly performing research in the Turkish Republic, Pittard spent many of the years prior to and during World War I studying the populations of the Balkans, including those still identified as “Turks” in these former Ottoman domains. In his most well known work, the 1924 Race and History, he already took a stance against popular European notions of Turks as racially Mongoloid, arguing that the Turks of the Ottoman domains were a racial mixture of Central Asian, Anatolian, and Balkan peoples. On the basis of his Balkan research, he asserted: “Nothing is less like a Turk than one of Attila’s Huns. […] And we may say at once, having seen many Turks, that very few among them suggest that they and the Mongols could have had a similar origin.”

88 Letter from Atabinen to Eugène Pittard, June 5, 1958, Papiers Jean-Jacques Pittard, Bibliothèque de Genève Ms. Fr. 8228/5.
Pittard made his first trip to the Turkish Republic with his wife Hélène (who was a noted journalist under the name Noelle Roger) in the summer of 1928, when they met Atatürk in person. This meeting marked the formation of a prolific nexus of “scientific” communication to reshape the image of Turkish biological and historical identity, both at home and abroad. Pittard conducted two major studies during this visit to Turkey: first, an archaeological investigation in southeastern Anatolia that demonstrated the presence of a Paleolithic civilization; second, an anthropometric study of Turkish soldiers in Ankara. On the basis of the anthropometric study, Pittard declared that the Turks of Anatolia and the Balkans were racially homogenous, and moreover, that Turks were a brachycephalic race (according to prevailing Francophone theories, the supposed Aryan/Indo-European race that brought Europe its civilization was brachycephalic). Upon their return to Europe, Pittard published his results in European and Turkish anthropology journals, as well as presenting them at international conferences; meanwhile his wife recorded their travel experiences in articles published in various Francophone newspapers and magazines. Both Pittard and Roger published travelogue monographs extolling the virtues of Atatürk and his governance of the young Turkish Republic, as well as vehemently affirming the Turks’ membership among the white races of Europe and the antiquity of Turkish civilization in Anatolia. Having established themselves as indispensable foreign advocates for the main principles of the Turkish History Thesis abroad, the

---

92 Kieser, “Türkische Nationalrevolution, Anthropologisch Gekrönt: Kemal Atatürk und Eugène Pittard,” 112. Note that this is in direct opposition to the Nordic-German theories that would later be endorsed by the Nazis, which held that the “Aryan race” was dolichocephalic.


couple would maintain a close relationship to the Turkish political and academic elite throughout the one-party period through continued correspondence and visits to Turkey.

Meanwhile, the first credentialed Turkish anthropologist, Şevket Aziz Kansu, was in the midst of earning a diploma from Pittard’s alma mater, the School of Anthropology in Paris. Kansu worked as a physician at the University of Istanbul before heading to Paris in 1927 with the support of the Turkish government. He graduated in 1929 after completing a study on the skull morphology of Africans and Neo-Caledonians, and returned to the University of Istanbul to take a leading role in the Turkish Institute of Anthropology (Türk Antropoloji Enstitüsü), which had been housed within the Faculty of Medicine, and staffed exclusively by medical doctors, since its founding in 1925. Although not a student of Pittard’s, Kansu enjoyed a close relationship with him, and the two men together can be credited as the founding fathers of anthropological research in Turkey. Where Pittard took on the role of an esteemed foreign guest within Turkey, occasionally chairing major conferences (such as the Second Turkish History Congress in 1937) and routinely contributing to the Turkish Journal of Anthropology, Kansu taught the first anthropology courses and advised the first anthropology students within Turkey, beginning with the 1935 relocation of anthropological studies to the newly created Faculty of Language and History-Geography (Dil ve Tarih-Coğrafya Fakültesi, hereafter DTCF) at the fledgling Ankara University. Kansu wrote the guidebook for anthropometric measurements, and under his leadership the Anthropology Laboratory at the DTCF studied a slew of anthropometrically determined “racial traits” among the Turks. In turn, high school biology

---


96 See the list of studies published in the Turkish Journal of Anthropology between 1930-1939 in Nazan Maksudyan, Türklüğü ölçmek: Bilimkurgusal Antropoloji ve Türk Milliyetçiliğinin ırkçı çehresi, 1925-1939 (Beyoğlu, İstanbul: Metis, 2005), 196–198.
textbooks produced by the Turkish Ministry of Education in the 1930s included a chapter on “Turkish racial anthropology” based entirely on Kansu’s work. The lesson involved a “practical” activity in which the students learned to measure their classmates’ skulls and calculate the average cephalic index for their class.\(^97\)

Despite, or perhaps because of, his training abroad, Kansu took a strong stance against over-reliance on the existing anthropometric data produced by foreign scholars. In the introduction to his 1931 article series in the *Turkish Journal of Anthropology*, Kansu declared: “In my writings, I do not want to make comparisons to the general publications of my Western colleagues about the anthropology of the Turks. For now, I do not see this procedure as necessary. We should give our own observations and results of our own investigations. Comparisons will be more useful after our efforts have formed an extensive repository.”\(^98\) Yet in contrast to these nationalist sentiments, the entire premise of his study—comparative measurements of 200 Turkish men, half from Rumelia (Thrace) and half from Anatolia—is indebted to a tradition of Western anthropological treatments that similarly divided “European” and “Asian” Turkey. This tradition emerged from a context of rising Balkan nationalism in the 19th century, which emphasized that “European Turks” were simply Slavs, Greeks, etc. who had converted to Islam during Ottoman rule, and therefore had no ethnic or racial relationship to the true, “Asian” Turks. While Kansu claimed that all the individuals were “pure” (saf) Turks, he gave no explicit justification for his construction of Rumelian versus Anatolian sample populations, implying that he perceived this division as a natural one across which he expected to


find biological differences. Indeed, this expectation would also be mirrored in the structure of the first Turkish sero-anthropological studies (see Chapter 2).

Afet İnan, one of Atatürk’s adopted daughters, also took a leading role in the use and nationalist interpretation of anthropometric methods. She had already played an instrumental part in the development of the Turkish History Thesis while employed as a high school teacher, but she needed higher qualifications before she could take the official position designated for her the DTCF. In 1935, she headed to Geneva to earn a doctorate in sociology under Pittard’s supervision. She enthusiastically approached her four years in Switzerland as an opportunity to educate Europeans about the true character of the Turks, as well as disseminate information about the research activities of the newly formed Turkish Historical Foundation (Türk Tarih Kurumu). In her correspondence with Atatürk, she reported various occasions on which she disabused her classmates or professors of their “misconceptions” about the Turks. For example, during a meeting with the university rector, she mentioned a history professor who had “said an ignorant thing” about Turks during class (“Türklük üzerinde bilgisizce bir söz kullanıdı”); in a subsequent class session this professor corrected himself. Later, she corrected an Italian professor’s “false ideas about Turkish women” at a meeting of the Geneva Historical Society. Pittard, of course, greatly assisted İnan’s efforts; according to her, he “mention[ed] at every

---

99 Ibid., 1.

100 Murat Ergin, “Chromatic Turkishness: Race, Modernity, and Western Scholars in the Construction of Turkish National Identity” (PhD dissertation, University of Minnesota, Minneapolis, 2005), 350. Others who were sent abroad to physical anthropology in order to provide staff for the Turkish Institute of Anthropology within its new home at the DTCF include Seniha Tünakan, who studied with Eugen Fischer at the Kaiser Wilhelm Anthropological Institute in Berlin from 1935-1941, and the paleoanthropologist Muzaffer Süleyman Şenyürek, who studied with Earnest A. Hooton at Harvard between 1934-1939.

101 Letter from İnan to Atatürk, December 3, 1935, reprinted in Afet İnan, Prof. Dr. Afet İnan (Cağaloğlu, İstanbul: Remzi Kitabevi, 2005), 156.

102 Letter from İnan to Atatürk, December 15, 1935, reprinted in Ibid., 161.
opportunity the civilization of Anatolia and the Turkish race,” going so far as to introduce a
lecture on the Kyrgyz people at the Geography Society by admonishing his mostly European
audience: “The origins of European civilization are there. You carry blood coming from
Anatolia, perhaps even Central Asia, in your veins.”

Meanwhile, her dissertation “L’Anatolie, le pays de la race turque” (later published in
both French and Turkish) was an analysis of the vast amount of data collected by the Turkish
Anthropometric Survey, a major government-funded undertaking in which the anthropometric
measurements of nearly 60,000 Turkish citizens were recorded in less than six months in the last
half of 1937. Pittard designed the data collection forms for the study, while Kansu spent a
week intensively training a team of doctors (civilian and military), nurses, and physical
education teachers to collect the data. This team was then dispersed among ten geographically
defined regions of the Turkish Republic to record the distribution of height, cephalic, nasal and
skelic indices, and the colors and forms of eyes, hair and skin. The Central Bureau of Statistics
processed the team’s data forms. İnan’s interpretations of the data, presented in dozens of charts,
tables and maps, obviously had foregone conclusions: all of it supported the claims of the
Turkish History Thesis with regard to the Turks’ essential racial type and their historical identity

---


104 Two French editions exist: Afet İnan, L'Anatolie, Le Pays de La “Race” Turque: Recherches Sur Les Caractères Anthropologiques Des Populations de La Turquie (enquête Sur 64,000 Individus) (Genève: Imprimerie Albert Kundig, 1939, and Georg, 1941); A Turkish translation was prepared almost 10 years later: Afet İnan, Türkiye Halkının Antropolojik Karakterleri ve Türkiye Tarihi: Türk Irkının Vatamı Anadolu (64.000 Kişi Üzerinde Anket) (Ankara: Türk Tarih Kurumu Basımevi, 1947).

105 Although data forms were collected for 64,000 individuals, İnan explains that about 7% of the forms were discarded due to incomplete data, incorrect use (“mal rédigées”) or illegibility, leaving a sample size of 59,728. Afet İnan, L’Anatolie, Le Pays de La “Race” Turque: Recherches Sur Les Caractères Anthropologiques Des Populations de La Turquie (enquête Sur 64,000 Individus) (Genève: Imprimerie Albert Kundig, 1939), 58–59.
as simultaneously migrants from Central Asia, the original inhabitants of Anatolia, and the ancestors of European civilization.

However, it would be misleading to suggest that the Turkish race was being completely conflated with the Turkish nation. İnanc was well aware of the varying definitions of race propounded by different European anthropologists, and explicitly condemned racial determinism; on the other hand, conducting racial studies was a national duty: “It is not that we imagine, in the example of Gobineau, a racial fatalism, a certain relationship of cause and effect between race and those belonging to a human group and the destiny of that group. But it can be necessary to draw up the racial image of a nation, and to note its degree of biological purity over time.”106 İnanc resolutely subdivided data according only to sex and to geographical region, speaking consistently of two groups, the “Turks of Europe” and “Turks of Asia,” by which she meant a broader racial whole than the national-level Rumelia/Thrace and Anatolia/Asia Minor division maintained by Kansu; this is evident in her routine comparisons of her own data to previous studies of “Turks” living outside the Turkish Republic, for example, in Bulgaria. While she did not clarify the definition of a “Turk” for the purposes of inclusion in the study, and did not even acknowledge the existence of ethno-religious minorities within the Republic, the emphasis on Turkish race rather than nationality implies the exclusion of groups like Greeks and Armenians. After all, the ultimate purpose of the study was to legitimize the Turkish race’s ownership over all of Anatolia at the expense of these others. It is strongly implied that Kurds, on the other hand, were included as Turks;107 military doctors are specifically credited for

106 “Non pas que nous imaginions, à l’exemple de Gobineau, un fatalisme racial, un rapport certain de cause à effet entre la race à laquelle appartient un groupe humain et les destinées de ce groupe. Mais il peut être nécessaire de dresser l’image raciale d’une nation, et de constater son degré de pureté biologique à travers le temps.” Ibid., 43.

107 İnanc, Türkiye Halkının Antropojik Karakterleri ve Türkiye Tarihi, 181.
measurements collected in the eastern provinces, during precisely the same months as the first military operations moved to suppress the Dersim rebellion of Kurdish tribes against the Turkish state. Of course, since by this time the Kemalists had already begun to refer to Kurds as “Mountain Turks” (Dağ Türkleri) and to subsume all study of Kurdish history, language and culture under the rubric of “Eastern Anatolian Turks” (see discussion below), İnan only indirectly states that Kurds were measured, and then only within the later Turkish-language edition of her dissertation.

In any case, within the designated Anatolian Turks of her study, İnan noted a fair amount of variation that potentially troubled a narrative of a distinct Turkish “biological purity.” In particular, variations in height among brachycephalic individuals pressed İnan to admit that, for all the insistence that Turks represented the Alpine type of the white race, some of the population had to be classified as the Dinaric type (i.e., the same type assigned to the Greeks and most other Balkan groups). Coupled with the geographic distribution of the different frequencies of brachycephaly and dolichocephaly between eastern, western, and central regions of Anatolia, İnan seemed to have no recourse but to acknowledge some amount of historical racial admixture. However, she manages to narrate this as evidence of the direct biological link between the Hittites and the Turks of Central Anatolia, in contrast to the “foreign races” who just happened to invade the same regions now inhabited by Kurds, Armenians, and other non-Turks:

[There is] a much clearer cephalic homogeneity in the central part of Anatolia than in either the western or eastern parts. What could be the reason for this? To explain the relatively large interference of dolichocephalic types in the Turkish population, considered in great majority as of the brachycephalic type, we have appealed to the arrival of individuals of foreign races, coming either from the Eastern Mediterranean or the territories to the south and east of Anatolia. For the

---


central region, is it necessary to evoke some geographical reasons imposing a modifying influence when, besides, we do not see the mechanism? Is it conceivable that the central ethnic fortress has hardly been touched by foreign immigrants? […] Do we have the right to assume that we are on territories very long cultivated—in any case since the Hittite period—whose crops were sufficiently remunerative to maintain the inhabitants forever? […] The Hittites, an agricultural and pastoral people, strike me as the natural descendants of these primitive Neolithic-Chalcolithic populations. And all the other populations who have succeeded them up to us, represent a long succession of generations in which the people remained in place, changing only their names according to historical events, having received until now the qualities preserved by history.110

It is difficult not to read the Kurdish population into İnan’s oblique reference to dolichocephalic “foreign races”111 invading Anatolia from the south and east, and thus biologically “interfering” with the cephalic indices of the Turkish population in this region. The Kurds—who not only constituted a large and relatively contiguous population in eastern Anatolia, but also had a national movement recognized by the League of Nations, whose aborted 1920 Treaty of Sèvres provided for the creation of an independent Kurdistan—were the most immediately problematic group for the Republican government. While Kemalist forces reached out to the Kurds during the Turkish independence struggle, this reconciliation ended after the establishment of the Turkish Republic and its program of homogenizing Turkish nationalism.

110 “Pour expliquer l’immixtion relativement grande de types dolichocéphales dans l’ensemble de la population turque, considérée comme étant, en grande majorité, de type brachycéphale, nous avons fait appel à l’arrivée d’individus de races étrangères, venus, soit de la Méditerranée orientale, soit des territoires qui sont au sud et à l’est de l’Anatolie. Faut-il, pour la région centrale, évoquer des raisons géographiques imposant une influence modificatrice dont nous ne voyons pas, d’ailleurs, le mécanisme? […] A-t-on le droit de supposer que nous sommes la sur des territoires très anciennement cultivés—ils le sont dans tous les cas à la période hittite—dont les cultures ont été assez remuneratrices pour retenir à jamais les habitants? […] Les Hittites, peuple agriculteur et pasteur, m’apparaissent comme les descendants naturels de ces populations primitives neolithiques-chalcolithiques. Et toutes les autres populations qui ont succédé à celle-la jusqu’à nous, représentent une longue suite de générations au cours de laquelle les populations qui demeuraient sur place changeaient seulement de nom, au gré des aventures historiques, jusqu’au jour où elles ont reçu les qualificatifs que l’histoire a conservés.” Ibid., 117.

111 Earlier anthropometric studies conducted by Europeans nearly always characterized the Kurds as dolichocephalic, as in Felix von Luschan, “The Early Inhabitants of Western Asia,” Journal of the Royal Anthropological Institute of Great Britain and Ireland 41, no. 2 (1911): 229; Pittard's dissent on this point is notable, but he nevertheless admits the consensus on the dolichocephaly of the Kurds in Pittard, Race and History: An Ethnological Introduction to History, 366–367.
The ensuing two decades of intermittent violence between the Kurds and the Republican government led to progressively harsher methods to deny the Kurds’ existence as a distinct national or ethnic entity. The first battle was terminological; in official Republican discourse, generic terms for “nomad” were often used as a de-nationalized euphemism for the Kurds by the 1920s.¹¹² Kurdish nationalist publications—and even European books that included the word “Kurdistan”—were banned in 1934,¹¹³ and the term “Mountain Turks” was coined by the end of 1936,¹¹⁴ just months before the anthropometric survey began. Accordingly, Turkish anthropological work (such as that of Kansu and İnan) also observed these terminological omissions. In the face of Kurdish agitation against the government, such as the 1936-1938 unrest in Dersim province (officially renamed Tunceli in 1935), the Republican party line was that “scientific research” showed that the inhabitants of Dersim were “ethnic Turks” or “of Turkish origin” who had adopted a Kurdish language and lifestyle.¹¹⁵ This “scientific research” was all produced by Turkish nationalists, dating back to the rule of the Committee of Union and Progress (CUP); one notable example was written under a German pseudonym and falsely claimed to be an Ottoman translation of a publication of the Oriental Institute in Berlin.¹¹⁶

Accordingly, in spite of acknowledging the existence of biological variation among Turks in different regions of Anatolia, and even attributing this variation to racial admixture, İnan


¹¹³ Ibid., 108.


added a paragraph to the conclusion of the Turkish edition of her thesis arguing that the data
demonstrated the racial unity of the population of the Republic, calling attention back to the faint
distinctions between race and nation:

While separate tribal names are mentioned among the Turks, we wanted to
clarify the unity of the Turkish race, even under other names. Studies
conducted before this survey, especially in Anatolia, gave figures
according to some tribal names (like Laz and Kurd, for example). We have
arranged them [according to] geographic region. In this comparison, the
existence of a racial unity in Turkey is also seen.\(^{117}\)

Ultimately, the Turkish preoccupation with racial classification was linked with concerns of
political sovereignty; accordingly, the language of the anthropometric research aimed to assert
the equal status of Turks and the European powers within a broader scheme of racial hierarchy,
rationalized by a belief in innate human difference. But at the same time, as far as the Kemalist
elite was concerned, the territorial integrity of the Republic depended on denying such difference
and insisting on the essential homogeneity of the population within the national borders, thus
delegitimizing any competing nationalist sentiments. This duality is evident in the correlation
between domestic and foreign politics and in the subpopulations, other than the Kurds, that drew
Turkish researchers’ special interest throughout the 1930s.

The other nomads that attracted “corrective” attention from the Republican government
were the Yörüks (also spelled Yürük), who lived in semi-nomadic tribal configurations across
southwest and central Anatolia. They spoke a Turkish dialect and did not share a cohesive group
identity, and thus did not pose a direct threat to Turkish nationalism. However, their tribal
loyalties set them apart from other rural subjects of the new nation-state, and early Republican

\(^{117}\) “Türklerde ayrı ayrı kabile isimlerini zikrederken, başka adlar altında da olsa Türk ırk biriğini tebarüz ettirmeğe
istemik. Bilhassa Anadolu’da bu anketten önce yapılmış olan incelemlerde bazı kabile isimlerine göre (mesela Laz,
Kürt gibi) rakamlar verilmiştir. Biz bunları coğrafi bölgeleri gösterdiği için öylece koyduk. Bu karşılaştırmada da
görülmüş ki Türkiye’de bir ırk birliği mevcuttur.” İnan, Türkiye Halkının Antropolojik Karakterleri ve Türkiye
Tarihi, 181.
land-tenure laws intensified pressure on the Yörüks to sedentarize (a process that had already been initiated under the Ottomans in the Tanzimat period). More significantly, although they had been romanticized as representing the cultural and biological remnants of the Seljuk Turkish nomads from Central Asia who had defeated the Byzantines to settle in Anatolia in the 11th century, European anthropologists—including Felix von Luschan and even Eugène Pittard—had suggested that the Yörüks actually shared origins with the Roma people. Given the sentiment of the time, this was patently unacceptable, especially since no less than Atatürk himself had claimed paternal descent from a Yörük tribe that had migrated from Anatolia to the Balkans.

The first Turkish racial analysis of Yörüks, performed in 1937 by Sadi Irmak, was in fact a sero-anthropological rather than an anthropometric study, and is accordingly discussed in Chapter 2. The following year, in 1938, Kansu’s student Kemal Güngör spent four months among nearly a dozen Yörük tribes living in the provinces of Niğde, Adana and Mersin, recording 11 anthropometric measurements on 419 individuals. On the basis of cephalic index data, Güngör was forced to concede that the Yörüks were mostly meso- and dolichocephalic, unlike the mostly brachycephalic sedentary Turks. However, he argued, these measurements were misleading because of the Yörüks’ cultural practice of binding young babies’ heads, resulting in skull deformation. On the other hand, their cephalic index was similar to the Turkmen, showing their ethnic relationship to the Seljuks and other Oghuz Turkic tribes that had come to Anatolia. Furthermore, Güngör insisted, even if they did not morphologically match the brachycephalic Alpine Turks, the evidence of language, culture and history proved the Yörüks’ Turkishness.

---


beyond doubt,\textsuperscript{120} sounding remarkably like Brauer in the latter’s defense of Yemenite Jewishness. Perhaps nothing better illuminates the level of self-contradiction than the preface by Kansu, the anthropometrist par excellence, in which he argued that anthropology and racial classification cannot be conflated with human anatomy alone but must be considered holistically with cultural and linguistic characteristics. Of course, he cited several European scholars to justify this position.\textsuperscript{121} These racial apologetics are an elaboration of Güngör’s pilot study on 80 Yörüks of the Denizli region in Western Anatolia, conducted in the same year but published earlier. A three-page introduction identified the Yörüks as simultaneously nomads from Central Asia, the biological and cultural remnants of the Seljuks, and representatives of the Alpine proto-Turkish race.\textsuperscript{122} Yet again, a few pages later, Güngör had to explain away the cephalic index differences between Turks and Yörüks according to cultural practices, just as he and Kansu would do for the more in-depth work on Southern Anatolian Yörüks.\textsuperscript{123}

Another significant ethno-religious minority in Southern Anatolia is the Nusayri or Arab Alawites (in Turkish, \textit{Nusayriler} or \textit{Arap Alevileri}),\textsuperscript{124} belonging to the same prominent sect living along the coastlines of Lebanon and Syria. This population first garnered major attention from the Turkish Republican government in the context of the so-called “Hatay Crisis” of the late 1930s, in which the former Ottoman Sanjak of Iskenderun (Alexandretta), the subject of a heated territorial dispute between Turkey and French-mandate Syria since 1921, would change
hands at the behest of the League of Nations. Like so many other territorial disputes mediated by
the League, the question was to be settled by an ethnic census, performed by the French High
Commission in 1936, to determine whether a majority of the Sanjak’s inhabitants were Turkish
or Arab. The deck was stacked against the Syrians to begin with, as the “Arab” ethnic categories
on the French census were subdivided by religion, while the Turkish category was not. To
achieve a clear demographic majority, the Turkish government employed precisely the same
racially-inflected strategy they were simultaneously mobilizing against Kurdish nationalism,
claiming that one of the Arabic-speaking religious groups, the “Nusayri” Alawites, were not
ethnically Arab at all. Rather, they were descendants of the ancient Hittites, and therefore—
according to the Turkish History Thesis—they were Turks.

The nationalist academic apparatus moved quickly to reinforce this narrative, renaming
the Sanjak “Hatay” after the Hittites’ alleged name for the region, and referring to the Alawites
as “Eti-Türkler”—“Hittite Turks.”125 The works of prominent historians, such as Ankara
University DTCF professor Hasan Reşit Tankut’s Nusayriler ve Nusayrilik hakkında (1938),
firmly decreed the racial continuity between ancient Hittite remains and living Alawites and
Anatolian Turks, according to the evidence of ethnography and anthropometry.126 The
anthropometric evidence consisted of a comparison between İnan’s 1937 cephalic index
measurements of Alawites living along the Southern Anatolian coastline and Austrian
anthropologist Felix von Luschan’s nearly identical calculation for 15 Alawite men from Antioch

125 The first academic use of these terms, including an elaborate historical and linguistic justification, appears in
Ahmet Faik Türkmen, Mufassal Hatay Tarihi, 4 vols. (İstanbul: Cumhuriyet Matbaası, 1937). For a full discussion
of how the Alawites were rebranded as “Eti-Turks” in line with the Turkish History Thesis, see Mehmet Pınar,
“Türk Tarih Tezi Bağlamında Cumhuriyet Döneminde Nusayriler,” Turkish Studies 10, no. 9 (2015): 485–485,
doi:10.7827/TurkishStudies.8717.

126 Çağaptay, Islam, Secularism, and Nationalism in Modern Turkey, 118.
(Antakya) within the Sanjak.\textsuperscript{127} This evidence was repeated at public presentations sponsored by the Republican People’s Party (CHP), such as noted linguist Agop Dilaçar’s CHP conference speech “Alpine Race, Turkish ethnicity and the People of Hatay” (1939).\textsuperscript{128} This “Eti-Türk” campaign strove, on the one hand, to dissociate the Alawites from other Arabic speakers and encourage them to self-identify as Turks,\textsuperscript{129} and on the other hand, to convince international bodies like the League of Nations that Turkey had a legitimate national claim to the Sanjak. The “Hatay crisis” came up often in Atatürk’s correspondence with Afet İnan while she was studying in Geneva, and she reported her attendance at a League of Nations meeting debating the status of the Sanjak wherein the Hittite discourse was deployed as a justification of Turkish interest in the territory.\textsuperscript{130} After a few tumultuous years of autonomous status within Mandate Syria (November 1937-September 1938) and an independent Hatay Republic (September 1938-June 1939), Turkey annexed the Sanjak as Hatay province with international recognition.

While İnan, in her post as a historian within the DTCF at Ankara University, did not pursue further anthropometric research after the 1930s, Kansu’s students would uphold the

\textsuperscript{127} Hasan Reşit Tankut, 	extit{Nusayriler ve Nusayrilik Hakkinda} (Ankara: Ulus Basımevi, 1938), 10–15. Tankut cites Felix von Luschan, 	extit{Völker, Rassen, Sprachen} (Berlin: Welt-Verlag, 1922), 103, although he misattributes the information to a nonexistent page 204.

\textsuperscript{128} “Bugün Araçça dahi konuşan Hatay Türklerinin, Samilıkle hiç bir akla yakın bulunmuyor. Onların kafatası endis’i vasat olarak 85 olduğundan, bunlar eski brakisefal Alpinlerin öz ahlaklarıdılar.” Agop Dilaçar, “Alpin irk, Türk Etnisi, ve Hatay Halkı,” in 	extit{CHP Konferanslar Serisi Kitap 19} (Ankara: Recep Ulusoğlu Basımevi, 1940), 16–17. The original source for the cephalic index measurement is not cited, but the value matches Tankut’s von Luschan citation. See also von Luschan, “The Early Inhabitants of Western Asia,” 231.


Kemalist legacy within the field of anthropology for several decades. Among the most notable of these students was Nermin Aygen (épouse Érdentüğ), who earned Ankara University’s very first doctorate in physical anthropology. In the course of her doctoral studies in the late 1930s, she published work on the morphology of Turkish skulls and brains, conducted according to international standards of craniometry and incorporating elements of racial comparison.\footnote{Nermin Aygen, “Türk Kafalarının Zaviye Kıymetleri üzerinde Bir Tetkik,” \textit{Türk Antropoloji Mecmuası}, no. 19–22 (1939): 213–31; Nermin Aygen, \textit{Türk Beyinleri üzerinde İlk Antropolojik Araştırma}, vol. 22, Dil ve Tarih-Coğrafya Fakültesi Yayınlarından. Antropoloji ve Etnoloji Serisi; (Ankara: Ideal Basımevi, 1941). In both publications, Aygen also investigated sexual dimorphism.}

Perhaps most interesting about these works is not her affirmation that the majority of her Turkish skull samples were brachycephalic,\footnote{Aygen, “Türk Kafalarının Zaviye Kıymetleri üzerinde Bir Tetkik,” 215.} but rather her conclusion that brains did not intrinsically differ according to race but rather to an individual’s own skull shape.\footnote{Nermin Aygen, \textit{Türk Beyinleri Üzerinde İlk Antropolojik Araştırma}, vol. 22, Dil ve Tarih-Coğrafya Fakültesi Yayınlarından. Antropoloji ve Etnoloji Serisi; (Ankara: Ideal Basımevi, 1941), 38.} She retrained as a social anthropologist in the 1950s, and spent the rest of her career conducting research in that field. However, her 1942 dissertation, which will be discussed in the next chapter, was a major work of sero-anthropology that had a profound effect on the future of human genetics in Turkey, temporarily displacing the field out of the purview of anthropologists and leaving the work almost exclusively to medical professionals.

\textit{Homogenizing “Aryan” Iran}

“Regarding the race of the Kurds,” wrote the Iranian-Kurdish University of Tehran professor Rashid Yasami in his 1940 history of the Kurdish people, “there are two sides to the debate: one based on the ancient traditions […] and the other based on empirical race science [\textit{nizhād shināsī}], which however has not yet reached a firm position due to the difficulty of the
subject. But it is not useless to mention the research of race scientists, and information on some of their mistakes [ishtibāḥāt] will not be far from interest.” Yasami proceeded to cite a 4-page translation from Eugène Pittard’s chapter on the Kurds in Race and History. Pittard had summarized many of the writings on Kurds produced by French, German, and Eastern European travellers and anthropologists between the 1830s and 1920s, and noted that all accounts differed wildly with regard to cephalic index and frequencies of different hair, eye and skin colors. In particular Pittard enumerated his disagreements with von Luschan; the former had observed the Kurds to be brachycephalic with predominantly dark hair and eyes, while the latter drew the exact opposite conclusion on all counts, despite the fact that both scholars had measured Kurds from approximately the same region, the eastern provinces of Turkey. Yasami commented:

The meaning of this citation of race scientists is that the existing research on the Kurdish people still has no firm judgment other than the one general matter of their being Iranian. The cause of this is that, in detail, the formulae [qavāʿīd] of race science were unable to be implemented properly on this tribe [tāyifah] and the difficulty of their location is a hindrance. […] The other reason for this is because some of the previous scholars have assumed the Kurd to be an independent race, pursuing the attributes and features that differentiate them from the great races, and [the scientists] cannot find such differences. Inevitably they consider a facial feature [ṣafatī-yi ʿārīz] to be a true division and on this point arguments occur. If they assume the Kurds are a separate race, they therefore see that it is; [rather, if they assume Kurds to be] a branch of the Iranian race, then their work can reach [that] scientific conclusion, because the features that they must find for separating the Kurdish type from other types will be sufficient.

Having thus critiqued the tendency of anthropometric studies to support a priori racial categories, Yasami turned to other sources, particularly folklore and narrative history, to support his ultimate argument: that the Kurds were not only a people of ethno-linguistically Iranian origins, but also a loyal and integral part of the Iranian nation throughout time. The sentiments expressed in his monograph on the Kurds, which had been commissioned by the Ministry of

134 Rashīd Yāṣami, Kurd va Payvastagī-i Nizhād va Tārīkhī-i Ü (Tihrān: Kitābfurūshī-i Ibn Sīnā, 1940), 100.

135 Ibid., 106.
Education, reflect the general attitude among nationalist intellectuals toward anthropometric research in Reza Shah’s Iran; that is, while methodologically questionable, this essentially Western approach to identifying groups could be selectively useful.

As in the Turkish Republic, the first two decades of Pahlavi rule in Iran were characterized by the forceful centralization of state power as the expense of de facto regional autonomy and linguistic-cultural diversity. Reza Shah ruthlessly suppressed various separatist or autonomist movements that sprouted along Iran’s western provinces, from Gilan and Azerbaijan to Kurdistan and Khuzistan, denouncing such movements as the work of foreign agents conspiring against Iran’s sovereignty and territorial integrity. In addition to direct violence and the forced sedentarization of nomadic groups, the provinces experienced the renewed drive of centralization through military conscription and a standardized national education system.

Meanwhile, Iranian-nationalist intellectuals, including several from these “rebellious” provinces such as Yasami and the Azeri Ahmad Kasravi, began to write regional histories with the aim of encouraging Azeris, Kurds, Arabs, etc. to identify with an Iranian nation.

In contrast to the Zionists in Palestine and the Kemalist elite in Turkey, the nationalist intelligentsia of Pahlavi Iran did not pursue anthropometric research as the core evidence for the nationalist historical narrative, which gave far more weight to literature and philology. Indeed, Iranians effectively did not produce any original research in the modern natural sciences prior to WWII, a fact which historian Cyrus Schayegh attributes to the restriction of science education in Iran toward studies for applied-science professions like medicine, and the ensuing absence of professional scientists in the emerging academic infrastructure.\(^{136}\) Meanwhile, anthropological research supported by the Iranian government primarily focused on the study of folklore and the

---

collection of ethnographic artifacts. However, even if, like Yasami, they did not themselves make use of the same methods, many Iranian writers selectively referred to the work of Western scholars whose anthropometric studies validated the state-endorsed versions of Iranian history and racial identity. The existence of many such studies, dating back to the 19th century, no doubt reinforced the relative lack of urgency attached to producing “native” anthropometric research in Pahlavi Iran compared to Republican Turkey and the Zionist Yishuv (locations which, after all, were similarly dependent on medical professionals to conduct anthropometric studies).

This is not to say that the Iranian elite had no interest in supporting anthropometric projects, or failed to perceive anthropometry as epistemically valuable to the legitimacy of the Iranian nation-state. Iranian officials, including cabinet ministers, governors, and chiefs of police, extended a warm welcome to Anglo-American anthropologist Henry Field throughout his six-week expedition to Iran in August-September 1934 to determine “the physical characters of the modern inhabitants of Iran.” The expedition was privately funded by Marshall Field, Henry’s great-uncle and patron of the Field Museum of Natural History in Chicago, and the logistics were facilitated by a network of Euro-American diplomats, researchers, and educators, including employees of the Alliance Israélite Universelle (in Isfahan) and the Anglo-Iranian Oil Company (in Shiraz). Field was no less indebted to the enthusiasm of Iranian ministers than to


140 Ibid., 7–8.
this semi-colonial infrastructure. According to Field, at the end of his research in September 1934, he met with the Minister of Education, Ali Asghar Hekmat, to discuss the possibility of “a detailed anthropometric survey of Iran,”141 ostensibly similar to the Turkish Anthropometric Survey that would be carried out in 1937. However, it does not seem that such a survey ever materialized in Iran during Reza Shah’s reign.

In Field’s account, the friendly cooperation of Iranian government officials is contrasted with the reluctant attitude of the communities subjected to anthropometric measurements. Like many other Euro-American anthropologists of his time, he attributed this in part to primitive superstitions and a lack of familiarity with the scientific enterprise, but he also acknowledged the antagonistic relationship between the government and the populace as a factor:

A detailed anthropometric study of Iran has never been undertaken, due to the difficulties of travel and the hostility of the armed tribesmen. These difficulties have been greatly modified by the disarmament of the tribes and the establishment of a powerful central authority in Tehran. Furthermore, few peoples enjoy being measured, observed, photographed, and having their hair and blood samples taken. Apart from the slight physical discomfort, there are ancient and deeply rooted superstitions regarding the power invested in the foreigner possessing a photograph, a cutting of hair, or a drop of blood. There are, in addition, certain political and religious factors which often cause misunderstanding as to the purpose of such anthropological investigation. Fear is inevitably aroused that the stranger is working in behalf of the local government to report on the general physique of a group for purposes of military conscription. Also, since the anthropologist is recording numerous physical features as well as scars and tattooed marks or designs, it is sometimes suspected that he may be searching for a criminal at the request of the authorities. … Consequently, anthropologists are received with very little enthusiasm, despite a discreet scattering of small coins.142

The close association between foreign researchers like Field and the Iranian government, and the ensuing mistrust and anxiety surrounding the purpose of anthropometric studies, rendered Field utterly dependent on the cooperation and assistance of local community leaders. Such leaders not

141 Ibid., 9.

142 Ibid., 278.
only served as interpretive mediators granting the researchers access to their communities, but also actively participated in the extraction of physical and social data:

> With each group of subjects it is essential to have a competent interpreter, who, whenever feasible, should also be the recorder. [...] In addition, two middle-aged and intelligent members of each group are always selected to lend confidence to the other subjects, to assist with the measurement of stature and sitting height, and to check both on the stated age of the individual and on the vital statistics. For example, the subject may reply to the question regarding the number of brothers living or dead, that he has three brothers living and none dead. At this point one of the assistants interrupts with a fierce query regarding his younger brother, who died five years before. The subject will almost invariably reply that he is dead and therefore of no further consequence. Another native assistant is assigned to take hair samples. [...] If blood samples are being obtained two local men assist the medical officer with the delicate task of persuading each subject to the minor operation. It may be said, in short, that the services of local assistants are invaluable.¹⁴³

Field’s differential experiences with Iranians inside and outside of the government likely influenced his perception of his own work as a project of salvage anthropology. He chose to measure only marginalized and/or rural populations who lived in conditions of abject poverty, and certainly did not subject any of the government ministers or educated elites to anthropometric study. It can be surmised that Field regarded this elite class as a group which had already been transformed by “the rapidly advancing wave of western civilization” and therefore somehow less representative of an authentic and primordial Iranian identity.¹⁴⁴ He explicitly mentioned the tribal groups of Iran as populations heading toward extinction at the behest of the government, and marked his attempt to outline of their history in terms that echo later projects in salvage genetics: “Under the policy of His Imperial Majesty Riza Shah Pahlavi, the tribes are...”

¹⁴³ Ibid., 280.

¹⁴⁴ See ibid., 32: “Among many modern improvements introduced by the Shah can be numbered the total disarmament of the population, with the resultant coordination of the tribesmen into a semblance of national unity, and the establishment of greater facilities for transportation and communication. Therefore, from the anthropological point of view it is most desirable to make detailed studies of the people of Iran before the rapidly advancing wave of western civilization carries their ancient traditions and folklore beyond recall.”
being disbanded, so that within a relatively short span of time tribal divisions will no longer exist and the possibility of tracing the interrelationships of these people will be lost beyond recall.”

Nevertheless, during his short time in Iran, Field never managed to study any tribal groups in situ (though he had received permission to do so in the provinces of Luristan and Isfahan). However, in the course of his prior research in Iraq, he measured a group of 52 men in Baghdad, working as customs porters, who identified themselves as Lurs from Posht-e Kuh (i.e., the border between Iraq and Luristan province in Iran). Comparing his cephalic index calculations to those of the very few other authors with statistics on Lurs, he suggested that this tribe was more closely related to “Iranians” or “Indo-Aryans” than the neighboring Bakhtiyari tribes, despite the fact that Bakhtiyaris are generally considered to be a subset of the Lurs.

Within Iran, he studied only four groups of men, each under tight time constraints. Over the course of a single day, he and his local assistants measured 99 Jewish men of the Isfahan ghetto. Field’s description of the site emphasized the segregation of Isfahani Jews from the rest of the city, yet somehow in the course of the anthropometric survey, “[s]trangely enough one Moslem intruded himself among the series but when questioned a second time admitted that he was not a Jew.”

This curious incident aside, it is safe to state that within this group of Jews studied in the Isfahan ghetto there are a number of individuals, who, irrespective of age or minor variation, could not be classified as Jews on the basis of photographic analysis. This is not unusual, despite the fact that here we are dealing with a segregated group of the population, who, according to tradition, have lived in one small locality during the past 2,500 years. While type tends to beget type, yet it must be recalled that the chance fusing of chromosomes undoubtedly produces wide variants… Thus, in a stable population wide ranges of individual variation may occur within the

145 Ibid., 159.
146 Ibid., 379.
147 Ibid., 294.
Through this lengthy explanation, Field insisted that neither his and his assistants’ inability to distinguish an Iranian non-Jew from a crowd of Jews, nor the fact that among the Jews there were several who did not immediately appear to be Jewish, was evidence of “exogamous mating.” This is directly opposed to Field’s default assumption of extensive admixture among the non-Jewish Iranians he measured in towns and villages. This unwavering belief in Jewish endogamy, along with the fact that the Jews of Isfahan constitute the single largest group of subjects measured by Field, indicates the privileged status accorded to “Jewish biology” in the Western approach to the broader field of Middle Eastern physical anthropology. While foreign researchers like Field readily took anthropometric data to contravene the oral histories of certain Middle Eastern groups (like Iranian rural villagers), they were rarely quite so cavalier when it came to disregarding Jewish biblical and oral traditions, even in the face of conflicting evidence. (Note that this general trend does not hold for the work in the New Yishuv comparing various groups of Jews, in which Jewish researchers like Weissenberg, Salaman, and Brauer privileged the traditional narratives of specific Jewish communities over others.)

After Isfahan, Field traveled south to the village of Yezd-e Khash, which he considered to be a typical rural settlement in Central Iran. Over three days, “despite the general unwillingness of the villagers to submit to anthropometric study, by means of friendly coercion and some

bribery… [Field] measured forty-eight men, one of whom was too old and one too Negroid to be included in the series.”149 Field’s interest in the village was evidently prompted by a belief in the antiquity of the settlement, as suggested by its pre-Islamic-sounding name. Accordingly, he determined among the Yezd-e Khast residents “elements of an early basic stock or stocks which have merged, and which have at the same time become infiltrated by so-called Mediterranean, Nordic, Hamitic, and Armenoid or Alpine strains.”150 After this difficult experience, Field headed for Persepolis. Upon the recommendation of his German colleague Ernst Herzfeld, who had just departed from his position as the director of the Persepolis excavations, Field selected the nearby villagers of Kinareh as representative of the racial composition of Fars province.151 He spent two days measuring 74 men, among whom he found a similar range of variation, thus evidencing all kinds of admixture. Noting a certain degree of lip thickness among some individuals, Field expressed doubt at a claim of Kinareh’s village headman, who “stated with conviction that no Negro blood was present in his village ‘for it is a disgrace among our people.’”152 Field also measured 18 Iranian workmen from the Rayy excavation site in early August while waiting in Tehran for his permits to Isfahan and Fars. These men were of mixed provenance from North-Central Iran, mostly from Damghan (6 individuals) and Sultanabad (present-day Arak, 8 individuals), and Field acknowledged that his calculations did not represent useful averages.153 Yet again, however, all remarkable features of this group were attributed to admixture: “The results of my measurements of the Damghan series from eastern central Iran

149 Ibid., 333.
150 Ibid., 343.
151 Ibid., 349.
152 Ibid., 353.
153 Ibid., 384.
suggested some Turkoman admixture […] Damghan lies between the desert (Dasht-i-Kavir) and the foothills of the Elburz Mountains, on the direct line from Soviet Turkestan toward Tehran, and probably many incursions from the northeast swept through this region.\textsuperscript{154}

On the basis of this relatively small (less than 300 individuals), heterogeneous and haphazardly gathered sampling, upon his return to the United States, Field attempted to clarify "the racial position of the modern inhabitants of Iran."\textsuperscript{155} As a visiting researcher at Harvard, he and his supervisor, Earnest A. Hooton, took two approaches to this arduous task: qualitative sorting of photographs of the sampled individuals (reprinted on 144 plates), and quantitative sorting of measurements using the Hollerith tabulating machines at Harvard’s Anthropometric Laboratory. They identified individuals of essentially every “type” within the white race (i.e., Mediterranean, Alpine, Nordic, etc. and corresponding subtypes), and categorized others as “Mongoloid, Armenoid, [and] Hamitic.”\textsuperscript{156} Even amidst this staggering diversity, Field—apparently not satisfied with the existing classification—posited that several of the Iranians he had studied represented a distinct subdivision of the white race, and took it upon himself to describe the new “Iranian Plateau Race:”

[…] a new term is desirable to signify the basic population of Iran and in turn to differentiate this basic Irani from allied racial stocks in Iraq and in Afghanistan. I suggest the new term "Iranian Plateau Race" which […] refers to the basic Mediterranean type now living in Iran, a type which I presume to be characterized by being dolichocephalic, leptoprosoptic, leptorrhine, and markedly convex in nasal profile.\textsuperscript{157}

\textsuperscript{154} Ibid., 389.
\textsuperscript{155} Ibid., 489.
\textsuperscript{156} Ibid., 430–33.
\textsuperscript{157} Ibid., 434.
Despite the friendly and cooperative relationships Field established with high-ranking officials in the Pahlavi government, it is not apparent that his work was particularly well known or influential in Iranian racial thought. Like the Turkish policy towards Kurds and many other Muslim groups, Iranian nationalists generally preferred to “lump” as many human groups as possible under the label “Iranian,” which was at odds with Field’s “splitting” approach of cataloguing minute distinctions and subtypes even within small populations. Furthermore, they were less concerned with identifying specific native “sub-species” within Iran as proposed by Field, and more preoccupied with affirming Iranians’ racial unity and general membership within a white European, or better yet Aryan, race. This concern is expressed clearly not only within the writings of intellectuals for Iranian public consumption, but also within the government’s efforts to create national anthropological institutions aspiring to international academic standards.

About six months after Field’s departure from Iran, in March 1935, the Ministry of Education held its first meeting to discuss the establishment of an Iranian anthropological museum and research center. A significant presence at this meeting was Wilhelm Haas, who would later become known in the United States as Professor William S. Haas of Columbia University. Apparently the French government suspected Haas of being a German spy with a mission to disseminate Aryan racialist ideology in Iran and thus cultivate Iranian sympathy for the Nazis. Documents from the archives of the German foreign ministry confirm that this suspicion is completely untrue (in fact, his obituary in the New York Times claims he worked for

158 As just one example, see the 22-page booklet by Husayn Kay Ustuvan, Nizhād va Zabān (Tihrān: Sahāmi, 1937).

159 Fazeli, Politics of Culture in Iran, 54.

160 Ibid., 58.
American intelligence by providing information to the Office of Strategic Services).\[161\] Haas left Germany for Paris in 1933 due to the restrictions he faced as an individual of “non-Aryan origin” (\textit{nicht arischer Abstammung} in the Nazi sense, i.e., having Jewish ancestry). In 1934, he obtained an advisory position in the Iranian Ministry of Education through his friendship with noted Iranian nationalist Hassan Taqizadeh, whom Haas met in Berlin during WWI. The German government only became aware of Haas’s activities in Iran after he was hired to teach psychology and pedagogy at the newly founded University of Tehran.\[162\] While neither a professional anthropologist nor a German agent, Haas suggested a race-based understanding of the importance of anthropological study for Iran as a young nation-state. In his speech during the March 1935 meeting, he spoke of the duties of an anthropological museum in terms of two disciplinary approaches, social anthropology (\textit{insān-shinasī-i ījtima’ī}) and physical anthropology (\textit{insān-shinasī-i jismī}). The tasks of physical anthropology in Iran, Haas explained, should be to:

- obtain definitive and comparative data related to the different races of Iran and their influences on each other, define their specific and characteristic examples, [and understand] the degree of influence of these races on the physical structure of the Iranian race in a general sense. The different influences that the migration of these different races made on the Iranian race and the degree of potential and ability to overcome disease acquired as a result of their residence [should be] a subject of research.\[163\]

By February 1936, the Ministry of Education charged a committee of historians and literary scholars (including Rashid Yasami) to oversee the establishment of the Center for Iranian


\[162\] See letters exchanged between the German Foreign Ministry and the German Embassy in Tehran regarding Wilhelm “Willy” Haas, 1934-1935, PAAA files R64067, R64068.

Anthropology and its corresponding museum. In 1937, Reza Shah gave the formal order to incorporate the center and museum, prompting an article on the definition of anthropology in the ministry’s official journal, authored by Fazlollah Haqiqi. In contrast to Haas, Haqiqi did not speak of the museum’s role in service to research on the “different races of Iran,” but only on the Aryan race:

> the science of anthropology is also subject to attention and careful consideration of the Ministry of Education, establishing the Museum of Anthropology and gathering works on the ingenuity, life, and civilization of the Aryan people, the civilized race of this country, which has always held the light of civilization. With its genius, this race has been acting for thousands of years to spread knowledge and civilization around the world.\(^{164}\)

Haqiqi’s words seem to reflect the general attitude of his fellow nationalist intellectuals as well as the Pahlavi government. Peppered exclusively with references to Francophone scientists and anthropology journals, his article takes for granted an international consensus that Iran’s “civilized race” (as opposed to nomadic groups, perhaps?) is the Aryan race of supreme historical importance. Accordingly, despite the calls for comprehensive anthropometric study made by foreigners like Field and Haas, the new Iranian anthropological institutions engaged almost exclusively in the collection of folklore and material culture (that is, what Haas had called “social anthropology”).\(^{165}\) The first Iranian anthropology conference, convened in 1938, did not include any presentations of original anthropometric research; those speakers who did discuss physical anthropology made only vague generalizations about the significance of the Iranian race to human civilizational development, again citing French authors like Renan and Gobineau.\(^{166}\) The Center for Iranian Anthropology operated for only five years before it was shut down in the

\(^{164}\) Fazlollah Haqiqi, “‘ilm-i insān-shināsī,” Ta’ālīm va Tarbiyat 7, no. 3 (1316 1937): 170.

\(^{165}\) Fazeli, Politics of Culture in Iran, 55.

\(^{166}\) For proceedings of the conference, see the special issue of Āmūzish va Parvarish 8, no. 9 (1937 [1317]).
The outbreak of World War II thus caused a major interruption of anthropological activities in Iran, as in many other countries. Incidentally, Wilhelm Haas left Iran in 1939, the same year that Henry Field at last published the results of his 1934 anthropometric expedition in Iran, and both men worked in advisory roles for the United States government during the war. Meanwhile, the chain of tumultuous political events between 1941-1953 in Iran presaged significant shifts in the development and staffing of Iranian educational institutions, specifically a shift from European to American models of academic infrastructure and medical research. However, the early intellectual ties to France and Germany that characterized the Reza Shah period would still prove crucial to the emergence of the first generation of professional human geneticists in Iran (see Chapters 3 and 4).

*World War II and racial ideology in the Middle East*

Viewed through Western filters, the discourse of Aryanism in Iran inevitably draws simplistic comparisons to the racial ideology of Nazi Germany. By the eve of the Second World War, concepts of racial hierarchy, rooted in the rhetoric of anthropometry-based academic studies as well as social eugenics movements, had deeply penetrated into Middle Eastern public awareness. Furthermore, these concepts, despite being European or American in origin, had been adapted through the critical translations and commentaries of Middle Eastern intellectuals, many of whom supported various nationalist ideologies. The conceptual adaptation and transmutation of Aryanism in the Middle East is readily apparent not only in academic texts, but also at the
level of international diplomacy, namely the interactions of the Turkish Republic and Pahlavi Iran with the Nazi regime in Germany between 1933 and 1941.

Dating from the war period itself, there has been an unfortunate tendency to exaggerate the extent and causes of Nazi influence in the officially neutral nations of the Middle East, probably rooted in the contemporary (and not entirely inaccurate) fears of the British and French that the region was slipping out of their control generally, and endangering their war activities specifically—namely maintaining control over oil access and open supply lines to Russia.\(^{167}\) Given its past alliance with Germany in WWI, the British and French governments viewed Turkey’s neutrality with suspicion, and the Anglo-French treaty granting Hatay province to Turkey in 1939 was just one of several attempts to bribe Turkey into officially disavowing Germany in favor of the Allies.\(^{168}\) Meanwhile, emphasizing the Nazi sympathies of local rulers provided an immediate justification for the Russo-British occupations of Iraq and Iran in 1941 and the ensuing forced abdication of Reza Shah in favor of his son. Even relatively recently, historiography of this period has perpetuated the Allies’ wartime rhetoric regarding the Middle Eastern popularity of Nazi racial propaganda, ranging in tone from resigned acceptance (i.e., dismissively attributing instances of racism in Turkey and Iran to regrettable but temporary Nazi influence)\(^ {169}\) to thinly veiled anti-Muslim polemics (i.e., conflating anti-Zionism in the Middle East with antisemitism and tarring Muslims generally through historical associations with Nazism).\(^ {170}\)

\(^{167}\) See C. L. Sulzberger, “German Preparations in the Middle East,” *Foreign Affairs* 20, no. 4 (1942): 663–78.

\(^{168}\) See Watenpaugh, “Creating Phantoms,” 369.


\(^{170}\) For example, Jeffrey Herf, *Nazi Propaganda for the Arab World* (New Haven, CT: Yale University Press, 2009), 266.
However, literature that emphasizes a careful review of the German archives, alongside
the contemporary development of Middle Eastern race science that I have described above,
demonstrates that the strength of Nazi racial ideology within the Middle East has been largely
overblown. In spite of Nazi propaganda broadcasts in Arabic and Persian calculated to reach out
to Muslims, sympathy for Germany in the Middle East was driven more by resentment of the
British and French colonial powers than any wholehearted embrace of Nazi racial beliefs. This
much is obvious from the several attempts of members of Lehi, a Zionist-Jewish terrorist group
in Mandate Palestine, to negotiate an alliance with Nazi officials against the British up until the
end of 1941.\footnote{Sasson Sofer, \emph{Zionism and the foundations of Israeli diplomacy} (Cambridge: Cambridge University Press, 2007), 254.}

Furthermore, the manipulation of the Aryan race concept by Middle Eastern
individuals, especially Iranians, to ensure their privileges (and in extreme cases, their lives) both
in Nazi-occupied Europe and in their home countries, is a testament to the fact that race-oriented
national consciousness in the Middle East was well-established before the Nazi rise to power.

The popular textbook story is that the Iranian legation in Berlin suggested the
international name change from “Persia” to “Iran,” officially implemented on March 22, 1935,
with the encouragement of German diplomats, who welcomed the change as a sign of Reza
Shah’s embrace of Nazi racial ideology.\footnote{See, for example, James L. Gelvin, \emph{The Modern Middle East: A History}, 3rd ed. (New York: Oxford University
Press, 2011), 13; Abbas Milani, \emph{The Shah} (New York: Palgrave Macmillan, 2012), 67–8; Ervand Abrahamian, \emph{A History of Modern Iran} (Cambridge; New York: Cambridge University Press, 2008), 86–7; Homa Katouzian, \emph{The
Persians: Ancient, Medieval, and Modern Iran} (New Haven, CT: Yale University Press, 2009), 217–18.} Both Iranian Foreign Ministry memoranda, and
contemporary press reports from Germany and elsewhere, identified Reza Shah’s primary
motivation as a desire to highlight Iran as the homeland of the Aryan race at a time when
European countries advocated Aryan racial pride. However, within the Nazi party, there was no
consensus on the “Aryan” status of Iranians or other Middle Eastern groups like Turks and Arabs, and many German diplomats in fact received the news of the name change with much consternation. All evidence suggests that German diplomatic usage of “Aryan” to describe Iranians was a rhetorical device rather than a true reflection of how Iranians fit into either the Nazi racial ideology or the application of racial policies. In fact, the term “Aryan” proved to be a major ideological liability to the Nazi regime in its diplomatic relations with the neutral nations of the Middle East, who tended to ascribe to the French rather than the German concepts of Aryanism, while still leveraging an “Aryan” identity to assert their racial superiority or at least equality with Europeans. If anything, the name change should not be read as evidence that Iranians were won over by German propaganda, but rather as an Iranian effort to impose their own understanding of Aryanism onto their relations with Germany and convince the Germans to acknowledge this understanding in matters of racial policy.

At the time of the Nazi ascension to power in 1933, German-Iranian political and economic relations were at a low point. Seeking above all to improve Germany’s financial situation by stimulating foreign trade, various symbolic overtures were suggested to revive goodwill between Reza Shah and the German government. The most successful of these seems to be the “Firdosi-feier,” a festival celebrating the thousandth anniversary of the poet Ferdowsi’s birth, held at the German Archaeological Institute in Berlin on September 27, 1934, shortly in advance of the official Ferdowsi Millenary Celebration held in Tehran. The event was marked with an array of speeches and the renaming of a street in Berlin to “Persische Strasse.” The Germans, of course, intended the festivities to highlight kindred feelings between Iran and Germany, so it is no surprise that the German speakers brought up the subject of racial kinship.

173 Motadel, “Iran and the Aryan Myth,” 133–134; Rashid Armin Khatib-Shahidi, “German Foreign Policy towards Iran: The Case of the National Bank of Persia” (D. Phil., Oxford University, 1999), 254.
For example, the Assistant Secretary of the Reich Ministry of Education and head of its Science Office, Prof. Dr. Karl Theodor Vahlen (who was also a SA member) declared that Germans had a good reason to celebrate Ferdowsi: “For we know that our ancestors, the Germans, were related to the ancient Persians, and that the two great nations belong to the same branch of the Indo-German racial family.”¹⁷⁴ Note, however, that Vahlen did not use the term “Aryan,” and neither did the primary German speaker, the University of Berlin professor of pre-Islamic Iranian studies Hans Heinrich Schaeder. Meanwhile, the Iranian ambassador to Germany, Abolghassem Khan Najm (Najm-ol-Molk), addressing the crowd in Persian, stated bluntly: “the name of our land, Iran, means ‘land of the Aryans;’ the name of the Aryans has remained alive in the Persian and Indian-speaking members of the ancient family of nations to this day.”¹⁷⁵ Soon after, the Iranian legation in Germany suggested the Persia-Iran name change to the government in Tehran, which implemented the change within six months. Needless to say, this interpretation of Aryan origins did not at all match the Nazi conception of a Nordic Aryan race that had colonized Asia.

The conceptual slippage between different understandings of Aryanism likely influenced the Nazis’ terminological shift from “Aryan” to “German or kindred [artverwandten] blood” in the language of the Nuremberg race laws, drafted over the course of 1935 and enacted in September of that year. However, this did not stave off continued confusion within Germany regarding the racial status of Middle Eastern nationalities and how they should be treated under Nazi racial policy. For example, several Iranians who resided in Germany as secondary or university students between 1933 and 1941 recall being treated with respect by Germans as


¹⁷⁵ Ibid., 116.
fellow members of the “Aryan race.”176 According to Amir Aslan Afshar, the future diplomat and Pahlavi Grand Master of Ceremonies, his German hosts were like true parents to him, and he even received lenient treatment from the Gestapo, who exempted him from default arrest as an enemy alien following Iran’s declaration of war on Germany in 1941.177 On the other hand, Johannes Ruppert, the son of a Turkish man and a German woman, was expelled from the Hitler Youth in December 1935 after two years of participation. After he appealed to the Turkish embassy in Berlin for clarification on the matter, the German Foreign and Interior Ministries and the Nazi Party’s Racial Policy Office had no choice but to make an official ruling on Turkish racial identity. Fearful of damaging relations with Turkey, the Foreign Ministry insisted that Ruppert immediately be reinstated to avoid further probing by the Turks into the “Aryan question [Arierfrage].” The Turks might not be Aryan, but on the grounds of their ancestral relationship with Finns and Hungarians, they should be considered as a Balkan rather than an Asiatic people,178 and therefore exempt from the Nuremberg laws. After months of debate, the official decision to acknowledge Turks as a European people sharing “kindred blood” with Germans was announced in a letter issued by the Foreign Office on April 30, 1936. On the other hand, the letter cautioned, this acknowledgement did not extend to other Middle Eastern countries like Iran or Egypt because “these countries have not yet claimed the right to belong to Europe.”179 This line caught the attention of the international press, and by June 1936, several


179 “... diese Staaten bisher nicht den Anspruch erhoben haben, zu Europa zu gehören.” Letter from Foreign Office, Berlin, to all Reich Ministries including the Reich Chancellery and Presidential Chancellery, Nr. 82–35, B 8/4, April
newspapers had re-fashioned the carefully worded German memo into lines like “Turks are considered to be Aryans […] the citizens of Iraq, Iran and Egypt are not Aryans.”

Unsurprisingly, many Iranians, particularly the ambassadors to Germany and Turkey, were incensed and demanded corrective action, namely, German acknowledgment that Iranians were not only of kindred blood to the Germans, but specifically an Aryan people. The German Foreign Office managed to sidestep the matter by pointing out that the Nuremberg laws did not contain any references to Aryans, and that marriages between Iranians and Germans would be permitted under the laws. To avoid further conflict, the Foreign Ministry did not mention the most negative attitudes toward Iranian claims to Aryanness, such as those of Walter Gross, the director of the Nazi Racial Policy Office.

Uncertainty over the status of Iranians persisted under Nazi rule in Germany as well as in German-occupied territories during World War II. In May 1939, a German woman named Mafalda Albrecht addressed a desperately worded letter directly to Hitler, begging to meet with him to secure permission to marry her Iranian fiancé and to have him admitted to a German officers’ training school. Hitler likely never received this letter, as it was diverted to other officials in the Interior Ministry and the Wehrmacht; regardless, despite months of correspondence, there is no record of a solid resolution to the case. The most dramatic story in which Iranians capitalized on German inconsistencies regarding Aryanism is undoubtedly that of Abolhossein Sardari, sometimes vaunted as the “Iranian Schindler.” As a diplomat representing

30, 1936, Bundesarchiv R 43-II/1498b, Bd. 2 (1936 – 1943).


181 See meeting minutes of July 1, 1936, Foreign Office meeting “on the interpretation of the term ‘kindred’ [artverwandt],” PAAA R99174, Bd. 2 (1936-1940).

182 See letters exchanged between Mafalda Albrecht and Ministerialdirektor Meerwald, May 24, 1939-March 15, 1940, Bundesarchiv R 43/3640.
neutral Iran in Nazi-occupied France (until 1941), Sardari worked to protect Iranian Jews residing in France from falling victim to the Holocaust, even after losing his diplomatic immunity following the Anglo-Russian invasion of Iran. His strategy relied on maintaining friendly relations with local German officials while insisting that Iranian Jews were racially Aryans who happened to follow the “Mosaic” faith [musavi], and not biologically related to the Semitic Jews targeted by the Nuremberg laws. Unsure what to make of his claims, the German Embassy in France wrote to Berlin for instructions in mid-1942, and received conflicting responses over the course of the following year. By the time Adolf Eichmann (of the Reich Main Security Office) and Walter Gross (director of the Racial Policy Office) sent definitive responses vehemently rejecting Sardari’s logic, several hundred Iranian Jews—as well as a few dozen non-Iranians whom Sardari had provided with Iranian passports—had been exempted from anti-Jewish policies just long enough to escape deportation to death camps, either by fleeing France or being interned as enemy civilians.¹⁸³

Ultimately, the discourse of Aryanism, especially the “Nordic” version propounded by the Third Reich, had little substantive impact on the actual production of race science and anthropometric studies in Iran. While Aryanism was (and remains) a crucial element in the vocabulary of Iranian nationalism, Iranians accepted and promoted their a priori Aryanness on a linguistic basis and did not pursue biological science as a means to proving this particular identity claim. Meanwhile, Aryanism formed a major contextual backdrop to the biological study of Jews and Turks, but this is less apparent within the language of the studies themselves, and more in terms of how the research was structured in reaction to existing claims of racial hierarchy, and then marshaled toward political and social aims. While Kemalist scientists

doggedly insisted upon the Indo-Europeanness of the Turkish people, they consistently identified themselves with the “Alpine race” rather than the Nordic and subscribed to French rather than German models of Indo-European origins. In the case of Jewish biologists, the general Zionist acceptance of Jews as a distinct race (though not an inferior one) is directly indebted to Aryanist arguments, while the non-Zionists tended to refute a Jewish racial category in direct opposition to racist antisemitism. Meanwhile, by the mid-1930s, the politicians of Nazi Germany, the self-styled Aryan racial state, were already backpedaling from the convoluted academic debates on the precise racial classification of prospective non-European Aryans in favor of a more practicable “kindred blood” concept. As the next chapter will show, blood, and its discrete biochemical features, were already well on their way toward challenging bones, and their cruder measurements, as the default material for genetic studies, and thus for the ultimate “truth” of human identity.
In 1916, Polish physician and serologist Ludwik Hirszfeld and his wife Hanna, a nurse, arrived in Salonika to serve as medical staff for the Serbian Allied forces on the Macedonian Front. The Ottoman Empire had surrendered the city to Greece less than four years earlier in the Balkan Wars, and barely two decades had passed since a teenage Atatürk had left his hometown for military school. The Hirszfelds were enthralled at first sight with the location of their field hospital: “Once this building had been a Turkish pasha’s castle, the tower housed the harem, and nearby was a stone-walled water reservoir that was supplied with springwater and in which houris [beautiful women] had bathed not so long ago,” Ludwik reminisced in his 1946 autobiography.\(^{184}\) The Hirszfelds’ self-professed thirst for the exotic was indulged not only by the local architecture, but also by the human diversity of their working environment. While formally employed by the Serbian army, they tended the needs of various Balkan soldiers and refugees in addition to British and French imperial troops, which included Indians, Vietnamese, Arabs and sub-Saharan Africans. In this milieu, Ludwik Hirszfeld perceived the chance to pursue a thread of his serological research which, before the war, he had dismissed as logistically near-impossible: to apply the 1911 discovery of the Mendelian heritability of the ABO blood group system to questions of racial anthropology. Namely, he wondered, could a global survey of blood typing reveal “hitherto unknown and anatomically invisible relationships between different races”?\(^{185}\)

As he and his wife explained to the Salonika Medical Society on June 5, 1918, “Through

---


the accident of the war we happened to come to a part of the globe where more than elsewhere various races and peoples are brought together,” enabling this question to be addressed without many years of international travel.\textsuperscript{186} Over the course of 1917, with the permission of military staff, the Hirszfelds blood-typed the diverse array of Allied soldiers (sometimes in mid-battle),\textsuperscript{187} prisoners of war from the Central Powers, and Balkan refugees, ultimately tabulating the results of over 8,000 individuals sorted into 14 populations. Within each population, the Hirszfelds calculated the frequency of A, B, AB, and O types, and found that the frequencies varied considerably “for each people and race.”\textsuperscript{188} Indeed, the Hirszfelds treated their population categories interchangeably as representing “people,” “nationality,” and “race,” without much concern in their research reports. Their primary interest was the detection of inherited difference, which they assumed to have significant anthropological and historical meaning. Overall, their colleagues in Salonika agreed, and after some effort the Hirszfelds’ work was published in the British medical journal \textit{The Lancet} and French journal \textit{L’anthropologie} in 1919. These publications are now acknowledged as foundational to a field variously called sero-anthropology or racial serology, and later, anthropological genetics.\textsuperscript{189}

Unsurprisingly, the Hirszfelds took most of their population categories completely for granted, without providing any descriptive explanation within their publications. This is true for their European national categories (namely English, French, Italian, Serb, Bulgarian, and Russian) and the more broadly construed ethno-racial categories of the colonial troops (labeled

\begin{itemize}
\item \textsuperscript{186} Ibid., 677.
\item \textsuperscript{187} Hirszfeld, \textit{Ludwik Hirszfeld}, 58.
\item \textsuperscript{188} Hirschfeld and Hirschfeld, “Serological Differences between the Blood of Different Races,” 677.
\end{itemize}
as “Arabs,” “Malagasies,” “Negros (Senegal),” “Annamese [Vietnamese]” and “Indians”). The Hirszfelds offered notes of clarification only for the groups they named “Jews,” “Greeks” and “Turks:”

For the Jews we used the refugees from Monastir belonging to a people which came from Spain about 400 years ago. For the Greeks we examined 300 soldiers from Old Greece and the Islands and 200 refugees from Asia Minor and Thrace. For the Turks we used Macedonian Mahommedans. These last must certainly contain a large admixture of Slav blood, and the statistics should be confirmed in Turkey.¹⁹⁰

Later scholars have critiqued the categories by which the Hirszfelds calculated and interpreted their data.¹⁹¹ Philosophers of science Lisa Gannett and James R. Griesemer in particular have addressed the post-Ottoman context that made Jews, Greeks and Turks “quite contested identities” in Salonika. They primarily emphasized the inconsistency between these three categories as “religious” identities as opposed to “nationality” like the other groupings, and suggest that the Hirszfelds’ use of these designations was simply an appropriation of the local history of the Ottoman millet system.¹⁹² However, they neglected the fact that the millet system itself, and accordingly the religious associations of the national labels “Greek” and “Turk,” had been and would continue to be shaped by a long history of interactions between the Ottoman Empire and the rest of Europe. Similarly, as mentioned in the previous chapter, the slippage between “Jew” as a religious, national, and racial category is the product of a long transnational, rather than exclusively local, history.


¹⁹¹ For example, see the contemporary critique of “lumping vs. splitting” the Indian population category discussed in Mukharji, “From Serosocial to Sanguinary Identities,” 153–7.

What is remarkable about the Hirszfelds’ category descriptions is not simply their apparent recognition that they were not completely satisfactory in biological terms, but also how well they presage the upcoming international treaties that enshrine these categories in political terms. The San Remo Conference and the Treaty of Sevres (1920), in which the victorious Allied powers attempted to formalize their plans for an aggressive partition and occupation of nearly all former Ottoman territories—including the Turkish “heartland” in Anatolia—galvanized the Turkish nationalist movement under Atatürk. The ensuing three years of war in Anatolia, now commonly known as the National Campaign (milli mücadele) in Turkey, precipitated the massive displacement of Muslims residing in Greece—who, as the Hirszfelds noted, were identified as “Turks” regardless of language—and Christians within the newly defined borders of the Turkish Republic. The refugee displacement that occurred during the conflict was perpetuated and rendered into a formal “population exchange” by the Turkish and Greek governments, whose representatives signed the Convention Concerning the Exchange of Greek and Turkish Populations on January 30, 1923, at Lausanne. As of May 1, 1923, the “Macedonian Mohammedans” sampled by the Hirszfelds in Salonika in 1916 would have been compelled to leave for Turkey, if they had not already done so.

The Jewish refugees from Monastir (present-day Bitola in the Republic of Macedonia) tested by the Hirszfelds would not find respite in Salonika either. Along with the rest of Salonika’s Jewish population, they would suffer economically and politically at the expense of the newly arrived “Greeks” from Anatolia, as well as endure an increase in antisemitic expression in the city. Within a few years, these conditions bolstered support for Zionism among Salonika Jews, who gradually began to emigrate to Mandatory Palestine, where the British had promised the development of a “Jewish national home.” Thus, through the Hirszfelds’ work, the
field of sero-anthropology was born at precisely the same time, and out of the same human material, as the new paradigm of nation-states in the Middle East.

In the first decades after the Hirszfelds’ pioneering study, sero-anthropology on Middle Eastern populations would be carried out concurrently with the anthropometric research described in the previous chapter, and accordingly would still be largely preoccupied with renegotiating the boundaries between race and nation. However, the relatively simple calculations applied to discrete phenotypes like blood groups, as opposed to the inconsistencies involved in measuring continuous morphological traits like skull length and width, changed the approach of researchers toward evaluating historical claims of relative purity and admixture. These processes are most clearly seen in the research performed on Middle Eastern Jewish groups and their supposed ancient relatives, the Samaritans, and on the residents of the new Turkish Republic.

_Sero-anthropology vs. anthropometry in racial classification_

Serological race research caught on quickly in Europe, particularly in France and Germany, with hundreds of studies conducted on European groups published during the 1920s. Initially, physicians and medical scientists like the Hirszfelds, as well as anthropologists like Henry Field, treated ABO blood group frequencies as simply another layer of anthropometric data. Many interpreted their findings within existing European racial classification schemes and notions of the “anthropological purity” of primitive isolated communities that had been developed according to other techniques like craniometry. Furthermore, in analogy to the cephalic index, the Hirszfelds had formulated a “biochemical

---

index” (also known as the “racial index”) calculation based on a simple ratio of the frequency of blood type A to type B in a given population. On the basis of this calculation, they argued that their sampled populations could be divided into three broad “biochemical races” labeled European, Asio-African, and Intermediate (which included the Arabs, Turks, Jews and Russians). Although the Hirszfelds’ racial categories were far from universally accepted, the concept and calculation of “biochemical race” was readily adopted in much of the subsequent literature on blood group distribution. In general, serologists began to associate higher frequencies of type A with Europeans, type B with South and East Asians, and type O with genetic isolates or “pure races,” such as the indigenous populations of North and South America. The very high frequency of type O in Native Americans was explained by the hypothesis that type O was the original blood type of all humans before the later evolution of A and B alleles within Europe and Asia, respectively. In other words, “human biohistory had involved ancient invasions by ‘pure’ A and B races, imposing themselves on an indigenous O race,” and the proportions of each blood type in a given population represented its proximity to one of these imagined original biochemical races.

Within this conceptual framework, the American physician Reuben Ottenberg argued that the Hirszfelds’ calculation was inadequate for racial classification given its omission of type O, and suggested a new classification system based on the direct comparison of frequencies of the four blood groups, subdividing the Hirszfelds’ “Asian” type into three distinct racial groupings.


and adding a “Pacific American” type.¹⁹⁶ A fellow American biologist, Laurence Snyder, also denounced the biochemical index calculation as “worthless” and insisted that the most accurate racial classification system would be offered by comparing the frequencies of the three ABO alleles, rather than of the four blood groups they produce. Snyder’s system added a seventh type (“Australian”) to Ottenberg’s, but Snyder took pains to clarify that “the grouping of peoples into ‘types’ is purely arbitrary, merely for the sake of convenience in dealing with the data. […] Because two peoples occur in the same type, it is not implied that they have the same racial history.”¹⁹⁷ Due to this arbitrariness, Snyder eventually discarded the use of “types” altogether, simply discussing the data in terms of “peoples” who had undergone different degrees of “racial crossing” with one another throughout history.¹⁹⁸ Despite these challenges from Ottenberg and Snyder, only the Hirszfelds’ biochemical index system remained in common use for all sero-anthropological work produced in the Middle East, whose populations remained drifting in the “intermediate” category between the Hirszfelds’ European and Asian typology.

Employees of medical institutions in the mandate-governed Levant with close ties to Britain and the United States published the first in situ studies of Middle Eastern ABO frequencies. These institutions included the Altounyan Hospital in Aleppo and the School of Medicine at the American University of Beirut in the Syrian and Lebanese mandates, as well as the Hadassah hospitals in Mandate Palestine. The responses to these early reports, published in British and American medical journals, illuminated the significant dissent between Western scholars regarding the meaning of the racial distribution of blood types, and whether this data


superseded other anthropometric techniques—especially when variations in blood group frequencies did not correlate well with the received racial histories Europeans had constructed on the basis of anatomical differences. Furthermore, the academic methodological debate between sero-anthropology and anthropometry highlighted the extent to which Middle Eastern communities had very different ideas from foreign scholars regarding their own history and level of admixture with their neighbors.

In 1928, Dr. Ernest Altounyan wrote to the British Medical Journal (BMJ) reporting the blood group frequencies of 1,758 Arabs, Armenians, and Jews who had been treated at the Altounyan Hospital in Aleppo in the preceding five years. In addition to a simple table of the numbers and percentages, he noted briefly,

[… ] Armenians and Jews represent well-defined unmixed racial groups; under the heading of Arabs a certain number of Turks, Turkomans, and Kurds have been unavoidably included. Their number is relatively small, and the analysis of a small series of “pure” Bedouin Arabs has given practically identical figures for the distinguishing Groups [A] and [O]. It is hoped in the course of the next few years to compile a series for the Kurds, about whom, ethnologically, little is known.199

Altounyan trained in medicine at Cambridge University, but he was a native of and spent most of his life in Aleppo, the son of an Armenian father (who had founded their namesake hospital) and a Northern-Irish mother. A friend of T. E. Lawrence, he served as a medical officer for the British military during both World Wars; during WWII, Altounyan had also acted “as an expert

---

199 Ernest H. R. Altounyan, “Blood Group Percentages For Arabs, Armenians And Jews,” British Medical Journal 1, no. 3508 (March 31, 1928): 546. Several months earlier, Altounyan’s data was also published in the Lancet amidst a more general article on blood transfusion at the hospital, with a slightly different explanation of the categories: “In [Syria] the Jews and Armenians represent almost pure racial groups, with little admixture of foreign elements. Under the heading of Arab are included some Turks, Kurds, and a few Greeks, as well as the nomad and town-dwelling Arabs.” Ernest H. R. Altounyan, “A Note on Blood Transfusion in Syria, with an Analysis of 1149 Blood Groupings,” The Lancet 210, no. 5443 (1927): 1342.
adviser on Middle Eastern affairs.” His beliefs about the relative degree of “racial mixture” in different Middle Eastern groups were surely founded on a lifetime of personal experiences interacting with peoples of the region, both inside and outside of his hospital.

However, Altounyan’s note was not well received by his British audience, who regarded sero-anthropology with particular skepticism relative to physicians and anthropologists in continental Europe and the United States. Within a month, the BMJ printed a letter in which British physician and eugenicist James Stewart Mackintosh contested all of Altounyan’s descriptive claims, if not his quantitative results:

Dr. Altounyan of Aleppo contributes an analysis of blood group percentages for Arabs, Armenians, and Jews, and remarks that they “represent well-defined unmixed racial groups.” Here we have again the familiar confusion between “race” and nation or people. The Jews, by their own accounts, have proselytized freely both before and after the dispersion, and the Armenians, by reason of their geographical position and vicissitudes, can hardly have kept their Hittite germ-plasm intact, if that in its origin were racially pure. The Arabs are notoriously a racial mixture. Dr. Altounyan also mentions the Kurds as a folk “about whom, ethnologically, little is known.” On the contrary, it is well known that the Western Kurds are a blonde, dolichocephalic folk, speaking an Aryan dialect, and are therefore probably an outlier of the Nordic race—inhabiting, I may add, a plateau with climatic conditions of low rainfall, a dry summer, and a bright frosty winter. These conditions … closely resemble those in which the Nordic type was evolved, and therefore may account for these people maintaining their racial traits, despite their isolation.

Mackintosh’s critique of Altounyan is representative of the anthropometry-based school of racial classification, emphasizing the importance of climate and social environment to the development and maintainence of racial traits. Mackintosh had a documented preoccupation with the “Nordic

---


blonde elements” of the English nation, and there is no evidence that he had ever visited the Middle East at the time of writing. His condescending tone is all the more remarkable given that he himself never clarifies the apparently crucial distinction between race, nation and people, and many of his contemporaries might accuse him of the same “familiar confusion.” Although short correspondence to the BMJ at this time did not include citations, what Mackintosh calls “well known” facts about Kurds are likely attributable to the speculations of Austrian anthropologist Felix von Luschan, based on his anthropometric work on a specific set of Kurdish groups residing in Eastern Anatolia.

The underlying source of disagreement between Altounyan and Mackintosh over the concepts of isolation/purity versus racial mixture is the inconsistency of their analytical time scales. This inconsistency is symptomatic of the methodological differences between anthropometry-based racial classification, which compared the measurements of living populations to ancient human remains to track migrations since antiquity, and sero-anthropology, which by definition could only be conducted on living populations and thus allowed comparison only within the space of a few generations. Mackintosh speaks in terms of evolutionary time when he suggests that the Kurds have maintained their ancient, prehistoric Nordic “racial traits” in spite of their isolation from (i.e., inability to intermarry with) other Nordic races, due to the long-term effects of climate. Meanwhile, Jews, Armenians, and Arabs are not racially pure (if they ever were) due to their lack of isolation from (and intermarriage with) other races during the past several millenia. Altounyan, on the other hand, operates on a much more narrow time scale.

---


when he describes the Jews and Armenians as racially unmixed. The Jewish and Armenian communities in Syria served by his hospital were indeed relatively well-defined by religion, communal language, and urban location, as opposed to the “Arab” category. The term “Arab” could be broadly applied to anyone speaking Arabic (that is, most of the Syrian population), but also was associated to a certain degree with nomadic groups. Residents of post-Ottoman Syria could be roughly divided into urban-dwellers, which included people descended from a Turkish-speaking administrative class, and rural and nomadic populations, which included the tribes Altounyan called “Turkoman” and Kurdish in addition to “pure” Bedouin Arabs. Altounyan’s categories, and his perception of their relative purity or admixture, are therefore reflective of more or less fluid patterns of group self-recognition in urban Mandate Syria, rather than any academically established European system of racial classification. Furthermore, Altounyan’s assignation of “purity” to Armenians, Jews, and Arabs was not only more in line with the sero-anthropological concepts than Mackintosh’s rebuttal, but also foreshadowed the conclusions of Western scientists working in the region over the next decade.

Despite the temporal limitations inherent in the methodology of sero-anthropology, the Hirszfelds’ “biochemical race” concept and its projection into ancient human history swiftly captured the racial imagination of both scientists and the literate public. For example, in contrast to Altounyan’s work in Aleppo, Dr. William Shanklin, who worked at the medical school of the American University of Beirut during the 1930s, emphasized the racial purity of certain Bedouin tribes in Syria. Specifically, he argued, the blood group frequencies of the Rwala Bedouins showed that “they are not related to any of the settled populations of the Near East. […] They, however, like the American Indians and some island aborigines, are very high in group O and should, probably, be classified with [Ottenberg’s] Pacific American type. Although surrounded
for at least 2,000 years by peoples high in groups A and B, the Rwala have maintained a high degree of purity. They clearly represent a race of considerable antiquity.²⁰⁵ The Palestine Post reported Shanklin’s findings in a way that further overemphasized the relevance of blood type frequencies to human prehistory. Post readers would learn that the high frequency of type O in the Rwala, living in “the deepest parts of the [Syrian] desert,” could be interpreted as evidence that “pure blooded Arabs are closely related to the purest blood American Indians” since “the blood types of the two races are the same.”²⁰⁶ The alluring simplicity of such assertions of racial affinity would be eagerly taken up by researchers and nationalists alike, within the Middle East and beyond, throughout the interwar period.

*Imagining endogamous communities in the Mandate-era Levant*

Shanklin’s fieldwork in the depths of the Syrian desert was made possible by the serological laboratory developed by his colleague Dr. Leland Parr, a bacteriologist at the School of Medicine of the American University of Beirut. Concurrently with Altounyan’s work in Aleppo, Parr worked throughout the 1920s to build a comprehensive collection of Middle Eastern blood group frequencies. In 1931, the *American Journal of Physical Anthropology* published his data on nine populations, with special attention paid to Egyptian Copts, Samaritans, Armenians, and Syrian Arab Christians.²⁰⁷ Parr considered the first two groups to be

---


²⁰⁷ Leland W. Parr, “Blood Studies on Peoples of Western Asia and North Africa,” *American Journal of Physical Anthropology* 16, no. 1 (1931): 15–29. Parr also reported frequencies for 91 Persians, possibly the first ever sampled, and calculated their racial index as 1.17, an “intermediate” value. However, he never mentions anything about the Persians within the text, and given the small sample size and the location of his other tested populations, Parr probably obtained this data from self-identified Persians who had migrated temporarily or permanently to Syria.
of interest a priori, due to claims of long-standing endogamy that potentially linked them to ancient Egyptians and Hebrews, respectively. Although he decided that his blood-typing results were insufficient to pass judgment on the antiquity of their historical claims, his writing indicates his acceptance of their status as endogamous populations. Of the Copts, he wrote: “Whatever may have happened a thousand years ago, certain it is that in recent decades there have been practically no marriages between Copts and Moslems.”208 Remarkably, he seems to have accepted an even longer timetable of reproductive isolation for the Samaritans, in spite of evidence to the contrary witnessed with his own eyes: “The Samaritans are alleged not to marry outside their own group, although at the time we visited them [May 1928] we found two young men with English-speaking Jewish wives.”209 (Recall from the previous chapter that by 1934, one of these marriages apparently dissolved, and a Sephardic Jewish woman had married into the community.) Parr does not clarify whether these Jewish wives were excluded from his Samaritan sample or not, but he nevertheless explains his results as representing “the effects of inbreeding,” implying a permanent and almost hermetic seal on the community.

His conclusions on Armenians and Arabs are similarly contestable. The group of Armenians Parr typed in Beirut had significantly different ABO frequencies than those typed by Altounyan in Aleppo, and another group of Armenian emigrés in Paris. Despite acknowledging these variations, Parr designated the Armenians “the largest pure group” of his study,210 effectively dismissing the blood data to insist upon their “high degree of unity.”211 This is in

---

208 Ibid., 20.
209 Ibid., 24.
210 Ibid., 22.
(such as the future doctor Rostam Sarfeh, an Iranian Zoroastrian who studied medicine at AUB in the late 1920s) rather than from individuals living within Iran.
spite of the fact that the variation in blood type frequencies calculated between groups of
Armenians in several Syrian cities was quite similar to that between Syrian Arab Christians and
Muslims—a difference that Parr trumpeted as a major finding with deep historical implications.
He argued that his data confirmed that strict religious divisions among the Arabs actually
reflected a racial divide, in which the Christian groups should be categorized as Europeans. Most
impressive is Parr’s confidence in the antiquity of the differences he observed: “Interracial
with the Crusaders might account for some of the observed blood picture, but it is far more
reasonable to suppose that the Christians of the area are descended from an earlier Mediterranean
race and have maintained their earlier characteristics.”212

Parr’s apparent eagerness to bolster historical narratives of religious division and
endogamy were not uniformly shared by contemporary researchers—not even those working
within explicitly nationalist organizations, such as the US-based Hadassah. Parr’s comparative
data on Ashkenazi and Sephardi Jews came from his personal communication with Dr. Rina
Younovitch in 1929. Younovitch (née Goldberg, clearly of Ashkenazi background), an employee
of the Hadassah Hospital in Tel Aviv, undertook multiple ABO typing studies of Jewish
immigrants to Mandate Palestine, and was perhaps the first physician of her organization to
consider the serological data from an anthropological perspective. In 1932 and 1933, she
published her data on Yemenite Jews, “Asiatic Jews” (juifs asiatiques), and Samaritans in the
French journal Comptes Rendus des Séances de la Société de Biologie (Paris). Younovitch’s
work thus introduced the standard categorical practice of Jewish anthropometry into sero-
anthropology by treating “Asiatic” (really, “non-Ashkenazi,” as she includes Moroccans) Jews as
a population unit in contradistinction to Ashkenazim, a practice which would, in turn, structure

211 Ibid., 23.
212 Ibid., 25.
all future Israeli human genetics research. However, although Younovitch’s work was performed
in the Zionist context of Hadassah Hospital, she does not seem to share the same essential
assumptions as later Israeli researchers who emphasized a common historical origin for the
Jewish people. Rather, she routinely cites the French-Serbian sero-anthropologist Nicolas
Kossovitch’s 1932 work on Jews in Morocco, in which he argued that Jews shared only a
religious, not a racial, unity. Younovitch herself framed her own work as a challenge to the
idea of some scholars (specifically naming German geographer Richard Andree) that Jews
represented “a pure, unmixed people.” Furthermore, she discredited attempts to identify any
particular Jewish community as untainted representatives of the ancient Israelites. For example,
while she designated the Yemenite Jews as an ethnic isolate, she argued: “Weissenberg, who
studied these Jews from an anthropological perspective, considers them to be the true
descendants of the Hebrews. But the history of this people leaves no doubt of their mixture with
other peoples. […] the Jews of today are a very mixed type of people.”

She approached her study of other groups of “Asiatic Jews” with the same skepticism
toward claims of maintaining unbroken lines of descent from the Hebrews of the biblical period.
However, this skepticism seems to be less a product of overt Ashkenazi chauvinism (such as that

---

213 Nicolas Kossovitch, “Recherches Anthropométriques et Sérologiques (groupes sanguins) Chez Les Israélites Du
physician, served the Serbian army during the First World War, stationed in Salonika with the Hirszfelds. In 1924,
he secured a position in the laboratory of René Dujarric de la Rivière at the Institut Pasteur in Paris. Taking
advantage of the Institut Pasteur’s network of branches throughout the French colonies, Kossovitch compiled blood
group data from around the world for anthropological comparison, leading to a professorship at the School of
Anthropology in Paris. He travelled to Morocco in 1931 to conduct research on various populations across
the country, including the diverse communities of Jews. See William H. Schneider, “La Recherche Sur Les Groupes
Sanguins Avant La Deuxième Guerre Mondiale,” in *Les Sciences Biologiques et Médicales En France, 1920-1950*,
ed. Claude Debru, Jean Gayon, and Jean-François Picard, Cahiers Pour L’histoire de La Recherche (Dijon, France,

La Societe de Biologie* 84, no. 111 (1932): 929.

215 “…les Juifs d’aujourd’hui présentent un type de peuple très métissé.” Ibid., 930–1.
of Redcliffe Salaman) and more indicative of a belief in a common Jewish experience of admixture in the Diaspora. Noting that Ashkenazim and Sephardim in Europe demonstrated considerable admixture with neighboring peoples, she expected the same of other Jewish groups, in spite of the fact that “the Asiatic Jews inhabit the ghettos of Muslim towns, remain isolated without having any occasion to mingle with their coreligionists of Europe, and have a custom of saying that they represent islands of the primitive Jewish race.” Younovitch sorted her calculations on eight distinct communities into three broad categories—autochthonous Arabic or Ladino-speaking Jews (including communities from Syria, Palestine, and Morocco); Persian Jews (from Iran, Bukhara, and Dagestan in the Caucasus); and Mesopotamian Jews (from Baghdad and Kurdistan). She argued that the last group had a definite history of local admixture, while Persian Jews did not: “the inferiority of [Persian Jews’] social status renders their mixture with the Persian population very improbable. … [Babylonian] Jews, exiled by the Babylonian kings, maintain after hundreds of generations the tradition of their ancient origin, although they have experienced in certain epochs an influx of proselytes.” Ultimately, Younovitch concluded three major points based on the ABO frequency data, which generally conformed to her historical impressions:

1) the five groups of Asiatic Jews examined (Syrians, Palestinians, Persians, Bokharans and Caucasians), like the Moroccan Jews, present some very similar serological characters translating a mixture of Asiatic with European race; 2) the serological characteristics of Asian Jews are very different than those of European Jews (the Ashkenazim); 3) the elevated rate of A among the Jews of Kurdistan and the frequency of AB among the Babylonians indicates an intense infiltration by the European race.

---


217 Ibid., 1102.

218 Ibid., 1103.
Younovitch emphasized the evidence of admixture between European and Asian “races” in the various Jewish communities, especially among the Jews of Mesopotamia, as proof against their traditional claims of historical endogamy. Very unlike Parr’s conclusions on Arab Christians, she contradicted the projection of existing socio-religious divides between the Asiatic Jews and their neighbors into an eternal history of racial separation. Perhaps even more significant is her second, and seemingly straightforward, conclusion that her data shows a major difference between the different Asiatic Jewish communities and Ashkenazim, whose frequencies she presents in a single group even while acknowledging that the Ashkenazi patients originate from different countries, denoted as “(Russians, Polish, German, etc.).” Curiously, she does not amalgamate the eight distinct communities comprising her Asiatic data in a similar fashion for the purpose of the comparison, which would indeed have yielded very different frequencies from the Ashkenazi data—as well as very different from any of the Asiatic communities, separately considered. This is because combining the Asiatic community data effectively averages out the proportions of blood groups that otherwise distinguish the separate communities, which display a high range of variation. A similar range of variation was known to exist between the various national communities of Ashkenazi Jews in Europe (so much so that Ottenberg and Snyder had located German, Romanian, and Polish Jews each in completely separate racial “types”), which raises the question of why Younovitch provided only combined data for her Ashkenazi patients in Palestine.

In the absence of any explanation from Younovitch, the most obvious answer lies in the nature of Jewish settlement in the New Yishuv, as described in the previous chapter through Redcliffe Salaman’s letters. By the time of Younovitch’s research, a sociocultural rift had

---

already formed between the ideologically-driven Zionist settlers (predominantly Russian, Polish, and German Jews) and the “Asiatic” communities. The former, through their commitment to participation in Zionist economic, social, and cultural institutions, combined into a generic Ashkenazi melting-pot with relative ease, subscribing to the ideals of a new national culture based on secularized, European gentile norms. Meanwhile, the latter, as Younovitch acknowledged, had either lived in Palestine for centuries or had immigrated more recently, sometimes self-motivated by religion and sometimes (especially in the case of the Yemenites, Persians and Mesopotamians) recruited by Ashkenazi Zionists to serve as cheap Jewish labor in place of non-Jewish Palestinians. These recruits were employed as agricultural laborers and domestic servants for the Ashkenazi landholders in Zionist settlements, lived in small family groups in squalid conditions, and were kept at arm’s length from participation in the very same Zionist institutions that had convinced them to immigrate, leaving them unable to buy land or claim benefits. This socioeconomic segregation ultimately amounted to biological segregation since, as Salaman noted back in 1919, the “white Jews” only married among one another, refusing to do so with Yemenites or other Middle Eastern Jews. The ensuing waves of Ashkenazi aliya during the 1920s and early 1930s only reinforced this process. Meanwhile, the small groups of non-Ashkenazi immigrants, whose social interactions were mostly restricted to others from their individual countries of origin, found themselves unable to effectively combat this discrimination collectively across the Yishuv, despite attempts from some Palestinian Jews to unite and serve these marginalized communities by creating autonomous, Sephardi-specific

---

socioeconomic institutions to parallel those of Ashkenazi-dominated mainstream Zionism.\textsuperscript{221}

Younovitch’s construction of the Ashkenazim as a single biological category, while calculating non-Ashkenazi data according to eight separate countries of origin, therefore reflects the ethnic stratification manufactured by the Orientalist colonial logic of Zionism in the Yishuv.

Younovitch’s report on the blood-group data of the Samaritans, collected in cooperation with the Italian Corrado Gini’s anthropometric survey of the community (described in the previous chapter), reveals more about her understanding of her role as an employee of a Zionist medical institution. Younovitch began collecting her Samaritan data independently, in advance of the rest of the Italian-Yishuv joint team.\textsuperscript{222} A major concern of the team was the inclusion of only “pure” Samaritans, who were apparently indistinguishable from their non-Samaritan neighbors. Younovitch noted that the cooperation of Amram Cohen, the high priest of the Samaritan community, proved crucial to the integrity of the research:

\begin{quote}
We were able to perform the serological study of the Samaritans thanks to the friendly aid of the High Priest of this people… It was easy to confuse the Samaritans with Arabs or Spanish Jews, who speak the same language (Syrian Arabic) and who present themselves to travelers as Samaritans. We have examined only individuals whose origin was certified by the High Priest.\textsuperscript{223}
\end{quote}

Despite remarking upon the “anthropological” resemblance of Samaritans and Sephardic Jews, Younovitch did not compare the Samaritan blood group data to that of the Jewish immigrant populations she worked on. In a significant break from the previous anthropometric studies of Samaritans, she compared them only to Syrian Arabs of the same province. This omission of a Jewish comparison is all the more remarkable given that she titled her work “Serological Study

---


of Samaritan Jews”(!). On the other hand, on the basis of this comparison, she drew a racial
distinction between the Arabs and the Samaritans: “the percentage of group A is quite high in the
Arabs and reaches that of European or intermediate people, while that of the Samaritans for their
group A is close to Asiatic peoples.” However, in Younovitch’s interpretation, this did not
suggest that the Samaritans had a closer biological connection than Arabs to the “very mixed”
Jewish populations of the Middle East. Like most scholars working on the Samaritans,
Younovitch perceived this “very ancient people” to be “in a state of complete disappearance.”
Both the novelty appeal of the Samaritan community to anthropologists and the apparent
immanence of Samaritan extinction were predicated upon “the tradition of the Samaritans and
several testimonies of foreign observers [according to whom] the Samaritans never marry out (ne
se mésallient jamais).” 224 Younovitch makes no mention of the two Jewish wives Parr had
witnessed a mere 5 years earlier, nor does she corroborate the presence of the three Jewish wives
described by Gini in his own report of the Italian study. She does not discuss the alleged desire
of Samaritans to take Jewish wives or the possibility of the absorption of Samaritans into the
Zionist “body politic,” as reported by Salaman, Szpidbaum and Gini. Instead, she emphasizes the
Samaritan commitment to endogamy and the community’s inevitable extinction. Younovitch’s
grouping the Samaritans with the Arabs seems to indicate her assumption that the Samaritans
were part of a backward and outdated human landscape in the area that was rapidly being
transformed by the “progressive” activities of Zionist settler-colonialism. Regardless of whether
the Samaritans could be counted as Jews or not, their ethnocultural similarities to Arabs and
Sephardim afforded them no place in the modern, Western-facing national culture envisioned by
Ashkenazi Zionists.

224 Ibid., 970–1.
As described in the previous chapter, the first generation of anthropologists in the Turkish Republic carried out their research to provide an “objective” body of evidence supporting the racial claims of the Turkish History Thesis. Like the first anthropometric studies, the first studies of blood group frequencies of the Turkish population were conducted by medical doctors in Istanbul, before the Turkish Institute of Anthropology relocated to Ankara. Although Şevket Aziz Kansu declared the Institute’s interest in this research as early as 1931, until the end of the 1930s, work in sero-anthropology was carried out under the auspices of the Istanbul University Medical Faculty. While Turkish expertise in anthropometry came from Eugène Pittard and other Francophone anthropologists, expertise in serology came rather from German Jewish refugee scientists working in Istanbul, especially the microbiologist Hugo Braun and hematologist Erich Frank, who arrived in 1933. Unsurprisingly, given the nature of the anthropometric research ongoing at this time and its ideological subservience to the Turkish History Thesis, the first sero-anthropological work carried out in Turkey was aimed at correcting the 1919 Hirszfeld results to shift Turks from the “intermediate” to the “European” biochemical classification. Ultimately, however, in the face of the limitations of the index calculation, Turkish researchers instead settled on a historical interpretation similarly in line with the Thesis: that the Turks, along with civilization, had introduced the A blood type to Europe.

After Hirszfeld, the next sero-anthropological investigation of Turks was presented by Ahmed Şükrü Dimen at the Turkish National Medical Congress in September 1931. On the basis of data from 1,200 individuals sampled at the Bakırköy mental hospital near Istanbul, he calculated the Turks’ biochemical index at 2.4 (as opposed to Hirszfelds’ 1.8), nudging Turks

---

into the lower tiers of the European category. However, these results were later deemed unsatisfactory because the population of the asylum included “a mixture of Turks, Greeks, Armenians and Jews, with the result that it does not therefore characterize the Turkish population.”

Subsequent studies strove to include only “pure” Turks, especially those from Anatolia. Ethem Babacan’s 1936 study on 2,000 Turkish medical students and soldiers posted in Istanbul, conducted under the guidance of German microbiologist Hugo Braun, clarified that all subjects had been questioned, as a matter of procedure, to ensure that they were “pure Turks and not mixed or members of another people.” While Babacan calculated an overall biochemical index of 2.5 for the Turkish Republic, he found that subdividing the population according to region (Istanbul, 2.2, versus Anatolia, 2.94) or provinces of birth within Anatolia resulted in a fairly broad range of values (from 2.3 to 4.2), a phenomenon for which he had no clear explanation. This phenomenon, in fact, often appeared in studies worldwide during the first decades of sero-anthropology, because of the inherent problems of the Hirszfelds’ biochemical index calculation. As alluded above in the discussion of Ottenberg and Snyder’s critiques of the index, the simple ratio of A to B blood type frequencies was genetically meaningless, reflecting inaccurate models of, firstly, the underlying genetic mechanisms (e.g., the fact that multiple A alleles exist to generate the same phenotype) and, secondly, human evolution (e.g., the fact that the ABO blood types also exist in apes, therefore predating the existence of all humans). Finally, and most significantly, the classificatory function of the ratio hinged on the assumption that the values would remain consistent over time for, and for any sample size of, a given racial group—in other words, that the groups defined by the researchers were closed to immigration and

---


emigration, marrying only among themselves and maintaining a consistent number of individuals. The very fact that Babacan took all his samples of “Anatolian” blood from individuals living (at least temporarily) in Istanbul obviously belies this foundational assumption. Furthermore, the fact that these migrants were all soldiers or university students highlights the role of state institutions in confounding those very “natural” boundaries of human populations that they sought to identify and classify.

Nevertheless, use of the biochemical racial index continued within Turkish sero-anthropological publications. The next major study of Turkish blood groups was conducted by Nureddin Onur, a physician working at the Hygiene Laboratory at the University of Istanbul. Onur compiled data from Turkish soldiers with an assemblage of samples submitted for study to the Hygiene Laboratory and the Institute of Legal Medicine for the largest data set to date, with a total of 3,729 individual samples. He reported his results widely, mostly in Turkish, but also in the French journal *Comptes rendus des seances de la société de biologie* in 1937. Onur’s overall index calculation was 2.11. Unlike Babacan, he did not subdivide the sample population into provinces, but only the broad regions of “Europe” and “Asia Minor.” From among his samples, he identified “1,473 persons whose origins were incontestably established,” and calculated a major index difference between the Turks of Europe (2.44) and Asia Minor (1.80). While the difference between the values is similar to Babacan’s calculations for Istanbul vs. Anatolia, the values themselves point to an opposite classification, with Onur’s Asia Minor having a much lower (i.e., less “European”) index than Babacan’s. Ostensibly preferring to gloss over this difference, he ignores the index values in his discussion in favor of Ottenberg’s technique of phenotype frequency, where the variations were less pronounced: “One can conclude, according

---

228 Including at a meeting of the Turkish Microbiology Society on December 24, 1936, and in the medical journal *Pratik Doktor*. Nureddin Onur, “Türklerde Kan Grupları,” *Pratik Doktor* 12 (1936).
to these results, that the [frequency of] group A is not sensibly different among the Turks of
European Turkey and of Asia Minor, while group B is a little more elevated among the Turks of
Asia Minor. [...] The results allow us to have an idea, but cannot guide us to an ethno-
anthropological conclusion. 

229 Many more studies were needed, he explained, taking into account other blood factors and testing a completely pure Turkish sample, before the Turkish race could be accurately characterized in serological terms. 

230 While Onur at first demurred from offering a nationalistic interpretation of his data, he presented the same data to the Second Turkish History Congress (discussed below) as validating of the racial migration hypotheses of the Turkish History Thesis.

The third major sero-anthropological study conducted in Turkey in 1937 was Sadi Irmak’s work on two Southern Anatolian Yörük tribes, the Boahmatlı and Eseli. Like Onur, Irmak was a fellow physician and eugenicist in Istanbul; he was also intermittantly active in electoral politics, even becoming Turkey’s prime minister for about five months in the mid-1970s. 

231 Irmak explained his interest in the Yörüks as a test population in terms of both their alleged biological and cultural purity and their impending settlement at the hands of the state:

For centuries, in Anatolia’s western, southern and some of the eastern provinces there have been Yürük tribes who have preserved the same biology and culture. The government, for very natural reasons, is engaged in settling these [tribes] in villages and cities, and very soon it will be successful. [...] I say that Yürük biology is an unprecedented field, because a more favorable population is unthinkable for research on biological and anthropological issues, especially on the point of race, for the following reasons: 1. The Yürüks constitute an essential fraction of a settled nation’s component still living as nomads. In this respect, the biological and anthropological consequences resulting from nomadism and settlement can be studied on them. This is not the case in any other place. 2.


Being a population with almost no intermixing allows research on the special characteristics of pure races and, as such, of the biology of the Turkish race. 3. As the Yörüks’ migration from Central Asia is completely certain, they constitute a favorable field for conducting studies on Central Asian biology. 4. After a time, the coming results of their intermixing with settled people will also constitute an interesting subject.232

Although the familiar tropes of biological and cultural purity (i.e., lack of admixture) defined the Yörüks’ scientific value as a population, Irmak’s argument for their continued value after their settlement distinguishes his approach from that of Henry Field’s attempted salvage anthropology on the tribal groups of Iran (discussed in the previous chapter). While Field urgently studied the tribes before their interrelationships would “be lost beyond recall,” Irmak argued that the Yörüks’ assimilation into the settled Turkish population would also be a biological process worth studying. On the one hand, this reflects Irmak’s ideological allegiance to the Kemalist programs of modernization; on the other hand, it somewhat contradicts the party line of emphasizing homogeneity within the Turkish population of Anatolia. In any case, Irmak’s biochemical index value for the 400 Yörüks he sampled was 5.2, staggeringly higher than the averages calculated by Babacan and Onur for settled Anatolian and Istanbul Turks, due to the Yörüks’ much higher frequency of O type and very low B type. Despite, or perhaps because of, this inconvenience, Irmak considers only his own value from the Yörüks to conclude that the entire Turkish race belongs to the Alpine type (in congruence with the claims of contemporary Turkish

---

anthropometric studies), rather than the Mediterranean (Dinaric) type as suggested by the Hirszfelds in 1919.²³³

Both Irmak and Onur presented their blood group data to the Second Turkish History Congress in September 1937. Irmak began his talk with an explanation of the inheritance of blood type (as understood at the time) before very briefly summarizing his original research. Irmak emphasized that the very high frequency of the O type in Yörüks relative to Turks living in Istanbul or Anatolian cities indicated their ethnic purity, like that of Mayas and Eskimos in North America. The rest of his remarks were similarly simplistic, stressing the biological similarities (in terms of blood-type and fingerprint-pattern frequencies) of Turks with Northern and Western Europeans in contrast to Arabs, Iranians, and Indians: “According to the general state of the blood groups, a similarity is found between the Turks and the so-called northern race type and shows a completely different distribution [between the Turks and] southern races.²³⁴

[...] In both cases our nation departs from the nations of south and east Asia and shows proximity to the nations of northern Europe.”²³⁵

The message of Onur’s presentation was essentially the same, but unlike Irmak, he articulated a specific historical explanation for the data. Citing various national percentages of group A and B frequencies, he reiterated the common argument that since B was highest in Asia and A highest in Europe, “the source of the white race must be group A and the source of the


²³⁴ “Kan gruplarının umumi vaziyetine göre Türkler'le şimal tipi denen ırklar arasında bir benzerlik bulunmakta ve cenup ırkları tamamen farklı bir tevezzü göstermektedir.” Sadi Irmak, “Türk ırkının biyolojisine dair araştırmalar (kan gruplar ve parmak izleri),” in İkinci Türk Tarih Kongresi, İstanbul 20-25 Eylül 1937 (İstanbul: Kenan Matbaası, 1943), 844.

²³⁵ “Her iki bakımdan milletimiz cenup ve şarki Asya milletlerinden ayrılmakta ve şimali Avrupa milletlerine yakınlık göstermektedir.” Ibid., 845.
He extended this logic to explain how “pure, incontestably established” Turks could present such geographical diversity in their blood-type frequencies across Anatolia and Thrace: “I mentioned the slight increase of the A group when passing from Asia to Europe, while in contrast the B group decreased. We also see this in our country when passing from Anatolia to Rumelia… These results, [which] if compared with the historical findings would not be far off, push us to this conclusion: the Turkish race is the main source who brought type A to Europe.” In other words, the gradient of A and B blood types across the Turkish Republic supposedly reflected the ancient advance of mostly A-type Turks toward Europe, introducing the A allele to that continent while migrating away from mostly B-type Asian races.

In fact, even for its time the biological logic of this conclusion is thin, and it appears that Onur was purposely stretching his interpretations for the benefit of the conference’s goals to confirm the Turkish History Thesis with scientific data. In a later general compilation of information on blood groups, including a review of their use in sero-anthropology, Onur dropped these explicit references to historical Turkish migrations from Asia to Europe. However, his preface to the book acknowledged his ideological motivations: “The world is obligated to rewrite history from its [previous] basis on murky rumors in the light of science. […] But still the most important and sacred duty of the Turkish son is to search, find, and introduce to the world the honor and dignity of the Turk in his own noble blood, which we believe to be the oldest and most
adept architect of the civilized world.” Yet in spite of this nationalist drive, Onur’s more subdued interpretation of his data within the context of scientific publications for Western audiences, as opposed to his Turkish-language presentations and texts, mirrors the growing uncertainties of the Western scholarly community surrounding the usefulness of sero-anthropology to racial classification and its validity for substantiating historical claims.

*Middle Eastern data within an international debate*

By the mid-1930s, as physicians and anthropologists across the globe collected data on the ABO blood groups at an ever-increasing rate, the accumulation of sero-anthropological information only cast further doubt on the early claims that blood-group frequencies could clarify problems in racial classification. On the contrary, the more that data on far-flung populations became available, the more the waters were muddied by random frequency similarities, like those between groups from Africa and China, or Australia and Greenland.

William C. Boyd, an immunologist based at Boston University and enthusiastic advocate of sero-anthropology, teamed with anthropologist Leland C. Wyman to explain this “failure” in 1935. In their article for *American Anthropologist*, they argued that the discovery of a blood-group system analogous to ABO in the apes suggested that the current distribution of ABO frequencies in humans were the result of dispersions so ancient that they predated the divergence of the existing racial groups classified by anthropometry. Far from being useless, then, sero-anthropology promised to detect historical human migrations that preceded race itself! Of course, the authors acknowledged the perennial scholarly caveat that much more research was necessary to prove...
this hypothesis, “especially on all groups of people giving evidence of long isolation and all of the rapidly vanishing primitive tribes.”

In pursuit of such research, at the end of 1935, Boyd set off with his wife Lyle (an experienced biochemist in her own right) for Europe and the Middle East, funded by a Guggenheim Memorial Fellowship. In the next two years, they would travel to Ireland, Wales, the USSR, Spain, Egypt (where they would attempt to blood-type mummies), Syria (i.e. Beirut), and Iraq. In Egypt and Syria, they re-tested the ABO data recently published by AUB’s Parr and Shanklin, in addition to typing for the MN blood group system and PTC tasting ability (two recently discovered hereditary traits). The Boyds, like Parr, found Copts to resemble Egyptian Muslims in all respects. However, despite extensive testing and re-testing, the Boyds were unable to reproduce Shanklin’s dramatic results for the Rwala Bedouin (on the basis of which he had argued for their relationship with Native Americans); instead, they found that the Rwala did not have an inordinately high O frequency but rather more closely resembled neighboring Arab tribes after all. The Boyds interpreted this in favor of their hypothesis of pre-racial ABO evolution. Similarly, they disputed Parr’s claim that Syrian Arab Christians might be racially distinct from their Muslim neighbors, since they could not find consistent serological differences between religious groups.

---


On the other hand, the Boyds did not overturn all previous serological studies done in the region. When reporting their results for the Jewish community of Baghdad, the Boyds announced that their data matched well with that of Younovitch’s Mesopotamian immigrants to the Yishuv. More significantly, they concurred with her emphasis on the divide between Middle Eastern Jews and Ashkenazim: “The Asiatic Jews in general agree with the people among whom they live in having more group B and less group A than the European Jews.”

Yet despite noting that Baghdadi Jews and Christians shared similar frequencies, the Boyds excluded only the Jews when calculating an average ABO distribution for the city of Baghdad to be compared against surrounding localities. This implies that they did, in fact, consider the Baghdadi Jews to be “a people apart” from their neighbors, possibly reflecting their field experiences cooperating with the Jewish Hospital and Polyclinic, just two of the many modern, Western-style institutions generated by the community’s immense economic prosperity during the 1920s and 30s. The Boyds’ interaction with the elites of the Baghdadi Jewish community may have inclined them more favorably than Younovitch toward the community’s traditional claims of representing the isolated human remnants of the Babylonian exile—exactly the type of people the Boyds were searching for, after all.

Upon their return to Boston at the end of 1937, William Boyd first organized an updated compilation of worldwide blood group data; this thankless task, necessitated by the constant flow of serological publications that rendered all such compilations obsolete within a few years, was essential to creating a geographical basis for his evolutionary and historical claims, which he

---


planned to eventually publish in the form of a monograph. In addition to his own data from the Middle East, Boyd also incorporated data from the publications of Younovitch, as well as the Turkish researchers Babacan and Irmak, into his 1939 compilation for *Tabulae Biologicae*.\textsuperscript{245} Boyd’s compilation caught the attention of J. B. S. Haldane, the eminent British population geneticist, who sought to further the cause of sero-anthropology in the face of skeptical physical anthropologists. An expert at evaluating genetic hypotheses through mathematical modeling, Haldane complained that the anthropologists’ favored traits for classification, such as skull shape and skin pigmentation, were not reliable for reconstructing evolutionary history, because the former was subject to a great degree of environmental influence and the latter to rapid natural and possibly sexual selection. Blood groups, on the other hand, were exclusively inherited, and there was no evidence that they offered any kind of selective advantage; therefore, he reasoned, sero-anthropology was more likely to yield accurate information about prehistoric human migrations. Like Boyd, Haldane thus argued for a reversal of the existing methodological wisdom that the blood of living populations was less useful than ancient skeletal remains to determine the movement and mixture of humans in the distant past.

Boyd’s work provided Haldane with the necessary serological data to develop a genetic hypothesis on the peopling of Europe, prompting a correspondence between the two through the summer of 1939 concerning possible calculation errors and population duplications in Boyd’s compiled frequency tables.\textsuperscript{246} On September 1, hearing the news of the German invasion of Poland and anticipating imminent German air raids over the United Kingdom, Haldane sent


\textsuperscript{246} See letters from Haldane to Boyd, June 26, 1939, HALDANE/5/1/2/2/5; Boyd to Haldane, August 14, 1939, HALDANE/5/1/2/2/10; Haldane to Boyd, August 31, 1939, HALDANE/5/1/2/2/11; all housed in Special Collections, University College London (hereafter UCL).
Boyd an incomplete manuscript, requesting his assistance to proofread the material and submit it for publication in the United States.\textsuperscript{247} Boyd obliged, and by the end of March 1940, Haldane’s paper (as revised by Boyd) had been accepted for publication in the journal *Human Biology*.\textsuperscript{248} Meanwhile, the correspondence with Haldane motivated Boyd to dust off and revise drafts of similar arguments regarding the value of sero-anthropology to racial classification, which he had composed years earlier during his time abroad in Cairo, and which he then submitted to the *American Journal of Physical Anthropology* in April 1940.\textsuperscript{249} Boyd’s paper accepted Haldane’s migration hypotheses to explain the distribution of ABO blood group frequencies in Europe, and expanded on it to propose an evolutionary narrative of periodic population isolation and migration which could account for the ABO distribution of the entire world. The Haldane and Boyd papers initially drew favorable responses from anthropologists in the United States, and at the beginning of 1941, there was even talk of establishing a new national professional society for the study of human genetics and its application to anthropology. Although the proposal quickly fell through—according to Boyd, due to a lack of interest among American geneticists and the prevailing mood of wartime uncertainty—he believed that the papers had provoked the desired effect by drawing out the support of American anthropologists.\textsuperscript{250}

How was sero-anthropological data from the Middle East utilized in these apparently widely-read papers? Unsurprisingly, they figure more prominently in Haldane’s paper on Europe

\textsuperscript{247} Letter from Haldane to Boyd, September 1, 1939, HALDANE/5/1/2/2/12, Special Collections, UCL.

\textsuperscript{248} Letter from Boyd to Haldane, March 28, 1940, HALDANE/5/1/2/2/19, Special Collections, UCL.

\textsuperscript{249} William C. Boyd, “Critique of Methods of Classifying Mankind,” *American Journal of Physical Anthropology* 27, no. 3 (1940): 333–64. Boyd extensively cited Haldane’s manuscript, expecting it to appear before his own paper, but ultimately Boyd’s work made it to print in advance of Haldane. See letter from Boyd to Haldane, April 19, 1940, HALDANE/5/1/2/2/21, Special Collections, UCL.

\textsuperscript{250} Letters from Boyd to Haldane, January 13, 1941, HALDANE/5/1/2/2/26; March 19, 1941, HALDANE/5/1/2/2/28; and November 23, 1941, HALDANE/5/1/2/2/30. Special Collections, UCL.
than in Boyd’s paper on global distribution, since the Middle East (*sensu lato*) effectively delineates Europe’s southeastern borders. As Haldane noted, he had “arbitrarily drawn the frontier of Europe so as to exclude the peoples of the Caucasus,” relegating them to a separate table and discussion on the “neighboring non-European populations” alongside Central Asians, Anatolian Turks, and North Africans from Morocco, Tunisia, and Egypt. Meanwhile, Haldane included data on the Jewish population of Odessa (pointing out that most data from the USSR could contain unknown proportions of Jews, as they had not been sampled as a separate group by Soviet researchers), as well as on 1,000 “Turks,” within the European table. In a lengthy discussion explaining his selection of population data and describing possible sources of error, Haldane singles out the work of Turkish physician Babacan as an example of obviously faulty calculations among the data, such as making “the truly remarkable assertion that of 100 Turks examined at Ankara, 9.3 percent belong to group B.” However, Haldane’s own calculations of Turkish frequencies (which also seem to include an arithmetic error) reflect the uneven imposition of nationalist assumptions of ethnic uniformity on certain populations (primarily those of the Middle East) and not on others (especially Germans). His “European” Turkish frequencies are an amalgamation of the data from 500 individuals Babacan had tested in Istanbul with the 500 “Macedonian Mohammedans” sampled by the Hirszfelds in Salonika—two populations which, considered separately, had significant variation in ABO frequencies. Similarly, Haldane (re)created a combined figure for “Anatolian Turks” from Babacan’s provincial breakdown (Boyd had excluded Babacan’s original Anatolian calculation from the *Tabulae Biologicae* compilation).

---


252 Ibid., 463.
In Haldane’s creation of such amalgamated populations (which he did, in a selective fashion, for many of the other European groups), he disagreed with Boyd, who commented disapprovingly “I am very doubtful if one ought to make an overall figure for [an ethnic group], unless they all live in the same locality. […] The only way I see of knowing that it is justifiable to combine figures relating to a given ethnic group is by seeing that the results are none of them significantly different. And then you do not need a combined figure!”\textsuperscript{253} Yet in spite of this reasonable criticism, Boyd used his editorial prerogative over Haldane’s manuscript to add a similarly problematic set of data to Haldane’s table of “neighboring non-European peoples”: that of Younovitch’s Ashkenazim in Palestine, a modification which Haldane was not able to explicitly approve before publication.\textsuperscript{254} The logic of this addition is not clear, since Haldane certainly did not consider Jews, especially Ashkenazim, as non-European, as demonstrated by his inclusion of the Odessa Jews on the European table. Undoubtedly, Haldane’s decision to exclude Younovitch’s figures on Asiatic Jews from the “neighboring non-European” table reflects their small sample sizes, which rendered them unsuitable for Haldane’s comparative purposes; there are no ready answers as to why he initially passed over the Ashkenazi settlers, only for Boyd to add them in later. Boyd seems to have relegated Ashkenazi settlers in Palestine to the “non-European” table only because of their geographic locality in the Middle East (ignoring Younovitch’s own description that these were recent immigrants originating from multiple parts of Europe).

Regardless, these statistical and conceptual inconsistencies buried within well-received work by prominent Anglo-American geneticists foreshadow how certain presumptions of Middle

\begin{footnotes}
\item[253] Letter from Boyd to Haldane, August 14, 1939, HALDANE/5/1/2/2/10, Special Collections, UCL.
\end{footnotes}
Eastern nationalisms, incorporated into the sero-anthropological studies of regional workers, would became normalized within the international sphere of human genetics research. Haldane replicated Babacan’s and Onur’s presentations of Turks as simultaneously a singular biological population whose frequency data could “legitimately be pooled,” yet could also be neatly divided into European and non-European components, along the geographical boundary of the Bosphorus. Boyd’s insertion of the Younovitch data implies a recognition that the Ashkenazi settlers in the Yishuv were indeed creating a new biological reality for themselves, forming a “non-European” population in the sense that the ABO frequencies of this group of “New Jews” in Palestine would no longer quite match those of their European forefathers segregated into distinct German, Russian, and Polish communities. Yet, as discussed above, these developments reflect the conceptual ideology and physical population movements provoked by Republican Turkish and Zionist nationalism, with the result that the Middle Eastern ABO frequency data accepted and used by Haldane and Boyd to argue that blood groups “give information of a more fundamental character on racial structure” than skull shape or skin pigmentation, in fact, were just as representative of the events of the “immediate past” as the other traits.

The end of racial sero-anthropology?

As illustrated above through the exchange between Altounyan and Mackintosh in the *British Medical Journal*, the methods and racial conclusions of sero-anthropology had never gone uncontested by physical anthropologists. While its most enthusiastic supporters, such as William C. Boyd and J. B. S. Haldane, had consistently and confidently predicted that

---

255 Ibid., 461–2.

256 Ibid., 477.
serological data would replace anthropometric methods, they were never able to convince the
majority of anthropologists of the epistemological supremacy of blood-typing techniques. The
persistent marginality of sero-anthropology to the field was cemented by the accumulation of
serological data that overwhelmingly contradicted the existing systems of racial classification. The
global pattern of ABO type frequencies could not be reconciled with the other phenotypic
data of classical anthropometry, nor did it match prevailing hypotheses about human evolution
and racial differentiation. Furthermore, the gradual discovery of other blood antigen systems
alongside ABO—such as the MN, Rh, Lewis, and Kell systems—from the late 1920s onward
complicated the earlier attempts to narrate population histories on the basis of ABO frequencies
alone.

In 1943, Şevket Aziz Kansu’s student Nermin Aygen singlehandedly unraveled the
enterprise of sero-anthropology in Turkey, which continued apace in service to the Kemalist
nationalist narrative following the Second Turkish History Congress. Her dissertation research
on 500 soldiers of the Presidential Guard in Ankara demonstrated that ABO blood types had no
correlation with any anthropometric traits (i.e., height, cephalic, facial and nasal indices, or color
of hair, eyes and skin) or the racial classifications (i.e., Alpine or Dinaric) determined by these
traits. Therefore, she argued, the previous work by her Turkish colleagues Irmak and Onur—and
in fact, any work performed according to the classification schemes of Hirszfeld, Ottenberg and
Snyder—had to be rejected. Although her dissertation was only published in Turkish with an


258 See Hugo Braun and Ziya Öktem, “Türklerde Kan Grupları Tevziati,” İstanbul Seririyatı 3 (March 8, 1938);
Mecmuası 8, no. 6 (1942).

259 Nermin Aygen (Erdentuğ), “Türklerin Kan Grupları ve Kan Gruplarının Antropolojik Karakterlerle İlgisi Üzerine
English summary,\textsuperscript{260} it attracted some favorable attention abroad.\textsuperscript{261} After the publication of her thesis, Aygen began to retrain as a sociocultural anthropologist (publishing later work under her married name Erdentuğ), following a common shift in postwar anthropology away from studies of racial classification in favor of social and cultural approaches to human difference. Turkish physical anthropologists abandoned the study of blood groups for nearly three decades in favor of anthropometric methods. In Turkey as well as Iran and the newly established state of Israel, human blood-group research in the first two decades following World War II would be dominated by a rising paradigm of medical genetics research, conducted by physicians primarily aiming to track the inheritance of disease rather than of racial characteristics.

Meanwhile, the end of the Second World War heralded the decline of eugenics and racial classification as dominant ideological paradigms in both politics and science. This process had begun earlier during the interwar period, with a vocal minority of anthropologists and biologists challenging prevalent race theories in their individual research,\textsuperscript{262} and intensified with the rise of the Nazis in Germany, with many American and British scientists and several of their professional organizations signing manifestos that publicly refuted and condemned Nazi Aryanism.\textsuperscript{263} Regardless, only after WWII and the formation of the United Nations did the reformation of race science become a concerted undertaking under the auspices of the United Nations Educational, Scientific and Cultural Organization (UNESCO, founded 1945) and, more

\begin{footnotesize}
\textsuperscript{260} Nermin Aygen, \textit{Türklerin Kan Grupları ve Kan Gruplarının Antropolojik Karakterlerle İlgisi Üzerine Bir Araştırma (A Research on the Blood Groups of Turks and on the Correlation of These Groups with Anthropological Characters)} (Ankara: Ideal basımevi, 1946).


\end{footnotesize}
tangentially, the World Health Organization (WHO, founded 1948). The evolutionary biologist Julian Huxley, UNESCO’s first president, had advocated for scientists to abandon the term “race” in favor of allegedly more accurate terms like “ethnic group” since the 1930s. At last, in his new position, he had the power to realize his dream of organizing an “international inquiry…which would result in an impartial scientific pronouncement on the subject.”  

However, as sociologist Jenny Reardon has demonstrated, the UNESCO Statements on Race issued in 1950 and 1951—although now often interpreted as scientists’ declaration of the non-existence of biological races—in fact merely condemned the use of race as a basis for social policy and ideology, rather than its use within scientific circles. According to the committees of sociologists, anthropologists and geneticists convened by UNESCO, scientific studies of race could not be held accountable for the great human tragedies of the first half of the 20th century, ranging from eugenic sterilization programs to the Nazi Holocaust; rather, these events were caused by the ideological misuse or abuse of legitimate, objective science. The UNESCO statements thus ultimately argued that the prevention of future such abuses entailed the erection of “a boundary between science and society that would enable scientists to define and use race in a manner that could not be used for any particular social end… Biological concepts of race, they argued, did not have any inherent fixed social meaning.”  

Although this seems to absolve scientists from all potential censure from continued studies on racial difference, “race” as a scientific term had become so fraught that many biologists did increasingly employ terms like “ethnic group” or the particularly neutral-sounding “population.” A perhaps more obvious


266 Ibid., 31.
terminological shift was the general purge of the term “eugenics” from the names of professional journals and societies (for example, the 1954 name change of the journal *Annals of Eugenics* to *Annals of Human Genetics*). Such name changes seemed to signal the end of the ideologically biased approaches of sero-anthropology and the beginning of an era of purely objective human population genetics, even though there was no major transformation in many of the field’s operative assumptions.

While human blood-group genetics was supposedly divorced from its initial race-science applications through this transition, it never actually lost its relevance to nationalist politics. Rather, the work of population geneticists in the Middle East from the 1950s onward reveals a consistent pattern. Namely, the main distinction between earlier race scientists and later population geneticists lies not in the way the latter “examined different traits using new methods nor in their use of new terms like ‘gene pool’ instead of ‘race’ but, rather, in their different degrees of political awareness.” In other words, while the race scientists “consciously used science as a vehicle for promoting political goals,” the population geneticists did not perceive themselves to be engaged in political work, considering their findings to have primarily medical significance and to be of greater interest to the scientific community than to the public. Nevertheless, an examination of Middle Eastern human genetics publications suggests that their authors substantially internalized nationalist origin narratives that strove to homogenize ethnic, linguistic and religious minorities into uniform national citizenries. In fact, the vitriolic debates of about the proper meaning of “race” as a genetic category, as well as the emergence of international bodies (like the UN itself) amidst the Cold War political context of decolonization

---


268 Ibid.
and national development, led to the normalization of nationally-defined geographic and social boundaries for human populations as appropriate for genetic research in the Middle East.

In 1954, Arthur Ernest Mourant, a British geologist and physician, marveled at the overwhelmingly positive response to his newly released *The Distribution of the Human Blood Groups*, which compiled 1,716 reports of blood testing for nearly half a million people. This book—the product of five years of tedious research to update William C. Boyd’s 1939 compilation of worldwide blood group data (see Chapter 2)—quickly cemented the status of Mourant, the director of the Blood Group Reference Laboratory in London, as a leading figure in the international community of human geneticists. Reviews in leading anthropology journals, including one authored by Boyd himself, proclaimed the tome to be “indispensable” for the study of human races and national populations.269 Mourant’s own overriding memory of the book’s publication is his ensuing receipt of “an immediate invitation by the BBC to give them an interview.”270 In any event, the text is historically important not only because it was the largest collection of blood group data compiled to that date, but also because it established the norms of data collection and laid out a research agenda that would guide the work of the international community of human geneticists for the next two decades.

The structure of the book, and the location of Middle Eastern populations within it, bears some examination as an indication of the relative interest of Western scientists in specific populations of the region. Mourant sorted his data into six broad geographical regions, each receiving its own chapter: Northern and Central Europe; the Mediterranean area; sub-Saharan

---


Africa; Asia; Indonesia and Australasia; and American aboriginals. The region conventionally known as the Middle East is thus conceptually absent from Mourant’s presentation, which divided the pertinent data between the Mediterranean and Asian chapters. Iran (along with Iraq and the Arabian Peninsula) is categorized as “Asian,” while Turkey is “Mediterranean” alongside the Balkans, Armenia and the Caucasus, the Levant, Egypt and North Africa. Turkey received perhaps the shortest paragraph of any Middle Eastern country, with exactly three sentences (one specifically on the Yürük nomads) summarizing the Turkish sero-anthropology results from the 1930s.271 Mourant wrote four sentences to describe the Iranians, in spite of the fact that all the published work to that date had involved “Persians” living in Beirut or Samarkand, not within Iran. Mourant had thus taken it upon himself to contact two physicians in Iran, including the director of the Red Lion and Sun Society (Iran’s Red Cross), to request unpublished data from Tehran.272 Most striking, however, is the length of the section devoted to one of the few populations not identified by a national or geographic label: the Jews, treated as a single section within the “Mediterranean” chapter, merited five entire pages—more text than any other population category in the entire book, with the exception of India and the British Isles.

There are several obvious factors underlying the overrepresentation of Jewish populations in genetic research generally and in Mourant’s book specifically, the first being the declaration of the Israeli state in 1948 and the presence there of well-established Zionist medical facilities, whose staff were “taking full advantage of recent immigration into Israel to study the ABO and Rh groups of Jews coming from different parts of the world.”273 Another factor involves the subtle epistemic shift, related to geneticists’ efforts to distance themselves from prewar race

---


272 Ibid., 102.

273 Ibid., 72.
science, to justify why they took a disproportionate interest in certain kinds of human groups. The detection and examination of small, isolated, and/or “primitive” populations had long been a priority for physical anthropologists seeking to address questions about human evolution and prehistory, and remained so in postwar research. However, now the mechanisms of isolation—especially isolation due to social factors (such as religion and language) rather than geographic ones—came under greater scrutiny.  

274 In the case of the Jewish populations, a Zionist ideological framing of collective identity already led Jewish Israeli scientists to assume a high degree of isolation and endogamy within their subject communities, and as “expert” proof of these assumptions, they cited overwhelmingly Jewish sources on history and sociology (often consisting of Jewish Encyclopedia articles and, in one notable case, the Bible) in their research publications.  

275 Indeed, the Israeli scientists Mourant worked with generally neglected or downplayed historical evidence of considerable proselytization or outmarriage among certain Jewish communities, whereas Mourant himself, relying on other historical sources, highlighted such evidence.  

276 Nevertheless, the Israeli researchers of the 1950s and 60s laid the foundation for casting the Jewish people as the case study par excellence for human genetic research.

Few other nation-states attempted to claim that the majority of their citizens were the product of genetically isolated populations. Indeed, under the paradigm of anthropometric racial classification, countries like Turkey and Iran had embraced historical narratives of racial mixture to lay claim to an essential, underlying Europeanness which had been shallowly masked by the effects of Arab and Asian invasions. For example, the Turkish Information Office in New York


issued pamphlets during the late 1940s proclaiming that, while the Turks (and the Hittites before them, who “derive[d] from the same racial stock”) had emigrated from Central Asia to Anatolia, any traveler to Turkey would be “struck by the similarity of features and physiques between Turks and other Mediterranean peoples… [and] the large number of blue-eyed and fair-haired Turks, especially in the interior of the country.”

However, under the emerging model of quantitative blood group genetics—whose mathematical tools relied on assumptions of a stable, isolated population—investigating large groups of “admixed Europeans” did not much excite the interest of the Western-based scientific circles. As this chapter will show, only through the identification of small, isolated minority populations with unusual genetic traits could geneticists in Turkey and Iran draw international attention comparable to what Israeli scientists rallied for the Jewish people. On the other hand, Israeli researchers shared with their colleagues in Turkey and Iran a similar status as “outsiders” to the communities that made them famous; although Jewish, they all had Ashkenazi backgrounds, while their research subjects were predominantly new Mizrahi immigrants (as well as Ethiopians, Samaritans, and Bedouins). Accordingly, despite the ideology of Jewish unity in Israel, they wielded a similar role as representatives of state hegemony investigating “exotic” socioculturally marginalized populations in service to national and international agendas of biomedical research. In this light, these first decades of postwar genetic research within Middle Eastern states can be understood as national-scale microcosms of the larger framework of international human genetics, in which a few Western scientists and institutions, like Mourant and his laboratory, benefited from the collection efforts of vast networks of field workers abroad, then analyzed and reported data from populations to which they had no personal connection.

277 “Modern Turkey,” Turkish Information Office, c. 1947-49. J. C. Hurewitz papers, Box 14, Folder 12, Hoover Institution Archives.
Human genetics in the postwar world order

As suggested by the end of the previous chapter, the identification of World War II as a turning point in the history of human genetics can be somewhat disingenuous. The UNESCO statements on race, particularly the 1951 version (which Mourant was involved in drafting), did not actually advocate for the total erasure of race from scientific discourse; in fact, they enshrined three “major races” of white/European/Caucasoid, black/African/Negroid, and yellow/Asian/Mongoloid as legitimate classificatory labels. Furthermore, while the Hirszfelds’ biochemical/racial index had now been thoroughly discarded, dedicated sero-anthropologists like William C. Boyd continued to publish new racial classification schemes based on serology until the early 1960s. The transformation of racial sero-anthropology into blood-protein population genetics involved primarily technological and infrastructural changes related to medical research during the war, rather than a substantial shift in the conceptualization of human biological variation. The extraordinarily rapid “scaling up” of blood-protein genetics in the immediate postwar period can be attributed to states’ and international organizations’ increased attention to and investment in genetic research for its medical applications. For example, severe hemolytic reactions to certain antibacterial and antimalarial drugs widely distributed among Allied military forces raised awareness of certain hereditary blood diseases, like sickle-cell anemia, thalassemia, and glucose-6-phosphate dehydrogenase (G6PD) deficiency, which disproportionately affected

278 On the other hand, Jews and the “culturally Turkish” were singled out as invalid racial groupings: “National, religious, geographical, linguistic and cultural groups do not necessarily coincide with racial groups... Muslims and Jews are no more races than are Roman Catholics and Protestants; nor are people who live in Iceland or Britain or India, or who speak English or any other language, or who are culturally Turkish or Chinese and the like, thereby describable as races.” The Race Concept: Results of an Inquiry (Paris: UNESCO, 1952), 12.


troops of African, South Indian or Mediterranean descent. The anthropological and historical knowledge generated by this research, though often of significant interest to the researchers themselves, had to be justified to their funding agencies (many of which were national health services) in terms of its potential clinical value.\textsuperscript{281}

Wartime medical emergencies meant the need for blood transfusions skyrocketed, prompting the growth of local blood banks to collect, test, and regulate blood supplies on the home front,\textsuperscript{282} as well as the appropriation of refrigeration technologies for medical purposes, such as the “cold chain” to supply blood to soldiers stationed on remote Pacific islands.\textsuperscript{283} After the war, as blood transfusions became a routine hospital procedure, the infrastructure, technology, and research investment surrounding the collection and preservation of human blood were all reinforced and expanded at both national and international levels. The international agencies with missions to monitor, regulate, and coordinate global health and scientific research (particularly UNESCO; the WHO; and ICSU, the International Council of Scientific Unions), founded and/or oversaw a plethora of specialized international organizations, projects, and conferences based on the analysis of blood. The names of these organizations and projects (such as the “Human Adaptability” initiative of the International Biological Program, or IBP, which ran from 1964-1974) which convened around genetic research emphasized a promising future of global cooperation rooted in a universalist humanism, embodied in medical and scientific progress. However, this veneer of universalism obscures these organizations’ enforcement of a particular scientific division of labor within the Cold War geopolitical order, in which “first and


second world” countries controlled the intellectual agenda and administrative management, while “third world” nations only contributed “basic data” (i.e., blood samples collected from local populations).\textsuperscript{284} The geographic distribution of Allied command theaters during the war, which in turn mapped onto older imperialist spheres of influence, structured the division of fieldwork sites for genetic research much as it had during the days of anthropometry. Many of the British geneticists who attained global prominence and worked closely with international organizations in this period, such as Mourant’s German-refugee colleague Hermann Lehmann, made their entry into the field through wartime medical service and clinical research. In Lehmann’s case, his work specializing in blood conditions like sickle-cell anemia took him across colonial settings from India to Uganda, exposing him to a diverse range of populations across Africa and Asia and establishing a network of local contacts.\textsuperscript{285} Mourant and Lehmann’s respective counterparts in the United States, William C. Boyd and James V. Neel, coordinated research on the indigenous peoples of the Americas and the Pacific. All of these figures eventually converged on the Middle East, where they acted variously as coordinators of blood-collection fieldwork or as mentors or advisors to local scientists.

In contrast to the broad continuities in international politics, the expectations of genetic field research shifted dramatically from the days of anthropometry, at least partially in accordance with the medical purposes that justified and funded the studies. Rather than subjecting a relatively small number of individuals to tedious range of painstaking measurements, the emphasis of data collection shifted to examining the greatest possible number of individuals for a small set of “classical genetic markers,” specific phenotypes whose simple

\textsuperscript{284} Little, “Human Population Biology in the Second Half of the Twentieth Century,” S132.

inheritance patterns were believed to be understood, such as red-green colorblindness and the ability to taste phenylthiocarbamide (PTC). Thanks to wartime investment in blood research, the postwar period also saw a rapid succession of discoveries of heritable blood group and serum proteins, which greatly expanded the number of genetic markers pressed into service for the resolution of anthropological questions. Serious population researchers could no longer just survey the frequencies of ABO, Rh, and MN types—which could be determined by relatively simple tests amenable to field conditions—but were also compelled to mine their blood samples for data on the P, Lewis, Duffy, Lutheran, Kell, and Diego antigen groups, as well as on varieties of hemoglobin, haptoglobin, transferrin, and immunoglobulins. Many of these latter tests required much rarer and more expensive reagents and equipment, demanding that field workers preserve and ship their samples to large, centralized laboratories and serum banks which specialized in such analyses and could store the samples for anticipated future testing.

The WHO was responsible for authorizing the status of such laboratories and serum banks, designating them as “international reference centers” with a broad set of tasks. The directors of these centers drafted the standardized protocols for how human blood should be collected, transported, stored, and analyzed, and center staff produced the standardized reagents to be used in field and laboratory testing, trained researchers in protocol techniques, and performed analyses for researchers who did not have the equipment or facilities to do so.

---

286 Hemoglobin is the protein within red blood cells (erythrocytes) that binds to and transports oxygen molecules throughout the body. Haptoglobin is the protein that binds to free-floating hemoglobin in blood plasma that has been released from dying erythrocytes, enabling it to be safely removed from the bloodstream. Transferrin is the protein that binds to and transports iron ions through blood plasma. Immunoglobulins, also commonly called antibodies, are immune system proteins that identify and mark pathogens (such as viruses and bacteria) for destruction.

themselves.\textsuperscript{288} These centers, overwhelmingly located in Europe and North America, were sometimes generated anew, but more often built out of existing “national reference” laboratories developed for “utilitarian wartime purposes,” such as Mourant’s Blood Group Reference Laboratory (recognized by WHO in 1952).\textsuperscript{289} Many such centers were designated in the early 1960s during the preparatory stages of the IBP, whose “Human Adaptability” component anticipated channeling vast quantities of blood samples from “primitive” populations living in “third world” countries to freezers in laboratories across the “first world,” such as the World Serum Bank at Yale (designated 1961), the International Reference Center for Genetic Factors of Immunoglobulins in Rouen, France (designated 1965), and Hermann Lehmann’s International Reference Center for Abnormal Hemoglobins in Cambridge, UK (designated 1965).\textsuperscript{290} These freezers, then, became “international spaces,” even as the third-world peoples whose blood went into them, and the first-world lab technicians who placed it there, avoided direct contact with one another.\textsuperscript{291}

Due in part to the new demands on serological research, in part to the major regional disparities of capital investment in scientific infrastructure, and in part to the supremacy of Western scientists within UN-affiliated scientific organizations, the postwar international scientific community ultimately reduplicated colonial patterns of research.\textsuperscript{292} Even blood

\textsuperscript{288} Ibid., 68; Radin, “Latent Life,” 16.

\textsuperscript{289} Mourant, \textit{Blood and Stones}, 60–62.


\textsuperscript{291} Lindee, “Scaling up,” 189.

samples from countries that had never been formally colonized, like Iran and Turkey, were shipped to the same European “metropole” laboratories as those from the former Asian and African colonies of Britain and France. This pattern was exacerbated through the professional competition between individual scientists of the genetic-research “superpowers,” particularly the US and the UK, who each sought to dominate the coordination and management of international data collection in the “third world.” Mourant, who was selected as the general coordinator for genetic population surveys during the inaugural meeting for the International Biological Program, confided to his American colleague Boyd: “I think Jim Neel, who represents American human genetics in the I.B.P. organisation, feels that I am taking on too much. I do not want to prejudice in any way the full participation of America in this part of the Programme but I do not know just how I ought to tackle the matter, and Jim Neel in particular.” Mourant here alludes to possessive behavior displayed by many geneticists over specific regions or subject populations to which they had invested significant time and energy cultivating long-term relationships. His request for Boyd’s advice on reaching for compromise with Neel represents a good-faith effort to avoid interference with others’ research, driven by norms of scholarly etiquette such as the acknowledgement of others’ scientific priority and/or expertise in a given geographical region or genetic condition.

Yet the delicacy with which Mourant approached his interactions with fellow Western geneticists did not apply to his more extractive relationships with the scientists and research subjects of “developing” regions like the Middle East. He spoke of local research facilities in such places as regional “outposts” for Western scientists, in which he sought to install and maintain his own protégés (like Harry M. Smith, an American physician whose father, like 293 Letter from Mourant to Boyd, June 11, 1965, PP/AEM/K.13, Box 28, Mourant Papers.
Mourant, originated from Jersey), rather than as centers for training and collaborating with local researchers. If Mourant could hardly conceive of working as equals with most non-Western scientists, he condescended even further to the research subjects, often musing how best to “bait” local populations to provide blood samples. His letter to Boyd continued:

The other matter is the future of Harry Smith’s laboratory [at the American University Hospital in Beirut]. This could be a very valuable outpost of American serological genetics for the whole of western Asia and N.E. Africa, (and if I am suspected of empire building in the I.B.P. I certainly am not on this particular point). I have already diverted to Harry the specimens from two British expeditions (to Afghanistan and Iran) that would otherwise have come to me, and there is an enormous amount which he could do if he exerted himself. He is however, I am afraid, a most lethargic person [...] it might work if he could run the laboratory, and have a young medically qualified field worker who would go out and get specimens (using medical treatment as a bait).294

Not every Western geneticist was quite as callous as Mourant, who did not regularly participate in fieldwork. Some, especially those who settled (at least temporarily) in a given country and maintained particularly close relationships with their research subjects, took the provision of medical care as an ethical responsibility (particularly if the genetic work involved tracking inherited diseases) rather than a coercive means of exchange. Those who spent significant time working in foreign universities or hospitals—for example, the African-American physician James Bowman, who headed the pathology department at Iran’s Nemazee Hospital for five years—took great pride in their local students, especially their subsequent achievements in genetics. Unfortunately, however, attitudes like Mourant’s set the tone for how Western scientists treated their colleagues from the “third world” Middle Eastern nations (which, at this time, also included the cash-strapped Israeli state); the region’s “unstable governments” and “unreliable infrastructures” negatively affected the Westerners’ perceptions of local workers’

294 Ibid. Harry Smith did not last much longer in Beirut; less than 14 months after Mourant composed this letter, Smith shuttered the laboratory in August 1966. Letter from Paul Congdon to Victor Alan Clarke, August 9, 1966, PP/AEM/K.157, Box 34, Mourant Papers.
research capabilities.\textsuperscript{295} As a result, the professional conflicts that occasionally erupted between Western scientists and their Middle Eastern collaborators, mostly regarding the former’s publication and interpretation of the genetic data produced by the latter’s scientific labor, were shaped by not only a professional, but also a geopolitical, hierarchy of scientific prestige.

On the other hand, these colonialesque networks simultaneously reinforced national and regional power structures. In this chapter, I situate the people of Israel, Iran, and Turkey, as both practitioners and subjects of genetic research, within the biomedical infrastructure emerging from postwar international organizations. The most notable development is the rapid establishment of Israel as the Middle East’s regional center of genetic research by the early 1960s. Nearly twice as many publications were produced by and on Israeli Jews as for either Iranians or Turks, and Israeli scientists took on much more prominent roles than their regional counterparts in terms of organizing and participating in international genetics conferences and coordinating visits by foreign scientists (mostly from North America and Europe, but also from Turkey, Iran, and French Algeria) to Israel. Finally, unlike Turkish and Iranian researchers, the very first generation of Israeli geneticists organized international fieldwork expeditions, namely a JDC-funded trip to Ethiopia in 1959. Ultimately, however, Israeli researchers, like their Turkish and Iranian counterparts, were primarily interested in working on the populations of their own country, and in acting as the authoritative representatives of these populations within the international scientific community. In this sense, Middle Eastern scientists behaved as “native informants” to their Western colleagues, even when they were not members of the

specific communities under special scrutiny during this period (i.e., Mizrahim and Samaritans in Israel, Kurds and Zoroastrians in Iran, Greeks and Nusayri Alawites in Turkey). 296

This phenomenon took on a particularly multilayered form in Iran, where structural constraints meant that, as in the days of anthropometry, foreign researchers dominated the study of Iranian genetics. The situation in Iran was distinguished by the relatively decentralized nature of the country’s medical infrastructure and, in turn, the logistics of medical research. For example, prior to 1974, there was essentially no coordination of blood supplies between the transfusion services of the Red Lion and Sun Society, the imperial army’s medical services, and university medical faculties; nor did these various institutions consistently collect or share information on blood donors. Furthermore, in contrast to the universities of Turkey and the Yishuv-turned-Israel, those of Iran lacked any doctoral programs in the hard sciences prior to the 1979 revolution, thus prolonging for decades the necessity for Iranians to receive all of their advanced research training abroad. 297 In this environment, French, British, and American biochemists and physicians initiated most of the fieldwork on blood-group genetics, enabled by their own funding sources to undertake independent research using the facilities of new private hospitals, as well as of the nationalized remnants of foreign-built institutions like the Institut Pasteur or the Dutch-supervised Iranian Oil Operating Company in the southwestern region of Iran. While the Iranian medical staff who assisted with data collection were credited as secondary authors or within the acknowledgments of the publications, the foreign scientists assumed full control over the research and writing process. In particular, the populations they

296 See Introduction for my use of the term “native informant.”

selected for study—largely ethnolinguistic or religious minority groups—reflected the Western research interests embodied by the Human Adaptability division of the IBP, such as anthropology and evolutionary history, rather than local interests, which prioritized studies with direct medical applications that would be relevant to the majority population. Accordingly, the foreign researchers’ access to Iranian minority populations was mediated by “native informants” who, regardless of their relationship to the minority communities, always shaped the researchers’ perspectives on each community’s distinctive historical origins and marital practices.

Although the Iranian personalities involved in human genetics research during this period left behind few publications entirely of their own, their prominent role as mediators makes them accessible through the publications, journals, correspondence and oral histories of their foreign collaborators. At the time that Mourant was compiling the first edition of his book, he wrote directly to Ahmad Azhir, the founder of the Red Lion and Sun Blood Transfusion Service, in 1951 for information because he was unable to locate any published data on Iranian blood groups. By the time he released the second edition in 1976, about two dozen new studies had been conducted within Iran, around 60% of which were written up and published by foreigners. Of course, these foreign workers cannot be treated en masse, since each individual approached their research subjects quite differently. Nevertheless, their research in Iran all tended to focus on the same populations: the Kurds and other nomadic groups, as well as the Zoroastrians, whose purported biological relationship to ancient Iranians became analogous to that of the Samaritans to the ancient Hebrews. On the other hand, the “default” population against which these minorities were defined was never consistently identified as a biological entity. None of the various characteristics attributed to the Iranian national majority population—Persian-speaking, Shi’ite Muslim, sedentary—are diagnostic features of a distinct ethnicity; nor do any of the
geneticists in this period ever speak of a “Persian” ethnic category. What, then, are the boundaries of the “Iranian” genetic population? For many researchers, especially foreigners operating within the Iranian version of what sociologist Rasmus Elling terms “the ethnic commonsense,” the definition was negative: “Iranian” was simply an umbrella term for everyone—including most of the local medical staff upon whose assistance they depended—who did not belong to the (allegedly) clearly-bounded minority communities they preferred to study.  

For others, especially Iranian researchers, the definition was administrative: “Iranians” were all those with Iranian citizenship whose blood passed through national medical services, which aggregated geographical data at the level of regions, provinces, or cities, but never collected information on donors’ language, religion, or ethnic identification. In both circumstances, “Iranians” were thus a “supra-ethnicity,” that is, “a reified Iranian national identity grounded in Persian culture,” whose supporters alternately emphasized a shared national language and literature, a shared ancient history, a shared Shi’ite religious identity, or a shared Aryan racial ancestry.  

The process of genetic research, however, regularly underlined an inconvenient truth: Iranians, no matter how they were (un)defined, did not constitute a uniform, homogeneous category.

The Iranian case highlights the basic tensions between Middle Eastern geneticists’ (conscious or unconscious) interests in consolidating the dominant national culture, to which they all belonged, and the quest of foreign researchers, who set the agenda of the major international organizations, to locate unique, isolated populations that could yield more universal information about human evolutionary history. These tensions allow us to consider how national

---


299 Ibid., 27.
scientific communities, composed of technocratic elites, resist or reshape the standardization processes of the same “international scientific community” through which they claim local legitimacy. In this regard, the most influential group has unquestionably been the Israeli geneticists, whose research on Jews from across the Middle East, Africa, and Asia propelled them to international recognition within a few years of Israeli statehood.

Israel: An outpost of Western science?

“This meeting has been a success,” announced J. B. S. Haldane in his closing remarks as the honorary president of Israel’s first international genetics conference, on “the genetics of migrant and isolate populations,” held in Jerusalem from 2-5 September 1961. The conference was opportunistically timed to take place immediately before the Second International Human Genetics Congress in Rome, from which it drew many of its foreign attendees; nearly 150 participants, including about 40 from 14 other countries, attended the Jerusalem meeting to present their research. This conference was indeed a watershed moment for the international recognition of Israel’s blossoming community of geneticists; most of the foreign visitors hailed from Europe or North America, including such British and American luminaries as Mourant, Lehmann, Curt Stern and James Neel, who served as session chairs. Future Nobel Prize winner Baruch Blumberg and soon-to-be-famous Italian phylogenist Luigi Luca Cavalli-Sforza were also present. Brazil and Japan sent delegates, and Haldane and his students represented India (on the other hand, only two scientists from the whole of the Middle East and North Africa attended, the pied-noir Raymond Cabannes from Algeria and Muzaffer Aksoy from Turkey, discussed

---

later in this chapter). However, the foreigners were mainly invited to witness a showcase of a decade’s worth of Israeli genetic research, most of which was performed on the hundreds of thousands of Jewish immigrants that had overwhelmed the young state in the 1950s.

Chaim Sheba, the conference’s vice president, humbly delineated the purposes of the conference as a gathering for foreign geneticists to help the Israelis, by soliciting their advice on local research, strengthening professional bonds, and pushing the conservative Israeli medical establishment to recognize the importance of human genetics.301 Most of the other speakers, however, conversely marketed the value of Israel as a research site to the international scientific community. According to Arno G. Motulsky (a German-Jewish refugee to the US and prominent geneticist at the University of Washington), Israel’s veritable menagerie of “well-defined” immigrant populations, with “well known” histories of isolation, made the country “a population geneticist’s dream.”302 Abba Eban, the minister of education, informed the attendees that “through [the] circumstances of its history, this Jewish people offers a microcosm of human life and experience. Whatever has happened to the human species has in some measure or degree happened to us.”303 Throughout the conference, Israel was described as a “unique laboratory” or a “unique opportunity” for genetic research, and plenty of foreign scientists expressed enthusiasm for the Israeli research programs. However, not everyone was sold on many Israeli scientists’ tendency to interpret Jewish genetic data to confirm Zionist visions of history; in his closing remarks, Haldane continued:

It is possible that [the conference] has not lived up to the expectations of those who hoped it would throw light on the history of the people who are now

301 Ibid., 2.
302 Ibid., 8.
303 Ibid., 3.
gathering together again… It certainly has illuminated many important facts, but I think that most of the results thus far obtained are capable of several historical interpretations. That they mean something is quite certain. Just what they mean, I do not know.\textsuperscript{304}

Despite Haldane’s skepticism, the 1961 Jerusalem conference signaled the successful incorporation of certain Israeli approaches and assumptions about Jewish populations into international norms of genetic research, which can be grouped into two broad themes. The first and most visible of these is the conceptual division of Jewish groups under study into “Ashkenazi” and “non-Ashkenazi” categories, a practice initiated in the Yishuv (see Chapters 1 and 2) which intensified during the 1950s and 60s, prompted by the waves of predominantly Mizrahi immigration to Israel in this period. The second involved a practical recognition of Israel’s claim to a special interest—almost to the point of proprietary rights—over genetic research performed on Jewish bodies. This special interest extended even to populations not universally recognized as Jewish and/or residing outside the Jewish state, such as the Falasha tribe of Ethiopia.\textsuperscript{305}

Israeli human genetics research, like the sero-anthropology of Rina Younovitch in the 1930s, first developed within a medical setting treating new Jewish immigrants. The first two research groups to investigate the blood types and hereditary diseases of the immigrants who flooded into Israel after 1948 formed under the direction of physician Joseph Gurevitch at the Hadassah Hospital in Jerusalem, and, a few years later, of physician Chaim Sheba at the Tel-Hashomer Government Hospital on the outskirts of Tel Aviv. Born in Minsk, Gurevitch first traveled to Mandate Palestine in 1921 as a Zionist pioneer (\textit{ḥaluts}), performing manual labor in

\textsuperscript{304} Ibid., 249.

\textsuperscript{305} For a summary of debates on the Jewish status of Falasha, see Mordecai Roshwald, “Marginal Jewish Sects in Israel II,” \textit{International Journal of Middle East Studies} 4, no. 3 (1973): 328–54.
settlement construction. After a brief return to Europe to obtain a medical degree, he joined
Hadassah staff in 1930, and became the head of Hadassah’s department of bacteriology and
serology in 1943 (and of its blood bank when it was established a year later).  

Sheba, born
Chaim Schieber to a Hasidic family in Bukovina, earned his medical degree from the University
of Vienna in 1932 and set off for Palestine, where he became head of medical services for the
Haganah paramilitary organization. He volunteered as a medical officer for the British Army
during WWII, and upon Israel’s founding became first the surgeon-general of the Israeli Defense
Forces, then director-general of the Ministry of Health. In 1953, he was appointed the director of
the Tel-Hashomer Hospital in concert with the facility’s transition from its 1948 beginnings as
Israel’s first military hospital to serving the civilian population. Both Gurevitch and Sheba,
like Younovitch, would make professional names for themselves through their work on “non-
Ashkenazi” Jews. But while at the time of Younovitch’s publications the “Asiatic” Jews
numbered only a few hundreds in Palestine, when Gurevitch and Sheba conducted their work,
immigrants from the Middle East and North Africa had rapidly become the majority of Israel’s
Jewish population.

Between 1949 and 1951, the three years following the conclusion of the first Arab-Israeli
war, the new state's population effectively doubled; the rapid arrival of over 600,000 Jewish
immigrants, mostly from the Balkans and the Middle East (including essentially the entire Jewish
populations of Bulgaria, Yemen, Libya, and Iraq), “required an absorption effort practically

306 “Biographical particulars,” document concerning Gurevitch’s appointment to a clinical bacteriology lectureship
at the Hadassah-Hebrew University Medical School, 1947, Joseph Gurevitch file, Central Archives, Hebrew
University of Jerusalem; Yerahmi’el Rozhansky, “Prof. Yosef Gurevich z’l, 17.11.1898-20.10.1960,” Harefuah 62,
no. 7 (1962): 280. See also Nurit Kirsh, “Genetic Studies of Ethnic Communities in Israel: A Case of Values-

311.
unequaled in recent world demographic history.”308 All immigrants were quarantined upon arrival and subjected to medical examinations, involving X-rays and blood tests, before being released to transit camps (ma’abarot) managed by a combination of Israeli government and Jewish Agency personnel.309 Prejudice against Mizrahi immigrants manifested almost immediately; whereas the European and Balkan immigrants were prioritized for quick transfers into permanent housing, Mizrahi families, especially Yemenites, frequently wallowed for years in the crowded, poorly-equipped camps. Many were eventually settled into “development towns” (ayarot pituah) along the remote borders of the state, assigned to factory work or other manual labor, due to the belief of Ashkenazi immigration officials that the “Orientals” as a whole were backward, uneducated, and incapable of holding white-collar jobs.310 According to the ideological plan of mizug galuyot (as described in Chapter 1), one of the primary mechanisms through which the Mizrahim were to be culturally and biologically absorbed as Israelis was through intermarriage with Ashkenazim. Yet in practice, Ashkenazim resisted this process:

There is strong prejudice against [Mizrahim], who, after the romantic notion of them wore off, were found to be, after all, little more than primitive Arabs. “Black Jews,” who are capable of little more than serving the whites, is what they are often called and conceived of. One highly educated man [claimed] that he would rather die than see his daughter married to one of those black Jews.311

Despite the fact that Mizrahi communities differed vastly in their socioeconomic, cultural and religious characteristics when considered by individual countries and cities of origin, the Israeli


settlement process elided such differences as Mizrahim came to form a “sociological block” contrasted against Israeli Ashkenazim. The racial overtones of this process are easily identified in the common refrain among Ashkenazi elites in the media that they were unable to tell the difference either between different Mizrahi communities, or even between Mizrahi Jews and Palestinian Arabs. The most notorious example is an oft-cited 1949 editorial by a Haaretz reporter, Aryeh Gelblum, which railed against immigrants from North Africa:

This is the immigration of a race (geza’) unlike any we have known before. Apparently there are differences between people from Tripolitania, Morocco, Tunisia and Algeria, but I can’t say that I was able to learn what the nature of those differences are, if they really exist. They say, for example, that the Tripolitians and Tunisians are “better” and the Algerians, Moroccans and Maghrebis are “inferior.” But overall the problem is the same. […] The primitiveness of these people is unsurpassable… Generally speaking, they are only slightly more [educationally] advanced than the Arabs, Blacks, and Berbers in their countries. In any case it is an even lower level than that of the former Arabs of this country.

Similar articles throughout the early 1950s encouraged the adoption and enforcement of medical selection policies tailored to reduce and delay the immigration of Mizrahi communities, especially those from North Africa, India, and Iran. Chaim Sheba, as minister of health, was directly responsible for implementing such policies. A close friend of prime minister David Ben-Gurion, he convinced the latter to prevent the immigration of individuals with infectious

---


diseases—a legitimate public health concern—by, curiously enough, appealing to eugenic ideas, insisting that unfettered immigration would degrade the national gene pool. He considered the Mizrahi communities to be inordinately diseased and handicapped, and therefore deserving of more stringent medical restrictions.\textsuperscript{315} In 1951, Sheba singlehandedly cancelled the planned immigration of the entire community of Jews from Cochin, India on the grounds that some members were infected with roundworms, ultimately delaying the group’s arrival for three years.\textsuperscript{316}

Within this context of medical scrutiny, Gurevitch, Sheba, and their hospital-based colleagues published mostly descriptive work on the blood type frequencies and incidence of hereditary blood diseases among the immigrant groups who passed under their care. According to David Nelken, head of immunology at Hadassah at the time, Gurevitch “felt that the gathering of exiles from all over the world offered a unique opportunity for anthropological studies—an opportunity which had to be seized before the communities merged.”\textsuperscript{317} As anthropologist Nadia Abu El-Haj points out, this was the logic of “salvage genetics” at work, inflected with the particular Zionist teleology of \textit{mizug galuyot}.\textsuperscript{318} Before the post-statehood mass immigrations, Gurevitch had already taken an interest in the different frequencies of ABO and Rh blood types within different Jewish communities; in 1947, he divided a group of nearly 2000 Hadassah patients into five categories: Ashkenazim, Sephardim (groups from North Africa and the Balkans), Kurds and Persians, Yemenites, and “combined minor groups of oriental origin

\begin{attribution}


\textsuperscript{317} Goldschmidt, \textit{The Genetics of Migrant and Isolate Populations}, 18.

\end{attribution}
Within a few years, once the proportions of the latter four groups had swelled beyond all expectation, Gurevitch was able to indulge his seroanthropological curiosity by picking up where Younovitch had left off two decades earlier. His first post-statehood publication maintained the categorical divisions of his 1947 study, but he soon turned his attention to the blood groups of individual “Oriental” communities, regularly citing Younovitch’s work and comparing her 1933 data to his own. In fact, the overall formula of his publications, covering ten distinct Jewish immigrant populations between 1951-1960, tended to match hers: first, the studied population is described in terms of a historical narrative that traces the group’s original dispersion from the rest of the Jewish people, evidently drawing these narratives from articles of the Jewish Encyclopedia, the Encyclopaedia Judaica, and even the Jerusalem Post—histories which sometimes conflicted with the community’s own origin myth. Unlike Younovitch, who explicitly interpreted her data as evidence against many of the Mizrahi communities’ narratives of endogamy, Gurevitch and his colleagues simply presented the data for ABO, Rh, and sometimes MN blood groups frequencies in a descriptive manner, offering no interpretation as to which versions of history might be (in)validated by the results. Generally, however, Gurevitch’s narratives assessing the relative “purity of stock” or anthropological purity” of each community are similar to those of Younovitch (he disagreed with her only regarding the level of admixture among the Yemenites, which he considered less admixed than she did). At the end of each paper, both Gurevitch and Younovitch briefly discussed the


comparative frequency values obtained for different communities, though Gurevitch did not calculate Hirszfeld racial/biochemical indices as Younovitch had done.

Gurevitch’s enthusiasm for the work is reflected in his sampling procedures; unlike other Israeli physicians who occasionally published similar studies, he and his colleagues did not simply compile samples from hospital patients or blood donors, but selectively gathered data from the transit camps or development towns where the communities of his interest had been collectively settled. For example, in 1950, he requested blood samples from the Hadassah children’s hospital branch serving Yemenites living at the Rosh Ha-Ayin ma’abarot in 1950 (which he and his co-authors euphemistically termed “a village,” although the inhabitants were still dwelling in tents). Over the next ten years, Gurevitch’s closest collaborators, physicians Emmanuel Margolis, Elijah Hasson, and David Hermoni, assisted with the majority of the collection and testing of blood belonging to Jewish immigrants from Kurdistan, Cochin, Baghdad, Iran, Morocco and Tunisia, as well as the former residents of Gebbel Gefren (Libya), who had lived a “primitive life in caves,” and whose exoticism was so appealing that the doctors drove hours into the Negev Desert to visit the “villages” where they had been settled. Finally,


Gurevitch and his colleagues studied two composite groups involving immigrants from multiple countries, defined on the basis of historical-cultural terms: the Sephardim of the Balkans (mainly Bulgaria and Turkey) and the Ashkenazim of Europe, “the descendants of the German and French Jews.”

Both historian of science Nurit Kirsh and anthropologist Nadia Abu El-Haj have closely analyzed Gurevitch’s publications and the assumptions underlying his division of population categories, selection of community narratives, and presentation of comparative results. In particular, they note how his work constituted the “Ashkenazim” and “Sephardim” as singular units representing all of Northern and Southern Europe, as opposed to the “oriental communities” analyzed by individual country of origin. They correctly relate this inconsistency to Israeli social politics in the decade of mass immigration, although they do not mention the roots of this genetic practice in the Yishuv (through Younovitch). Furthermore, the work of non-Israeli geneticists on Jewish populations up to the end of the 1950s does not conform to this pattern. Mourant, for example, writing a summary on Jewish serological studies for the *Jewish Journal of Sociology* in 1959, diagrammed a detailed breakdown of European Ashkenazi populations not only by country but also by city, revealing a broad range of ABO frequencies—certainly as broad as that for the “Jews of Asia” which he also considers. Yet paradoxically, for his final discussion, Mourant gave a greater weight to the Rh and MN systems,

---


where the available data (all from Gurevitch and a Canadian research team) had treated Ashkenazim and Sephardim as aggregate groups. These inconsistencies make his conclusion—that Ashkenazim and Sephardim show a “remarkable uniformity,” and thus “have maintained their genetical identity more obviously than have the more heterogeneous Jews of Asia,” about whom “no generalizations can be made” from serological data—an exercise in circular reasoning.327 Mourant’s 1959 article and its heavy reliance on Gurevitch’s data—and, ultimately, its acceptance of Gurevitch’s population categories—foreshadows the increasing adoption by non-Israeli scientists of the Israeli pattern of analyzing a cohesive Ashkenazi population against disparate and segregated populations of “Oriental Jews.”

Taking this development to its logical(?) extreme, on the basis of blood pathologies, Chaim Sheba and his colleagues at Tel-Hashomer Hospital pioneered the category “non-Ashkenazi” (lo-ashkenazi)—a category which, in serological terms, did not “actually exist in any substantive or practical sense” outside the context of Israeli immigrant absorption.328 During his earlier work in Yishuv and British military medical services, Sheba had noted the differential incidence of hemolytic blood diseases in “dark-skinned Mediterranean” as opposed to “lighter-skinned immigrant” Jewish populations.329 By the late 1950s, Sheba and his colleagues at Tel-Hashomer (particularly Aryeh Szeinberg, Avinoam Adam, and Bracha Ramot) had identified a number of hereditary conditions (including G6PD deficiency, thalassemia, and phenylketonuria) appearing almost exclusively among Mizrahi patients of different countries of origin, allowing

327 Ibid., 171.
them to introduce the “non-Ashkenazi” as a medical population. In so doing, they collapsed the distinctions that Gurevitch and other Hadassah workers had carefully maintained and described between the various “Oriental” and Sephardi communities, subsuming them all under a negatively-defined category that constituted the Ashkenazi as the normative Jewish body. Sheba’s team defined these umbrella categories in frankly racial terms: “The Ashkenazic is the light-complexioned Jew originating from Eastern, Central or Western Europe, and the non-Ashkenazic usually is the dark-complexioned Jew of Oriental or Mediterranean origin. The chances of misplacements of subjects were negligible, as until now the distinction between the two groups is very clear.”

Sheba’s unabashed racialism was but one facet of his extensive application of Biblical narratives and concepts to his medical research, wherein he often referred to Jewish populations as descendants of “the tribes of Israel” (shevaṭe yisra’el). He declared that “the Bible is the major source for the genealogy of the ‘Jewish People,’” and he explained the shared genetic diseases of Jewish communities with non-Jews in different regions as the result of common ancestries traceable to the dispersion of Noah’s sons Shem, Ham, and Japheth. Of all the Israeli

---


331 See, for example, Yehuda Matoth, Z. Shamir, and E. Freundlich, “Thalassemia in Jews from Kurdistan,” Blood 10 (1955): 176–89, as well as the work by Elisabeth Goldschmidt discussed below, which discuss the specific health needs of the Kurdish Jewish community with regard to their communal history and sociology without any comparative reference to the Ashkenazim.


researchers considered here, Sheba was the most invested in downplaying the known histories of admixture between Jews and non-Jews, especially through intermarriage. For example, he explicitly cited the Old Testament as historical proof of the Iraqi Jewish community’s permanent resistance to intermarriage and thus pure line of descent from the Judeans of the Babylonian exile. He acknowledged possible admixture only through the rare occurrence of mass conversions to Judaism (as among the Yemenites and Khazars in the 6th and 8th centuries CE) or through mass rape during wars and pogroms, insisting that “historical and traditional data point to the conclusion that most present-day Jewish communities stem from the common gene pool of the ancient Judeans.” As Abu El-Haj explains, for Sheba, “the truth of Jewish origins” lay not in the genetic data he and his team collected, but rather in these historical, traditional, and above all biblical data.

The team’s work on the differential incidence of G6PD deficiency and thalassemia in Jewish groups formed the core of Sheba’s fanciful hypotheses, presented both in print and at scientific conferences, to reconcile his convictions about Jewish history with the observations of geneticists around the world. In his narrative, these defective genes were present among the ancient Judeans and Phoenicians (that is, the Semites or sons of Shem), whose subsequent migrations across the Mediterranean and Southwest Asia explained why the Jews living in these regions, along with Sardinians, Sicilians and Greek islanders had relatively high rates of these
conditions. The near-absence of these diseases among Ashkenazim did not indicate that they did not share origins with other Jews, but rather that they were the descendants of a generation of Jewish men enslaved by Rome and forced to marry fair-complexioned “Japhethite” women, resulting in the loss of these genes.\textsuperscript{338} This basic narrative became increasingly convoluted as Sheba tried to account for differences between the various non-Ashkenazi communities and the geographic distribution of other inherited diseases. In his version of history, Armenians became descendants of the ten lost tribes because they shared a high rate of Familial Mediterranean Fever with the Libyan Jews. Meanwhile, he took the view of Jewish religious scholars that the Samaritans, lacking any G6PD deficiency, were foreign arrivals to Palestine with no biological relationship to the ancient Israelites (in marked contrast to earlier race scientists and seroanthropologists, like Weissenberg, Salaman, and Younovitch, who had upheld the Samaritans’ claim of descent from the Israelites). Finally, Sheba argued that successive Jewish dispersals led to the ancestral population splintering along lines that somehow neatly removed mutations from the ancient Judean gene pool, resulting in divergent rates of genetic diseases among communities.\textsuperscript{339}

Sheba became progressively engrossed with his “medical archaeology,” but had trouble financing such research. The hospital barely had enough government funding to cover its basic services, and to secure research equipment Sheba had to appeal to outside sources, such as the


\textsuperscript{339} Sheba, “Jewish Migration in Its Historical Perspective.”
American Jewish Joint Distribution Committee (JDC). The JDC initially rejected Sheba’s application to study “the wanderings of the Jews…through blood chemistry” on the basis that their philanthropic funds could not be used for “pure research with no medical significance.” Only after an ally of Sheba’s at the Geneva JDC office intervened, repackaging Sheba’s project as a public health issue affecting the absorption of Oriental immigrants, did the JDC finally award Sheba’s team a $10,000 grant for research equipment in mid-1959. Later that year, Sheba used some of that funding to supply a field expedition to Ethiopia. The stated primary reason for the expedition was to search for the presence of G6PD deficiency among the six major Ethiopian tribes, given the condition’s high frequency among both West Africans and Mediterraneans, and given its medical significance for the use of antimalarial and antibacterial drugs in the country. However, the field team, led by the geneticists Avinoam Adam and Mariassa Bat-Miriam and accompanied by two physicians and a nurse from Tel-Hashomer, conducted a broad range of tests and measurements for different genetic traits in addition to collecting blood samples, some of which were shipped to London to be tested in Lehmann and Mourant’s laboratories.

Sheba, of course, had additional motives for organizing the expedition and a decidedly non-medical interest in Ethiopia: the presence of a Jewish Ethiopian tribe, known as the Falasha. According to his biographer, he “wanted to know how the Falasha had arrived in Ethiopia and whether they also belonged to the Jewish gene pool.”


341 Typed draft manuscript of “A Survey of Some Genetical Characters in Ethiopian Tribes,” probably written by Chaim Sheba. This draft is undated but must have been produced between January 1960 and May 1962. Available at the National Library of Israel, reference number 003538559.

342 Bondy, Shiba: Rofè Le-Khol Adam, 309.
researchers did not regard the Falasha as Jewish thus appears to be an overgeneralization,\(^{343}\) and possibly reflects some of the equivocal statements in the presentations of the data.\(^{344}\) Sheba, for his part, consistently referred to the Falasha as “the Jews of Ethiopia” and both he and Szeinberg categorized them as a Jewish population at the 1961 Jerusalem conference.\(^{345}\) Perhaps others on his team shared the doubts of other Israelis regarding the authenticity of the non-rabbinical Judaism practiced by Ethiopian Jews. Indeed, the Jewish status of the Falasha confronted the Israeli state with both internal social disputes and delicate foreign policy considerations. Although several prominent personalities in Israel at the time, including President Yitshak Ben-Tsvi, supported the Jewishness of the Falasha,\(^{346}\) the state did not declare them eligible to immigrate *en masse* to Israel under the Law of Return, instead granting only individuals special permission to settle in Israel. This ambivalence arose from a deference to the Chief Rabbinate’s 1954 ruling that Falasha must undergo rabbinical conversion ceremonies prior to marrying Israeli Jews, as well as a desire not to antagonize the Ethiopian government, a key regional ally against the Arabs. The Ethiopian government restricted emigration and opposed any encouragement of tribalism, including foreign aid directed preferentially to the Falasha.\(^{347}\) Sheba’s ability to coordinate the expedition with the Ethiopian Ministry of Health, who provided extensive support to the field team, would have required him to downplay his special interest in the Falasha and

---

\(^{343}\) Kirsh, “Population Genetics in Israel in the 1950s,” 636.


\(^{347}\) Roshwald, “Marginal Jewish Sects in Israel II,” 347–51.
frame the study as one of the many instances of general medical aid Israel provided to Ethiopia in the late 1950s.\textsuperscript{348} In any case, the joint British-Tel-Hashomer team ultimately determined that, on the basis of over 15 genetic traits, the Falasha were biologically indistinguishable from other Ethiopian tribes.\textsuperscript{349} However, this did not detract from Sheba’s own acceptance of the Falasha’s Jewishness; he decided they must therefore be the descendants of indigenous Jewish converts rather than exiles from Judea.\textsuperscript{350}

Beyond Sheba’s own interests, the thorough studies conducted by the Ethiopia expedition and its embrace by Ethiopian authorities exemplifies the relative strength of the Israeli medical establishment generally and its human genetics program specifically. According to his biographer, Sheba apparently also organized research visits by Tel-Hashomer physicians to Iran in concert with international organizations and Iranian medical institutions.\textsuperscript{351} At the level of epistemology, the Ethiopia expedition also highlights the logic by which Zionist ideology stakes claims to Jewish bodies everywhere, regardless of how marginal their Jewish status may be in the eyes of religious authorities or the “Jewish state” itself. More importantly, the participation of British researchers as technical partners rather than the leading investigators in the expedition reveals the process by which that Zionist logic has come to be accepted by the international scientific community. The very fact that the Falasha claimed a Jewish identity legitimized the


\textsuperscript{349} See Chaim Sheba, Avinoam Adam, and Mariassa Bat-Miriam, “A Survey of Some Genetical Characters in Ethiopian Tribes: Introduction,” \textit{American Journal of Physical Anthropology} 20, no. 2 (1962): 168–71, and the following 13 articles in the same issue cataloging the various traits, including ABO, Rh, and MNS blood groups; haptoglobin and transferrin types; the presence of G6PD deficiency, abnormal hemoglobins, color vision defects, and mid-digital hair; fingerprint patterns and morphological traits such as hair type and eye color; the ability to taste PTC and roll one’s tongue.

\textsuperscript{350} Bondy, \textit{Shiba: Rofe Le-Khol Adam}, 309.

\textsuperscript{351} Ibid., 302, 308. Unfortunately, no other records of these purported visits to Iran have yet been located.
Israeli dominance in every stage of the study, from organization and fieldwork to publication of the results. Although the results of the Ethiopian expedition defied Sheba’s hopes of finding more evidence in support of his grander theories on Jewish historical migrations, he continued his identification of the Falasha as Jews was duplicated by Mourant’s subsequent compilations. Sheba’s historical reconstructions were considered wildly speculative even by his close Israeli colleagues, let alone international luminaries like Mourant, Lehmann and Neel. Regardless, Sheba’s lasting contribution to the field of Jewish genetics was the concept of the “non-Ashkenazi,” which his colleagues at home readily incorporated into their descriptions of Jewish populations and their patterns of disease incidence and genetic markers, and in turn disseminated abroad through English-language publications and international conference presentations.

352 See the discrepancy between Sheba’s concluding discussion in the draft manuscript (National Library of Israel) with that of the final publication: Nigel Barnicot, “A Survey of Some Genetical Characters in Ethiopian Tribes: Concluding Discussion,” American Journal of Physical Anthropology 20, no. 2 (1962): 208–208B.


354 A fact of which Sheba was perfectly aware, as evidenced by his own comments that he had been unable to convince his colleagues on various points; see Goldschmidt, The Genetics of Migrant and Isolate Populations, 104; Sheba, “Jewish Migration in Its Historical Perspective,” 1340; Bonné, “Chaim Sheba (1908-1971),” 312.


In methodological contrast to Gurevitch and Sheba’s work stood that of Elisabeth Goldschmidt, the pioneer of genetics as an academic discipline (rather than simply a branch of medical practice) in Israel. Forced to abandon her medical studies at the University of Frankfurt in 1933, Goldschmidt earned a degree in zoology from the University of London before arriving in Jerusalem in 1936. For the next six years, she studied for a doctorate in zoology from the Hebrew University under the tutelage of fellow German refugee George Haas, and was subsequently hired as a teaching assistant in the department. After taking a sabbatical to work on Drosophila genetics with Theodosius Dobzhansky and Curt Stern in the United States, she was formally appointed an instructor and built the Hebrew University’s genetics curriculum from the ground up, in the face of significant resistance from department and university administration. Goldschmidt’s training and teaching in zoology as opposed to medicine introduced decidedly more rigorous approaches to human population genetics than those employed by Gurevitch and Sheba. Specifically, she and her students focused on detailed demographic analyses of immigrant communities to examine genetic patterns at a generational level, rather than trying to extrapolate grand narratives about Jewish history. Nevertheless, in the course of this work, which involved interviews, surveys and other extended personal contact with the subject populations, Goldschmidt and her students also spoke in terms of “Ashkenazim” and “non-Ashkenazim.” They too had to rely on “non-biological knowledge” from

“Distribution of Glucose-6-Phosphate-Dehydrogenase Deficiency among Various Communities in Israel,” in ibid., 633–34.


ethnographers, historians and folklore (sometimes including the Bible)\textsuperscript{359} in order to identify true “isolate” communities with high rates of consanguineous marriages.\textsuperscript{360} To find such social patterns within Israel, Goldschmidt’s team turned to “non-Ashkenazi” groups such as Jews from the mountains of Kurdistan or Karaite groups from Egypt and Iraq, which could be utilized as “model systems” to observe the processes of natural selection and genetic drift in humans.\textsuperscript{361}

It was these processes in general, and not the biology of the Jews in particular, which interested many of the prominent figures of the international scientific community who collaborated with and/or read the publications of the Israeli research teams. A major question involved whether sociocultural factors could shape the evolution of human groups as effectively as the natural environment, necessitating empirical proof that a community could be reproductively isolated by social forces alone. The historical narrative of Jewish communities, living alongside non-Jews for thousands of years yet maintaining a distinct religious, cultural, and ultimately ethnic identity which imposed endogamy, made them appealing to both Israeli and non-Israeli scientists as a model system. For example, after considering many possible populations, the noted American geneticist Leslie C. Dunn selected the Jewish community living


in the ghetto of Rome to study the biological effects of social isolation.\textsuperscript{362} Although he drew up a detailed account of the history and sociology of this community, in the analysis of the genetic data he collected, Dunn effectively disregarded the various threads of historical and social evidence that the community had not been perfectly isolated and endogamous over the course of its existence.\textsuperscript{363} In this regard, Dunn’s methodological assumptions about the Jews were not far off from those of the Israeli scientists he corresponded with (namely Gurevitch, Goldschmidt, and Leo Sachs), who in turn encouraged the international scientific community to perceive Jewish groups as ideal model populations and thus universalize the significance of their own progress in human genetics research.

These international entanglements cast a new light on Kirsh’s and Abu El-Haj’s accounts of Israeli scientists’ work on Jewish genetics during the 1950s and 60s. Their methods of analyzing Israeli genetics publications and singular focus on Jews as an analytical category may give the impression that Israeli geneticists were somehow more affected by the ideological biases of Zionism than were geneticists of other countries by other versions of nationalism. Without a substantive comparative context, inconsistencies in Israeli genetics research seem attributable to the internal contradictions of Jewish identity within Zionism, rather than to the internal contradictions within the worldwide practices of human population genetics. Such an interpretation testifies to the difficulty of analyzing scientific communities at a national scale. For example, Abu El-Haj’s characterization of Israeli genetics as a “search for a good marker [which] reads like an almost random quest for genetic signs that would prove that a single,


\textsuperscript{363} Lipphardt, “The Jewish Community of Rome,” 316.
historic Jewish population did indeed exist,” makes sense only when filtering out both the international context of the discovery of these genetic markers and the distinct history of the individual Israeli research groups. Gurevitch, as the head of the Hadassah blood bank, promulgated primarily descriptive “salvage genetics” with his colleagues. The work of Sheba’s group at Tel-Hashomer on heritable blood diseases like G6PD deficiency and thalassemia, which were prevalent throughout the Mediterranean region as well as Iran, was part of an international agenda of research on these conditions (described throughout this chapter). Goldschmidt and her students at the Hebrew University, embedded in the questions of academic genetics, worked intensively with carefully selected study populations, and even sometimes expressed surprise at the discovery of genetic commonalities between Ashkenazim and non-Ashkenazim rather than immediately embracing them as evidence for common Jewish origins. Israeli geneticists together were not “searching randomly” for a “Jewish marker,” and it can only be read as such when examining the Israeli case in isolation. But Israeli scientists were not working in isolation from the global trends of genetics research, and very few conducted their research with the sole goal of finding biological evidence of Jewish common origins—as Abu El-Haj herself points out, such origins were completely taken for granted to the point that scholars readily rejected, or at least devised apologetics for, the genetic data when it did not align with this origin myth.

---


365 See Goldschmidt et al., “Haptoglobin Frequencies in Jewish Communities,” 43–44.

366 Such as the demographer Helmut V. Muhsam, “The Genetic Origin of the Jews,” Genus 20, no. 1 (1964): 36–63. Abu El-Haj also overexaggerates the “unimaginability” of searching for genetic relationships between Jewish populations and indigenous Palestinian Arabs (The Genealogical Science, 108) based on an interpretation of Kirsh’s comments that the Arab population was neglected in early Israeli genetic studies (although Kirsh correctly insists that the presentation of comparative Jewish and Arab data were tangential and instrumental to the discourse on Jewish origins; “Population Genetics in Israel in the 1950s,” 645). Comparative studies were in fact occasionally done, and in one case similarities between Palestinian Arabs, Egyptian Copts, and Jews were even proffered as evidence of common Jewish origins in the Eastern Mediterranean (Leo Sachs and Mariassa Bat-Miriam, “The Genetics of Jewish Populations, I: Finger Print Patterns in Jewish Populations in Israel,” American Journal of Human Genetics 9 (1957): 125). Furthermore, the introductory exhibit presented at the 1961 Jerusalem conference
Building upon Kirsh and Abu El-Haj’s work, we must also examine why prominent non-Israeli geneticists (including Hermann Lehmann, James Neel, J. B. S. Haldane, and Arthur Mourant) so readily accepted the construction of Ashkenazi and non-Ashkenazi categories relevant only to Israeli society and not to biological history. Surely much of this can be attributed to the ability of the “Western” scientists from scientifically advanced countries to culturally identify with their Ashkenazi collaborators in Israel, which enabled them to recognize the Israeli scientific community as their intellectual equals. Furthermore, most of these scientists were not just Ashkenazim, but specifically German Jews, many of whom had been driven out of Germany by the 1930s injunctions against Jews working or studying at German universities. The professional network of these German refugee geneticists, encompassing Arno Motulsky and Curt Stern in the United States, Hermann Lehmann in the United Kingdom, and many scientists in Israel (including the majority of geneticists, such as Elisabeth Goldschmidt, Rafael Falk, Tirza Cohen, Leo Sachs, and Batsheva Bonné-Tamir) therefore also represented shared social norms.

commented that the Arab and Druze communities in Israel comprised “a series of genetic isolates with varied structure,” and that including these communities in comparative studies would be “attractive in many ways, but in particular in view of their isolate character and of the presumed ethnic affinities of some of them to the Jews of Ancient Palestine” (Goldschmidt, The Genetics of Migrant and Isolate Populations, 254.) Indeed, after 1961, the inclusion of progressively larger sample sizes of Arab citizens of Israel alongside the Jewish groups became routine. However, comparative work on Palestinians was not prioritized in the 1950s precisely because of the “genetic salvage” aspect that Abu El-Haj highlights: Mizrahi Jews were expected to biologically merge with the rest of the Israeli Jewish population (i.e., mizug galuyot), while the Arabs were not. In fact, given the level of racist rhetoric against Mizrahim, such comparisons were “too imaginable;” ultimately, the scientists’ work was part of the effort to “de-Arabize” these groups, to overcome the prejudice between immigrant communities that seemed so “different and distinct in outward appearance such that one would ask another, if this is really my brother or sister.” (Zilberstein and Goldstein, “Suge Ha-Dam Etsel Nashim Yehudyot Mi-’edot Ha-Mizraḥ,” 295.) Again, what was truly “unimaginable” for the Israeli scientists was the idea that Jews might not have originated in Palestine, which for them was taken as much for granted as Iranian nationalists took their descent from an ancient Aryan race, or as Turkish nationalists took their descent from Anatolian Hittites.

367 The term “non-Ashkenazi” was commonly used throughout the many presentations at the Jerusalem 1961 conference; non-Israeli scientists who unquestioningly used the term in presentation and discussion include Hermann Lehmann (Goldschmidt, The Genetics of Migrant and Isolate Populations, 53) and James Neel (ibid., 43, 132). Haldane referred to “Ashkenazic Jews and other Jews” (ibid., 247). Mourant adopted the term more gradually and much more selectively, preferring generally to maintain the categorical pattern of Ashkenazim, Sephardim, and Orientals (the latter subdivided by country), and making specific reference to “the non-Ashkenazi Jews of the USSR” to refer to the Jews of Central Asia and the Caucasus (Mourant, The Genetics of the Jews, 52.)
and educational experiences rooted in a German intellectual tradition. As an example of the role of this network in structuring Israel’s integration into the international scientific community, consider Hermann Lehmann’s close personal connections to Israel. His sister, Ruth, married the biochemist (Chaim) Ernst Wertheimer; when Hermann left Germany for Cambridge in the mid-1930s, Ruth and her husband headed to Jerusalem, where Ernst became a professor at the Hadassah Medical School. Hermann’s subsequent visits to his relatives in Jerusalem kept him in contact with his brother-in-law’s colleagues at Hadassah, including Fritz Dreyfuss, who had graduated with Lehmann from the University of Basel in 1934. Dreyfuss believed he had discovered sickle-cell trait among Yemenite Jews at Rosh Ha-Ayun in 1951, just as Lehmann was completing his own studies on sickle-cell anemia among East African populations. Although the Yemenites were ultimately found not to have the sickle-cell trait after all, Mizrahi populations thus became relevant to a major international biomedical research agenda and established the basis of a strong professional relationship between the emerging community of Israeli geneticists and Lehmann and Mourant’s laboratories in London.

Moreover, the apparent familiarity of the Ashkenazi Israeli researchers as “Westerners,” unlike the exotic “Oriental” Jews who served only as research subjects, seemed to rationalize these categories for the Israelis’ non-Jewish collaborators. The latter also adopted their Israeli colleagues’ particular expectations of mizug galuyot, namely, that the “non-Ashkenazim” would lose their cultural and biological distinctiveness through their absorption into an Israeli culture.

368 Kirsh, “Genetic Studies of Ethnic Communities in Israel,” 192.
dictated by Ashkenazi norms. For example, at the 1961 Jerusalem conference, James Neel commented during a discussion of environmental versus ethnic factors in disease:

Certainly Israel is characteristic of West European culture. But groups are being introduced who have been in an essentially Oriental culture—namely, the various non-Ashkenazic groups of Jews. One would wonder whether the genetic adjustment to the urbanized, mechanized culture of Western Europe that has occurred in the Ashkenazic group in the course of several hundred years may not be telescoped into a few generations in the non-Ashkenazic groups.372

These aspects of Zionist ideology, which conformed to general Western visions of modernity and its biological effects, made the construction of Ashkenazi and non-Ashkenazi population categories appear logical and even commonsense to Western scientists who otherwise had no commitment to or perhaps even familiarity with the Israeli socioeconomic hierarchy and the political forces that had produced it. The kinds of problems that emerged in the fieldwork of Ashkenazi scientists among non-Ashkenazi communities in Israel seemed analogous to those barriers of culture, language, and social class which confronted Western scientists working with non-Western populations abroad or immigrant groups in their own countries. For example, Goldschmidt asked Mourant for his advice on methods for collecting saliva samples from Kurdish Jews: “You must take into account, dear Dr. Mourant, that many of these peoples, although some of the older members may be [illiterate,] have very high standards of ethics and taste. Spitting out even into a test tube is not aesthetic and they may also consider it an offense to the investigator whom they would like to respect, since he is somehow involved in Science and Healing.” She proposed bringing disposable salivary pumps (the type used by dentists) into the field, which she believed would be well-received by the Kurdish community despite the fact that they evidently had never experienced the level of dental and medical care to which Goldschmidt was accustomed: “Without deviating from the truth we could tell them that this is an examination

with ‘Chashmal’ [‘electricity’] and the older ones at all events are all craving for treatment with Chashmal against rheumatoid pains etc. etc. I think they would accept it well. It should preferably be done after blood taking in case it gives rise to personal difficulties between the team and the subjects.” But how, she asked Mourant, should she stimulate salivation in her subjects before using the pumps? Her dentist had suggested “to show them a picture of a good roast. I am afraid this would be mistaken as a joke or as scorn depending on the income of the family.”373 Mourant responded with the suggestion that subjects could chew on a small piece of rubber, while commenting “the need for any special techniques for collecting saliva appear [sic] rather surprising, but I appreciate that they may be necessary for social reasons.”374

Mourant’s surprise but ultimate acceptance of Goldschmidt’s representation of the cultural mores of the Kurdish Jews demonstrates both his own unfamiliarity with fieldwork and his confidence in the aptitude of the Israeli geneticists to collect and ship blood samples of the exotic Jewish populations in the state, if not always to test and interpret them reliably (for example, his interpretations of Jewish genetics rarely aligned with those of Sheba). He was less prepared to pass up the opportunity to directly sample and test for himself the Samaritans of Nablus, a city within Jordanian territory between 1948 and 1967. Along with the Falasha, the Samaritans were the other “marginal” Jews discussed briefly at the 1961 conference, and there was no consensus regarding their biological relationship to other Jews. A presentation by Sheba’s colleague Aryeh Szeinberg echoed the former’s conviction that Samaritans descended from non-Israelite stock, while a poster exhibit based on an abridged form of Mourant’s 1959


374 Mourant to Goldschmidt, May 18, 1970, PP/AEM/K.50, Box 30, Mourant Papers. This letter never reached Goldschmidt, due to her untimely death by suicide on May 6, 1970.
article labeled Samaritans as a Jewish population. Batsheva Bonné, a young Israeli anthropologist who had just completed her master’s degree at the University of Chicago, also contributed a poster of her work on the demography of the Holon Samaritans. Bonné’s exhibit agreed more with Mourant’s sensibilities than Sheba’s, calling the Samaritans an “offshoot of the Jewish religion;” she also ignored any outmarriage in the community’s recent growth, emphasizing their status as genetic isolates. Over the next decade, Bonné’s research would completely eclipse Sheba’s argument that the Samaritans did not share biological origins with the Jews. Meanwhile, she engaged in an occasionally tense decade-long collaboration with Mourant, who controlled blood-sampling and testing of the Samaritans on the Jordanian side of the border until 1967. Her efforts to stake out professional boundaries against Mourant, particularly in highlighting the Israeli genetics community as a distinct entity with its own interests and not merely an “outpost” conducting fieldwork on behalf of Western scientists, reveal the power dynamics shaping the operations of international scientific agendas within a postcolonial Middle Eastern context.

Bonné discovered the Samaritans in 1960 while looking for a suitable population to be the subject of her master’s thesis. Unlike many of her peers studying physical anthropology at the University of Chicago, she was not much interested in Native American groups and wanted to study a population “closer” to the Israeli populations she was familiar with. In a Hillel library, she discovered a copy of Yitshak Ben-Tsvi’s 1935 work on the Samaritans; within a few months, she had established contact with Yisra’el Tsedaka, who would become her longtime “informant”

---


376 Ibid., 354–5.
and liaison with the Samaritan community of Holon. Based on his information and historical sources, she wrote a detailed demography of the Samaritans for her thesis, which was eventually published in *Human Biology*. Bonné met Tsedaka and other Holon Samaritans in person for the first time during the summer of 1961, before presenting at the Jerusalem conference, and at that time initiated a genetic survey of the community with the assistance of Sheba and the hematologists at Tel-Hashomer. She intended Samaritan genetics to be the basis of her doctorate in human genetics at Boston University, which she began in October 1961 under the supervision of William Boyd. However, she faced a major barrier in her research plans; as an Israeli citizen, she could not personally visit the rest of the Samaritans in Jordan. After several false starts in recruiting an assistant to sample the Jordanian Samaritans on her behalf, her advisor Boyd decided to do the work himself. In November 1962, he applied to the Wenner-Gren Foundation for funds to travel to Nablus, while Bonné tried to coordinate his visit with her Samaritan contacts in both cities and the Israeli geneticists at Tel-Hashomer.

Bonné and Boyd’s preparations were interrupted by a letter from Mourant, who had been asked by Wenner-Gren to evaluate their funding application. Declaring it “one of the most embarrassing situations of [his] life,” Mourant explained that he had recently finalized plans to do the exact same project in January 1963, as part of an NIH-funded trip to help his protégé Harry M. Smith set up a blood-grouping laboratory at the American University of Beirut. He added that “testing of the Samaritans has had first priority with Harry Smith ever since he planned his Beirut laboratory, and he has for years been in personal contact with the

community,” and therefore he could not “relinquish the Samaritan blood grouping.” However, he offered to turn the project into a “joint scheme,” with Mourant, Smith, and their technicians working only on blood-group frequencies, leaving Boyd to conduct field tests on color blindness and PTC tasting, and sending remaining blood samples to Bonné to conduct tests on hemoglobins, haptoglobins and transferrins. If they agreed, Mourant wrote, he would explain the situation to Wenner-Gren and endorse their application accordingly.  

The idea of sharing her project was a serious disappointment (akhzavah) to Bonné, but felt she had no choice other than to agree to Mourant’s terms.  

Her letters to Mourant over the subsequent year reveal undercurrents of her frustration with Mourant’s paternalistic attitude toward their collaboration.

In planning the now-joint expedition, Mourant and Smith took the leading role, generally disregarding the information offered by Bonné based on her correspondence with the Nablus Samaritans and her experience with the Holon Samaritans. A major point of disagreement was whether and how the Nablus Samaritans should be compensated for their participation in the study. Mourant, deeply invested in Smith’s long-term ability to sample local Arab populations, supported his opinion in a letter to Boyd:

I understand from Miss Bonné that you are planning to pay your donors. Harry Smith thinks that this practice should be discouraged, but, as he says, ‘The Samaritans have made it clear to me in private conversation that they will not give their blood voluntarily. I have not paid a single donor thus far and do not intend to resort to bribery because it might make further work impossible in this area. The Samaritans, however, have been pampered by tourists, and expect money for the slightest consideration. I have therefore suggested that we might make a contribution to their new school building.’

---

381 Bonné-Tamir, Ḥayim 'im Ha-Genim, 50.
Bonné, who was more concerned with the immediate success of the Samaritan study, responded by emphasizing the information she had been given by the Israeli Samaritans:

although it was very clearly indicated by the Samaritans that they will agree to be bled only if they will be paid (and they even quoted a definite sum) I have never promised to do so. But I have written that I hope to be able to reward them for their cooperation [...] My idea, too, was to give them a collective sum for their new school building. I certainly understand Dr. Smith’s attitude, and I never had any problems with the group in Israel. However, I was told by the Samaritans there themselves, that their fellow-brothers in Jordan are different and that I cannot expect any cooperation unless they will be paid.  

To Bonné’s consternation, Smith and Mourant did not seem to value either her personal relationships with the Samaritan communities or the advice she passed on, instead treating her prior correspondence with the Nablus Samaritans as a liability to their fieldwork plans. Indeed, conflicting expectations of compensation between the Nablus Samaritans and the Anglo-American research team ultimately led to the expedition’s undoing.

After seeing Boyd off in early January 1963 with all of the information, instructions and advice she could muster, Bonné waited, with mounting tension, to hear from the men at Nablus. After weeks with no word and no blood samples forthcoming, Bonné finally received a telegram from Boyd. As she wrote in her autobiography, “if Dr. Mourant’s first letter informing me of his plan to travel to the Samaritans himself had come as an unpleasant shock (tadhemah margizah), this telegram… hit me like a bombshell” (hikah oti be-holem shel mamash). The telegram read, “Reason for delay is lack of Samaritan cooperation. Only 82 samples sent to Beirut.” In a community of over 200, Mourant and Smith had not even sampled half of its members. A few days later, Bonné received a letter from Boyd explaining the collapse of their sampling efforts. Apparently, only the priestly families who had previously been in contact with the researchers and had already promised their participation gave blood. The rest of the community refused due

---

383 Bonné to Mourant, December 17, 1962, PP/AEM/K.8, Box 28, Mourant Papers.
to unfounded rumors that the priests had received substantial sums from the researchers (which were ostensibly not being shared with the other Samaritans). The team enlisted a Jordanian doctor to attempt to wheedle blood samples from the disagreeable faction, then tried financial negotiations, offering 50 cents and then $3 per sample, all to no avail. The team then gave up and left Nablus. Acknowledging her disappointment, Boyd wrote, “You may think that you would have successfully collected the bloods if you had come yourself. Let me say that if Harry Smith, Arthur Mourant and William Boyd failed to do so, it seems that the task is indeed impossible.”

Despite these patronizing words of assurance, Bonné clearly felt that the three men had bungled her project. As she wrote rather acidly to Mourant, “I was naturally disappointed to hear that the Samaritans did not cooperate as expected, though growing up in the Middle East, I can perceive quite clearly what has happened, and thus I should be grateful for what has been accomplished by you.”

Not ready to give up on the prospect of achieving a full dataset for her dissertation, Bonné wrote to Harry Smith in the spring to find out if the Jordanian doctor was able to pursue any further sample collection with the Samaritans. Smith responded with a letter strongly discouraging her from contacting the Samaritans again too soon, emphasizing the dependence of his own work on the cooperation of Arab governments and the danger she posed to the Samaritan project as an Israeli citizen. He even mentioned that the Jordanian doctor’s life had been threatened if he should send samples to her, and that Boyd’s own visit to Beirut (after which he had visited Israel) had prompted demands from his Arab colleagues at AUB to issue a university-

---

384 Bonné-Tamir, Ḥayim ‘im Ha-Genim, 51–3. The monetary amounts are in US dollars which, adjusted for inflation, represent $3.88 and $23.27.

385 Bonné to Mourant, February 19, 1963, PP/AEM/K.8, Box 28, Mourant Papers. Mourant, for his part, was nonplussed by the Samaritans’ behavior, writing to Leslie Dunn of the incident, “Unfortunately we came up against social and psychological factors which we did not understand, and work came to a full stop.” Mourant to Dunn, September 27, 1963, PP/AEM/K.21, Box 29, Mourant Papers.
wide prohibition on collaborative work with Israelis.\textsuperscript{386} Mourant, too, cautioned Bonné that if she prolonged her involvement with the Nablus Samaritans, she would endanger both the community and his and Smith’s future research plans:

Many of the Arabs of Nablus are intensely pro-Nasser and anti-Israel (and of course also anti-Hussein). They are also very conscious of the interest we and others take in the Samaritans. An unwise step could therefore have unfortunate personal consequences [sic] for the Samaritans (e.g. in preventing the free movement of those from Israel to join in the Passover—or even in more unpleasant ways). It could also prejudice future blood group work in the Arab countries.\textsuperscript{387}

Yet, Bonné notes with some bitterness, after all these efforts to disassociate the Samaritan project from her as an Israeli, Smith himself visited Israel a few months later.\textsuperscript{388} As she recounted to Mourant, in November 1963, Smith spent a week in Israel, “during which he had the opportunity to meet many many geneticists, doctors, biochemists, Tel-Hashomer group […] with whom he discussed at length possibilities for future projects,” while Bonné herself introduced Smith to the Holon Samaritans.\textsuperscript{389}

The latter group, as Bonné pointed out to Mourant once she arrived in Israel for fieldwork in autumn 1963, had an excellent working relationship with her own team of Israeli workers from Tel-Hashomer, who paid weekly visits to Holon. Even their very first visit, Bonné remarked, was “rather successful,” and “The Samaritans were indeed so cooperative that they almost stood in line to give blood. There was no reward or money involved and we draw [sic] about 10 ml. per person.”\textsuperscript{390} Within two months, Bonné’s team had sampled 90% of the

\textsuperscript{386} Bonné-Tamir, \textit{Hayim 'im Ha-Genim}, 54.

\textsuperscript{387} Mourant to Bonné, April 25, 1963, PP/AEM/K.8, Box 28, Mourant Papers.

\textsuperscript{388} Bonné-Tamir, \textit{Hayim 'im Ha-Genim}, 55.

\textsuperscript{389} Bonné to Mourant, December 3, 1963, PP/AEM/K.8, Box 28, Mourant Papers.

\textsuperscript{390} Bonné to Mourant, October 10, 1963, PP/AEM/K.8, Box 28, Mourant Papers.
community members, who provided not only blood and saliva but also submitted to colorblindness testing and 18 anthropometric measurements. Bonné consistently portrayed her relationship to the Holon Samaritans as one of mutual respect and appreciation, as opposed to the exploitative relationship Mourant and Smith had formed with the Nablus Samaritans. Although she acknowledged that she had initially imposed her presence upon them, her relationship with them “was not that of an anthropologist-scientist with a foreign tribe whose customs and traditions are anchored in another world;” rather, she attained a high degree of personal familiarity with the Samaritan community that enabled the discussion of delicate family and medical information. The Samaritans threw her a farewell party in Holon before her return to Boston, during which she “gave each [Samaritan] a card with his ABO, Rh and MN results—to carry with their identity card; [she] also gave them a small sum of $100.00 to the synagogue just as a token for their extreme cooperation.” Furthermore, Bonné, through her contact with the High Priest in Nablus, became a conduit of correspondence for the two Samaritan communities, forwarding the Holonites’ letters, books, and family photos to the Nablus residents.

The time and effort Bonné invested in her relationships with the Samaritan communities was rewarded with further scientific payoff years later. Less than ten days after the 1967 war ended with the Israeli occupation of the West Bank, Bonné accepted an invitation to accompany the Holon Samaritans to Nablus, where the High Priest’s family “hosted her like a queen.”

392 Bonné-Tamir, Hayim ‘im Ha-Genim, 56.
393 Bonné to Mourant, December 3, 1963, PP/AEM/K.8, Box 28, Mourant Papers.
394 Bonné-Tamir, Hayim ‘im Ha-Genim, 59.
395 Ibid., 64.
Now it was Mourant who needed Bonné’s help to access the Nablus Samaritans as a research population. “I am delighted that you have been to see the Samaritans at Nablus,” he wrote to her. “Do you think there is any hope of resuming a study of their blood. As you know, we tested only 82 and then for some reason they became hostile and we could get no more.”

Within six weeks, Bonné had already sent several samples to his new domain, the Serological Population Genetics Laboratory (SPGL) in London. In response, Mourant mused, “I am touched to see that [the Samaritans] seem to trust you better than they did me and my team. Even though I did all I could to examine the affected children and arrange for them to be treated by a paediatrician in Jerusalem, I suppose I was, in the final analysis, associated in their minds with their Arab masters, and so had to pay for the blood and put up with considerable obstruction.”

Mourant thus projected his 1963 difficulties onto local politics, entirely unrelated either to his own presence as a foreigner or to his own fieldwork practices.

Despite the inauspicious start to their professional relationship, Bonné maintained contact with Mourant and even asked for his lab’s collaboration to test blood samples she collected from other Israeli populations. After graduating from Boston University in 1965, Bonné moved back to Israel permanently, taking a faculty position at the new medical school at Tel-Aviv University.

In February 1966, Bonné told Mourant of her next anthropological-genetic project on the Habbanite Jews, an isolated community which had immigrated en masse to Israel from the southeastern Yemeni town of Habban. He enthusiastically agreed to have the SPGL perform a full range of blood-group tests on Bonné’s Habbanite samples, which the Israeli laboratory

---

397 Mourant to Bonné, August 11, 1967, PP/AEM/K.10, Box 28, Mourant Papers.
facilities were not yet able to manage, and she began to ship him regular batches of samples over the next several years. This collaborative arrangement expanded significantly by the end of 1967, when Bonné not only began to supply Mourant’s lab with samples from previously inaccessible groups (such as the Nablus Samaritans and Bedouin tribes from the southern Sinai Peninsula) but also hosted Mourant’s deputy director, Donald Tills, for a six-week expedition in Israel to support Tills’s thesis research. In the summer of 1968, Bonné visited London and spent several weeks at the SPGL to learn blood-typing techniques.

However, in 1969 and again in 1970, Bonné’s working relationship with Mourant and Tills nearly dissolved into personal and professional hostilities. Resentment built up on both sides due to miscommunications, but especially on the part of Bonné, who felt that the SPGL took far too long—months dragged almost to years—to send her the test results on her hard-earned blood samples and review her drafts for publication. In response, she sought to build up her own serological laboratory in Tel Aviv, rendering her own research less dependent on shipping blood overseas for testing and enabling her to make short reports or presentations on her ongoing genetic surveys. However, when Mourant discovered that Bonné had presented a segment of some of their in-progress work on the Sinai Bedouins at a local Israeli conference, he angrily wrote a letter to Bonné’s senior colleague Chaim Sheba, complaining of Bonné’s failure to seek his approval for the report or to adequately acknowledge his laboratory’s contribution, as well as of her other various faults as a collaborator. Bonné, incensed by Mourant’s behavior, responded to him directly, refuting many of his complaints and ending with a tirade of her own on the British researchers’ apparent lack of respect for her own status as an Israeli geneticist:

I would like to emphasize that my interest in this population [the Sinai Bedouins] as well as in the Habbanites, Samaritans etc. is not accidental nor secondary […] I do not regard myself only as an agent for collecting bloods and sending them to labs abroad to be typed and classified. I have my deep anthropological and genetic
interest in these populations, hence I spend many hours visiting them; becoming acquainted with them, and observing their way of life and thus collecting as many genetic markers and traits as I can. [...] It seems to me, for unknown reasons that the fact that we are typing here the bloods, screening the sera, etc. is not only not encouraged or supported by you and your colleagues but rather the opposite.  

Bonné’s anger reflected the same essential frustrations she had experienced with Mourant since the Samaritan project. On the one hand, she wanted to be acknowledged as a competent and autonomous geneticist, capable of analyzing, interpreting, and publishing the results of her own research, not merely a “collection agent” providing raw material to Western scientists. On the other hand, she also wanted the British researchers to recognize that her status as a native informant on Israeli social groups, and especially her special relationship to the subject populations, was a key asset to the success of their work. Her stance that ethnographic knowledge was equally important, if not more so, than laboratory techniques for the interpretation of genetic variation notably resonates with how certain Indian geneticists during the 1950s defended their research practices using a concept of “serosociality.” At the same time, her insight that Mourant’s behavior was related to the increasing technological capabilities of her own small laboratory signals her aspirations to dislodge the Israeli genetics community from its subordinate status to the Western-based reference laboratories. 

However, as in the Samaritan case, Mourant seemed oblivious to the root causes of Bonné’s grievances, perceiving them to emanate from Bonné’s “difficult personality.” He accordingly sought the help of Hermann Lehmann, who was planning to visit his sister in Israel after finishing a fieldwork expedition in Iran, as a mediator. Matters came to a final head in  


400 Mukharji, “From Serosocial to Sanguinary Identities.”  

401 “I should be extremely grateful if you would have a word, even if only on the phone, with Sheba, to try to break the deadlock about collaboration with Bonné. We have some extremely important results which we cannot publish until things are cleared up.” Mourant to Lehmann, August 3, 1969, PP/AEM/K.336, Box 41, Mourant Papers. He
April 1970, when Bonné wrote directly to the editor of *Human Heredity* to prevent that journal’s imminent publication of two articles by Tills and Mourant, which included previously unpublished data from the Israeli population samples provided by Bonné. She justified her request to delay the publications by claiming that because Tills and Mourant had not shown her the drafts, many of the Israeli population figures were erroneous, including “duplicate specimens, closely related individuals and incorrect division of population groups all of which distort the representation of these populations and their gene frequency.”  

Forwarding this letter to Mourant, she defended her actions as a matter of proper acknowledgment of the Israeli community of geneticists: “I think there has been a basic misunderstanding […] with regards to our collaborative efforts. Since the group here at Tel-Hashomer and myself have and will continue to devote all of our research efforts to the study of the Middle Eastern populations, it would seem only logical that we should have the right to publish first and that we should be properly consulted on all matters regarding the use of this data.”

Needless to say, the SPGL directors did not take kindly to her point of view; in fact, they fundamentally disagreed with her assessment of the collaborative hierarchy. Don Tills fumed, “In your letter to [the editor of *Human Heredity*] you state that these papers include your work; this as you well know is not true. All the data included in the two papers was on work performed in this laboratory, and *your connection with it was in collecting and sending the samples.*”

clarified in a further letter to Lehmann (August 4, 1969), “I am particularly anxious to maintain good relations with Sheba himself and all those colleagues such as Adam, Szeinberg etc with whom we have worked in harmony before. I also want to be on good terms with Batsheva but she is, as you know, a very difficult personality although a brilliant and charming woman.”

402 Bonné to M. Hauge, April 28, 1970, PP/AEM/K.12, Box 28, Mourant Papers.


Tills thus demeaned Bonné’s scientific labor as the work of a “collection agent,” a status she had explicitly disputed one year earlier. He followed with an itemized list of grievances against Bonné, which included minor logistical difficulties, but ultimately centered on her resistance to the established hierarchy of Western laboratories over collaborators in developing regions: “You appear to completely fail to understand that if you send samples to outside laboratories for testing, it is not unreasonable for them to use these results in general review articles […] You are the only person who has ever complained of such a procedure!” To conclude, Tills further cast Bonné as a foreigner to the Anglo-American scientific community with the patronizing comment, “Originally I put these [problems] down to language difficulties but I can no longer take such a charitable view. […] You would do well to [t]hink about who has gained most from this work and who would suffer most if the connection should be completely broken.”

Unfazed by Tills’ caustic letter, Bonné firmly maintained her position throughout her correspondence with Mourant over the next few months, as they tersely finished drafting joint publications on the Habbanites and Sinai Bedouins. In the course of these revisions, she chided him:

I have often the feeling, Dr. Mourant, that you completely disregard or underestimate my own ability to sort the results of tests obtained by you, according to number, sex, tribal affiliation, family relationship etc. […] please give me some credit for close familiarity and involvement with my own data and with my objective to present the results to their utmost accuracy and exactness. I know many of these people personally (as I do the Habbanites, Yemenites and the Samaritans) as a result of more trips to the Sinai and my constant contact with them. And all this information is not always at hand immediately upon blood letting; often only after some time we realize that we bled the same person twice or that he didn’t tell the truth about his tribe. This is the very reason why I have

---

405 Ibid.

emphasized so often that it is important for me to see the results and prepare them myself for publication.  

As a young, female scientist, Bonné’s relationships with Mourant, Smith, and Tills require an intersectional analysis. The highly gendered and paternalistic attitude of the three men toward Bonné does not reflect a general antipathy toward women as scientific actors. Each of these men relied extensively on women laboratory technicians, statisticians, and archivists, whose contributions they readily acknowledged, up to the status of co-authorship. In fact, Tills complained about Bonné’s failure to properly acknowledge the SPGL’s serology technician, Marilyn Godber, in her report on the Sinai Bedouins, whereas Tills and Mourant “always included” Godber’s name in their publications. Furthermore, as described above, Elisabeth Goldschmidt, one of Bonné’s mentors and a founding figure of the Israeli genetics community, maintained a pleasant correspondence with Mourant during the same time span. Although gender certainly played a role in Mourant and Tills’ assumptions of superiority, I perceive Bonné’s explicit challenge to the neocolonial structure of scientific labor to be the fundamental source of friction in the collaborative relationship. Accordingly, Mourant’s attempts to smooth things over via Chaim Sheba indicate Sheba’s status both as a senior male scientist and as a representative of the established order of things, whereby Israeli “collection agents” unquestioningly provided blood samples to Western laboratories.

In contrast, Bonné’s desire to control the publication of Middle Eastern population data asserted a newly distinct identity for Israeli geneticists. This identity emphasized a status of territorial propriety that legitimized Israeli control over both access to local subject populations

---

(even non-Jewish ones) and the data obtained about their genetic characteristics. Furthermore, Bonné communicated her anxieties about proper attribution and fair data-sharing not only in terms of professional courtesy, but also in terms of scientific accuracy. Bonné’s assertions of priority on behalf of the Israeli genetics community portrayed its evolution into an institution with independent research interests, rather than an “outpost” of Western genetics. More significantly, they upended the logic upon which the directors of centralized laboratories had published data gathered by others with impunity: that Western mastery of the technological apparatus as yet unavailable in developing nations entitled Western scientists to authoritatively interpret the meaning of non-Western blood-group frequencies. Bonné, on the other hand, insisted that ethnographic knowledge must not be divorced from the raw output of laboratory equipment. For the sake of scientific truth, she proclaimed, even Western luminaries like Mourant had to grant Israeli geneticists a leading role in explaining and interpreting the data they had painstakingly acquired from their research subjects.

 Parsing the Iranian population: Sketching an elusive majority

In the summer of 1950, Philip H. T. Beckett, an adventurous chemistry student at Oxford, traveled to Kerman on a university expedition with three fellow students. In his role as the group’s chemist, he primarily worked on themes of agricultural interest, such as drawing up detailed reports of Kerman’s climate and testing local soil samples. However, he also spent some time at the Morsalin Hospital, established by the British Church Missionary Society decades earlier, trying to determine ABO frequencies among the Iranian patients. Ultimately, he was only able to report results from 54 individuals—a small sample size by any standard—and made all the more inadequate by his curious subdivision of the results: residents of Kerman and its
immediate surroundings, patients “from the region south and west,” and Zoroastrians. A detailed
description of Iranian Zoroastrians takes up a full half of his published report:

Kerman and Yezd are the only large Zoroastrian (Zadushti) [sic] centres remaining in Persia. There has been a negligible number of converts to Zoroastrianism since the end of the last Zoroastrian dynasty (Sassanian) as a result of religious disabilities, and often outright persecution, which have effectively discouraged the would-be proselyte; Zoroastrians do not intermarry into other religions. The present Zoroastrian population should therefore be fairly representative of that of Sassanian Persia and its composition relatively unaffected by the incursions of Arabs, Mongols, Turkomans, Afghans, etc., that have increased the complications of the pattern of racial origins in Persia during historical times. Unfortunately local political feeling made it advisable to discontinue the work before a significant number of groupings had been made.410

After all this explanation, Beckett offers the ABO blood types of exactly six Zoroastrian
individuals—so few that he does not even bother to calculate percentages—and offers no
discussion at all on the 48 non-Zoroastrians, suggesting that he did not consider standard,
admixed Shi’ite Iranians to be of anthropological interest. Both Beckett’s disproportionate
emphasis on Zoroastrians, as well as the “local political feeling” that impeded his work, are
characteristic of the experiences of foreign researchers engaged in collecting genetic data in Iran
between 1950 and the late 1960s.

One of Beckett’s colleagues, Anthony Smith, recounted that the Kerman hospital patients
endured the blood sampling itself without any resistance.411 However, he noted a general
antipathy to British presence in the city, which reflected lingering resentment over the Anglo-
Soviet invasion of Iran in 1941 as well as the brewing tensions over Iranian oil nationalization.412
In June 1950, just a few weeks before Beckett and his friends arrived in Kerman, Mohammad

412 Ibid., 7–11, 101, 212–17.
Reza Shah’s government submitted proposals for the revision of the 1933 agreement with the Anglo-Iranian Oil Company for the parliament’s consideration. The proposals, a product of years of secret negotiations between the government and the AIOC, were immediately attacked by the National Front, a loose coalition of political parties headed by the “incorruptible populist” Mohammad Mosaddegh.\textsuperscript{413} In the eyes of the National Front, anything less than full nationalization of Iran’s oil industry was tantamount to “depriving the country of its full sovereignty.”\textsuperscript{414} Although affiliates of the National Front formed only a tiny fraction within the parliament (8 out of 131 members), their accusations against the British company resonated with large sectors of the Iranian middle and lower classes, and the outpouring of public support for oil nationalization (expressed through mass demonstrations, strikes, and the assassination of a “pro-British” prime minister) intimidated the rest to offer Mosaddegh the premiership by May 1951.

As prime minister, Mosaddegh immediately set the process of oil nationalization in motion, but the AIOC refused to cooperate in a smooth transfer of control to the newly-created National Iranian Oil Company, precipitating a diplomatic crisis with Britain. Meanwhile, he antagonized the monarchy and its upper-class supporters through his efforts to reform electoral law, forbid the Shah from meeting with foreign diplomats, and wrest control of the military from the monarchy to the parliament. The British, in concert with the United States, began plotting a coup against Mosaddegh to preserve their oil interests, and coaxed the Shah into accepting a plan that would reinstate his authority. Mosaddegh was ousted from power on August 19, 1953, while the Shah and his wife sheltered in Rome.\textsuperscript{415} The primary effect of the coup, in terms of Iranian


\textsuperscript{414} Ibid., 263.

\textsuperscript{415} For complete accounts of the 1953 coup, including the debates surrounding the relative importance of domestic and foreign opposition to Mosaddegh, see Ervand Abrahamian, \textit{The Coup: 1953, the CIA, and the Roots of Modern
politics, was Mohammad Reza Shah’s rapid ascendance as an autocrat. In the immediate aftermath of Mosaddegh’s overthrow, the CIA began training a secret police force that would become the nucleus of the Shah’s infamous National Intelligence and Security Organization (Sāzīmān-i ittilā‘āt va amniyat-i kishvar, known by its acronym SAVAK) formally established in 1957. In 1963, feeling secure in his position, the Shah initiated the “White Revolution,” a series of major reforms involving land nationalization and redistribution, privatization and worker profit sharing programs in the industrial sector, women’s suffrage, and much more, with the aim of consolidating the power of the central government and undercutting the bases of support for opposition to the monarchy.

The composition of the foreign population of Iran also shifted after 1953, with Americans taking on decidedly more advisory roles in many departments of the Iranian government, particularly health and education, which had long been the domain of the French. Control of Iran’s oil industry effectively returned to a consortium of European and American oil companies, while a “neutral” Dutch-incorporated company, staffed by Dutch nationals, managed daily operations at the AIOC’s former installations. However, in the realm of human genetics research in Iran—which continued to be dominated by foreign scientists in this period—certain trends appear regardless of investigators’ origins or training in French, British, American, or Dutch academic contexts. Namely, foreign researchers targeted ethnic, linguistic, or religious minorities for blood sampling, and their interpretation of the statistical results tended to emphasize the genetic distinctiveness of various groups (such as Turkmens, Kurds, Zoroastrians, Arabs, and Jews) from the majority Persian Shi’ite population; often, they attributed these differences to varying levels of genetic admixture. While this emphasis on minority difference may not have

suited the contemporary Iranian state’s one-nation, one-language ideology, the influence of Pahlavi-era nationalism is nonetheless visible in many aspects of the foreign-authored studies. For example, Beckett’s identification of Zoroastrians as representative of the “original, pre-Islamic” Iranian population became a common discursive trope. Foreign researchers generally accepted the assertions of Iranian informants regarding the community’s strict endogamy since pre-Islamic times, allowing them to perceive Zoroastrian samples as preserved reservoirs of an ancient Iranian gene pool, which had been heavily diluted in the Muslim population through historical admixture with Greeks, Arabs, Turks, Mongols, etc. These perceptions were actively encouraged by leaders of the Zoroastrian community, who generally embraced the Pahlavi brand of secular nationalism which glorified pre-Islamic Iranian history and thus allotted Zoroastrianism a privileged status.416 Furthermore, many of these scientists owed their presence and comfortable living conditions in Iran directly to the Pahlavi regime and held overall positive impressions of the Shah’s modernizing and secularizing agenda. On the other hand, the major contingents of foreign scientists were associated with very different institutions which influenced their logistical and conceptual approaches: the French with the Institut Pasteur in Tehran, the Americans at the Nemazee Hospital and Pahlavi University in Shiraz. Meanwhile, British researchers, deprived of the infrastructure of medical facilities in southwestern Iran after the AIOC ouster, studied Iranian populations either while occupying temporary university positions (e.g., Deryck Walker in Shiraz) or travelling to the country for expeditions coordinated with local university or public health officials (like Mourant, Lehmann, and their colleagues in Tehran, Yazd, and the province of Kurdistan).

The Iranian branch of the Institut Pasteur, established in 1921 in Tehran at the request of Qajar officials following the devasting effects of the Spanish flu pandemic at the end of 1918, underwent major infrastructural improvements after World War II. In 1946, an assemblage of Mohammad Reza Shah’s ministers invited the heads of the Paris institute to Iran to celebrate the branch’s 25th anniversary and rewrite its charter. The Iranian government agreed to fully finance the Tehran institute, including the salary of its new director, Marcel Baltazard, and the budget to renovate its old buildings, construct new ones, and secure modern laboratory equipment. Meanwhile, the French renewed their commitment to directing medical research and supervising the institute’s transition to Iranian administrative control.\(^{417}\) However, they did not directly recruit all of the French physicians who found their way to Iran. For example, the first French researchers to publish on Iranian blood group frequencies, André and Joelle Boué, initially travelled to Tehran in 1951 to work as anesthetists with Yahya ‘Adl, a famous Iranian surgeon. Shortly after their arrival, the Boués were invited by Baltazard to conduct their own research using the facilities at the Institut Pasteur in Tehran. After some time developing water-based solutions to resuscitate patients after anesthesia, the Boués decided that blood transfusion might be more satisfactory, and then began to pursue blood group research in collaboration with the transfusion services of the Red Lion and Sun Society.\(^{418}\) The Boués, despite their unfamiliarity with sero-anthropology, quickly noticed that blood group frequencies within the diverse Iranian population did not match those of the French patients they had studied in Paris. Their interest piqued, André Boué began to travel around Iran to collect blood samples from the major cities,


\(^{418}\) Interview with André and Joelle Boué, 22 April 2005. Interviews with Human and Medical Geneticists series, Special Collections and Archives, Cardiff University, Cardiff, UK. Hereafter: “Boué oral history interview, 2005.”
shipping them back to Joelle in Tehran for laboratory testing to determine an “average [ABO and Rh] distribution for the Iranian population.”

However, like many foreign scholars before him, Boué became increasingly preoccupied with the exotic and “primitive” ethnocultural groups in the Iranian provinces, especially those living in seemingly total geographic isolation from urban populations. He first ventured to the eastern Caspian coast with the RLS transfusion services director, Ahmad Azhir, to study the nomadic Yomut Turkmen during the spring of 1954. A few months later, in August 1954, Boué headed to Hamadan province, where the Institut Pasteur had recently constructed a regional research laboratory in the village of Akanlū (romanized in French as Akinlou). The director of the laboratory, Mahmud Bahmanyar, opened the facilities to Boué, and his colleague Rasoul Pournaki took Boué to meet with rural village-dwelling Kurdish tribes around the region. With Pournaki’s aid, Boué negotiated with tribal chiefs to collect a finger-prick’s worth of blood from every individual in the tribe (including women and children) in exchange for basic medical supplies, mostly antibiotics. Finally, he travelled to Yazd with Ali Mashoun, yet another Institut Pasteur doctor, to study the large Zoroastrian community in the city and six of its surrounding villages in March 1955.

While the Boués themselves do not describe their relationships with Bahmanyar, Pournaki, or Mashoun in any detail in either their publications or oral history interviews, general sketches of the Iranian doctors’ backgrounds and personalities can be gleaned from the detailed journals of the American researcher and future Nobel Prize winner Daniel Carleton Gajdusek,

---


421 Boué oral history interview, 2005.
who visited the Institut Pasteur in Iran in 1954 and contributed blood samples to the Boués’ sero-
anthropological survey of Iran. As Gajdusek noted, “I must document my historical informants, for history, here, has as many variants as one’s informants.” By Gajdusek’s account, while these three Iranian physicians all shared relatively similar socioeconomic backgrounds among the urban middle to upper-middle classes, were well-educated in foreign-run schools, and had traveled to Europe and North America, they held quite different political and social attitudes that defined their interactions with the French staff and foreign visitors to the Institut Pasteur.

Mahmud Bahmanyar had a particularly outstanding reputation within the group as “a hopeless nationalist,” that is, an outspoken supporter of the National Front against the Shah and a strong critic of the Anglo-American overthrow of Mosaddegh. However, as the “staid, proper and restrained” son of a successful Azeri bazaar merchant and a graduate of the American Memorial School in Tabriz, Bahmanyar’s national pride had limits when he served as the interpreter for his French and American colleagues; he often became embarrassed, defensive or evasive when the foreign researchers encountered the poor living conditions of the lower classes, or took an interest in local customs that he considered backward.

Pournaki and Mashoun, on the other hand, were much more open to discussing “the lurid side of life in Iran.” Like Bahmanyar, Rasoul Pournaki was born to a middle-class Azeri family from the provincial city of Khoi; while

---


423 Ibid., 171, 47, 165.

424 In one notable incident, Gajdusek discovered a zanjir (an instrument used by some Shi’ite men for ritual self-flagellation to commemorate the martyrdom of Imam Hussein) in a Zanjan metal shop, and wished to buy it as an ethnographic artifact and learn about its intended use. Bahmanyar, who “resented [Gajdusek’s] curiosity,” deflected the American’s questions and initially tried to prevent him from purchasing it, but finally relented and helped obtain the object. Ibid., 200, 163, 167–171, 180.

425 Ibid., 200.
Gajdusek considered him “helpful, considerate and friendly to a totally confounding degree,” the American researcher was also startled by Pournaki’s reference to poor rural villagers as “third class people” as though they were “members of another species.”

Only Ali Mashoun, a well-traveled and cosmopolitan Tehran native, seemed to feel comfortable traversing the gap between his own bourgeois upbringing and the poverty in which most Iranians still lived. Outside of his work as a bacteriologist for the Institut Pasteur, Mashoun regularly visited orphanages and the “poorhouse” in Varāmīn County to provide immunizations for the children; only through tagging along on one of these visits did Gajdusek catch a glimpse of the impoverished neighborhoods of south Tehran. Gajdusek admired Mashoun’s unabashed “realism” and appreciation for the Tehrani slums; according to Mashoun, south Tehran was “a bit uncivilized and wild […] but the people here, once you greet them and deal with them, are better than the sophisticated civilized and cultured people of the northern part of the city. They are fine, likeable people, of excellent temperament and openly friendly.” Nevertheless, Mashoun’s family was of the landowning class in Mazanderan province, and Gajdusek was unnerved to hear Mashoun discussing his personal holdings with “despotic” phrases of ownership, e.g., “‘my village’ and ‘my villagers.’” In contrast to Bahmanyar, Mashoun readily indulged Gajdusek with explanations of Iranian national and regional customs, leading Gajdusek to regard Mashoun as “the best of [his] Irani friends for supplying history and folklore.”

Therefore, just as did anthropometrist Henry Field two decades earlier (see Chapter 1), the Boués worked closely with Tehran’s “westernized” urban elites, who self-identified as a

---

426 Ibid., 236, 241–2.
427 Ibid., 179–81.
428 Ibid., 196.
429 Ibid., 197. This included folk etymologies for Persian place names and words, such as a misattribution of the originally Arabic word “barakat” (blessing) as derived from the Persian “kat” (shoulder); ibid., 199.
people apart from the poor, uneducated, and largely rural Iranian masses comprising the objects of genetic study. In response to André’s fieldwork experience and the guiding influence of their Azeri and Persian Iranian colleagues, the Boués began to regard the “Iranian population,” especially in rural areas, as a highly diverse mosaic of separate groups, divided both by inhospitable geography and more or less strongly by language, ethnicity, and religion. They perceived large cities like Tehran, wherein some of these social barriers to admixture were more fluid, as relatively anomalous. Accordingly, the Boués took a different approach to the ABO and Rh data from Tehran and from the rural sites. For Tehran, they calculated a single set of frequencies to encompass the whole Shi’ite Muslim population of the city, even as they explained that most of this population could be sorted into two groups: Persian-speakers originating from the Iranian Plateau, and Azeri Turkish-speakers recently migrated from Azerbaijan province, the latter of which formed the bulk of the city’s working class. Meanwhile, the Boués organized their rural population data into three broad linguistic categories—speakers of Persian, Turkic dialects, or Kurdish—and subdivided their calculations by locality. They evaluated each locality, in turn, with abundant description with regard to the “purity” of its inhabitants, sometimes questioning or completely disregarding the inhabitants’ own self-identification. For example, in describing their Kurdish subjects, they emphasized geographic isolation and nomadism as evidence of ethnic purity, while openly doubting the authentic Kurdishness of one village, Sahneh, which met neither criterion:

*According to information obtained on site, but that could not be verified, Kurds in [the Sanandaj region] have undergone some admixture, partly due to the arrival of Lur tribes from the south, partly due to the settlement of refugee Sunni Turkish elements. We report this opinion which seems valid for the city of Sanandaj itself, but that seems questionable for the tested villages, isolated in the mountains and cut off from outside contact for three to five months of the year. […]*

Finally, a third series of tests was performed on blood samples from the village of Sahneh, at the southern boundary of Kurdistan… *Although they say*
they are Kurds, we could not affirm the membership of these people in this group because this village, situated on the Baghdad-Tehran route, was always a major axis of communication, a likely source of many mixtures. Accordingly, the Boués excluded the Sahneh sample from all but one of their data tables. Yet in their concluding analysis, they admitted that the data from all three localities satisfied a statistical homogeneity test, thus acknowledging “a certain unity…among these Kurdish populations from three regions having practically no relations with one another.”

They encountered a similar surprise when they compared the Zoroastrians and Shi’ites in Yazd and found them to be “the same population” from a genetic perspective: “religious separation, though it has completely isolated the two groups and persisted for more than millenium, has not induced any difference between the two communities;” meanwhile, the frequency distribution of the Yazd region taken together was quite distinct from the population of Tehran. The drama of this finding is hard to overstate, given the Boués’ enumeration of methods to identify Zoroastrians (and given that it would be disputed by all later genetic workers): in each village, they had sampled within the “clearly defined” Zoroastrian quarter, and paid attention to individuals’ first names, which were a reliable indicator of communal membership. The Boués probably obtained all their information on Zoroastrian life in Iran from their Muslim colleagues at the Institut Pasteur (likely from Mashoun, who accompanied André on the expedition to Yazd), based on their interchangeable references to the Zoroastrians as “les Guèbres” (after the Persian word gabr), a (presumably) unwitting usage of Iranian Muslims’ pejorative term for the Zoroastrian community. This suggests that Muslim Iranians expected a

---

431 Ibid., 711.
433 Ibid., 905–6.
major genetic difference between themselves and the Zoroastrians (at least as much as the other way around; see discussion below).

Instead, the Boués argued, most of the genetic variation between Iranian populations could be explained according to one major geographic barrier—not the mountains, as they had expected in their Kurdish study, but the impassable “Great Salt Desert” in the center of the country.\textsuperscript{434} In this way, they could account for the surprising level of homogeneity between the mixed city of Tehran and the various isolated and ostensibly “pure” Kurdish, Persian, and Turkic-speaking villagers and tribespeople in the north and west of Iran, which together were significantly different from the Yazdis (regardless of religion) in the southeast. Similarly, the “profound fissure” between the ABO frequencies of the Yomut Turkmens and the Persian-speaking villagers living along the northeast border was a consequence of the region’s steppe terrain: in centuries past, Persian governments had settled Persian or Kurdish populations there to stave off the incursion of “Turco-Mongol” tribes from the Central Asian plains.\textsuperscript{435} In other words, the differences of language, religion, and ethnic/tribal affiliation that the Boués—and, in all probability, their Iranian colleagues—understood as so important to Iranian society were ultimately less helpful than geography for their genetic analysis.

\textsuperscript{434} I.e., Dasht-e Kavir and the arid regions connecting it to Dasht-e Lut. Ibid., 908.

\textsuperscript{435} Ibid., 904. The Boués’ emphasis on identifying the Yomut Turkmens as “Turco-Mongol” and distinguishing them from Turkic-speaking groups in western Iran was likely influenced by Rouben Khérumian, a French-Armenian physical anthropologist with a deep interest in sero-anthropology, whom Joelle Boué consulted during her brief visit to Paris to take exams for a blood-transfusion diploma in 1955. In Khérumian’s earlier work on the racial anthropology of Armenians, he argued that sero-anthropological research showed a much closer similarity between Turks (from Turkey and the Balkans) and Armenians than between these Turks and the “Mongoloids” of Central and East Asia, and attributed this phenomenon to the western Turks’ assimilation of Armeno-Caucasian elements which replaced their original Mongolid characteristics (Rouben Khérumian, \textit{Introduction à L’anthropologie Du Caucase: Les Arméniens} (Paris: Paul Geuthner, 1943), 124.). According to Boué, during her discussion with Khérumian, he was rather dismissive of her work on the blood groups of “the Mongols” (i.e. the Turkmen tribes) and redirected her toward an investigation of the Russian expatriates in Tehran (Boué oral history interview, 2005).
The Boués’ interests in collecting and analyzing samples on the basis of ethnolinguistic and religious categories illustrate the dramatic contrast between the experiences of foreign medical professionals working within Iran and their counterparts in the “metropole” laboratories abroad who remotely tested samples collected by Iranian state institutions, which did not record data on ethnicity. For example, in 1961, Luba Podliachouk and André Eyquem at the Institut Pasteur in Paris tested the Gm\textsuperscript{a} immunoglobulin distribution among air-shipped serum samples collected from 296 Iranian soldiers by army physicians R. Choaripour and Mirza Eftekhar (an affiliate of the Institut Pasteur in Tehran) at the Iranian Army Blood Transfusion Center in Tehran. The samples, as provided by the military doctors, did not include any data on the ethnic, linguistic or religious categories used by the Boués, but only on the individuals’ province of birth. Podliachouk and Eyquem accordingly calculated their results by province, but did not find the regional breakdown worthy of discussion, concluding only that “the distribution of Gm\textsuperscript{a} factors among the Iranians is nearly the same as that previously found for persons of the white race.”\textsuperscript{436} In a further study of the same samples, the acceptance of a unitary Iranian population is yet more pronounced. Podliachouk and Eyquem not only reiterated the samples’ racial provenance (“the Iranian population belongs to the white (Caucasian) race”) and abandoned any regional analysis, but also used the Iranian population to test a three-allele inheritance model for the Gm serum factors according to Hardy-Weinberg equilibrium,\textsuperscript{437} indicating their assumption of an Iranian society sealed from emigration and immigration and marked by a high degree of social homogeneity. A nearly identical study, also done in 1962 on a different set of 298 samples provided by Choaripour and Eftekhar, was independently conducted by Claude Ropartz, director


\textsuperscript{437} Luba Podliachouk et al., “Les Facteurs Sériques Gm(a), Gm(b), Gm(x) et Gm-like Chez Les Iraniens,” \textit{Vox Sanguinis} 7 (1962): 498.
of the Centre Departmental de Transfusion Sanguine et de Genetique Humaine in Rouen, France (which the WHO would later designate as the International Reference Centre for Genetic Factors of Human Immunoglobulins). The orientation of the Centre toward comparing worldwide data at the level of broad racial and national categories is readily apparent in the published study, which promised in its introduction to present “the first results of interest to the Middle East.” Ropartz and his colleagues found that the Gm immunoglobulin distribution within “this white population” did not differ greatly from that of northwestern European groups and, like Podliachouk and Eyquem, assumed a unitary Iranian population for the purposes of the Hardy-Weinberg model.438

Such an imagined Iranian population could only take shape in cases where the international scientific community took its cues directly from Tehran. The few reports of ABO, Rh or MN frequencies published from regional centers—such as those by Abdoollah Bidar, a member of the medical faculty at the University of Tabriz, and Abdolhossein Afkari, the director of the Blood Transfusion Center at Mashhad—never claim that their data represents “the Iranian population” at a national level, but only at the level of provinces (namely, Azerbaijan and Khorasan). This implies a recognition of regional variation within Iran, but these authors make no attribution of this variation to the differential distribution of ethnolinguistic or religious groups around the country. In fact, no identity labels of any kind are bestowed upon these populations defined solely by Iranian administrative geography.439 This contrasts with all cases where foreign field workers defined such labels, which demonstrate two consistent practices:


emphasizing ethnolinguistic and religious categories to identify minority groups, and describing
the “dominant” Iranian majority as a highly admixed population. Due to this basic assumption of
high genetic admixture, the diagnostic features of the “Iranian” category for sampling purposes
were—to use Gajdusek’s phrase—as variable as the foreign researchers who defined them. The
“Iranian” population category was reliably applied to native Persian-speakers, most often those
who could be identified as Shi’i Muslims, but this definition was frequently achieved through a
process of elimination: “Iranian” blood samples came from any individual who could not be
assigned to one of the more well-defined religious or ethnolinguistic minorities. In other words,
these “default” Iranians were so labeled to mark them off from the ostensibly more “pure”
minority groups who survived as genetic representatives of the original ancestral populations
who had settled in Iran.

The challenges involved in rendering “Iranians” as a genetically legible population unit
appear most clearly in the attempts of Lourens E. Nijenhuis, a serologist at the Central
Laboratory of the Netherlands Red Cross Blood Transfusion Service in Amsterdam, to interpret
the blood samples shipped to him between 1956-58 by Dr. W. de Graaf, a medical officer
employed by the Dutch-managed Iranian Oil Refining Company in Abadan. De Graaf, who
worked mostly with Arabic- and Persian-speaking Iranians at the company facilities, had
managed to sample seven populations: Kurds from Kermanshah; Qashqais from the environs of
Shiraz; Bakhtiyari nomads (from the present-day province of Chahārmaḥāl va Bakhtiyārī); and
Armenians, Assyrians, Arabs, and Iranians from the “strongly mixed” city of Abadan. Nijenhuis
assumed that “probably only the group ‘Iranians’ is somewhat heterogeneous,”\textsuperscript{440} as opposed to

the other populations, whose religious or tribal affiliations prevented intermarriage. In his introductory description of these populations, he explained:

The people indicated as Iranian originate from various parts of the country. For part of them the origin could be determined precisely, for another part this was not possible because of the high frequency of migration from one part of the country to another. Dr. de Graaf got the impression, however, that intermixing between Northern and Southern Iranians did not occur as a rule, this being a result of the differences of climate between the Northern and Southern halves of the country. The habitus of the Iranians living in the areas around the Persian Gulf is strongly like that of Pakistanis; Northern Iranians are more like Turkish People. 441

In his analysis of the data, Nijenhuis noted that the ABO and Rh frequencies of “the ‘Iranians’, which must be a group with mixed origin, are intermediate between the Bachtiiari [sic] and the Kurds;” however, he cautioned, this did not conclusively prove that contemporary “Iranians” were simply the product of a fusion between two ancestral Bakhtiyari-like and Kurdish-like populations. 442 He believed that the heterogeneity evident within de Graaf’s small sample of 348 individuals, most of whom originated from southeastern Iran, precluded any valid conclusions about the average genetic composition of the Iranian population. Without a representative sample, Nijenhuis chose not to speculate on what the “original components” of the Iranian “ethnic group” might be. 443

In sharp contrast to Nijenhuis’s tentative assessment of the blood testing results, James E. Bowman, the foremost American figure in Iranian population genetics, took as a foundational assumption the notion that the Zoroastrians were the living remnants of the ancestral Iranian population. If previous researchers like Beckett and the Boués had merely hypothesized the Zoroastrian community as the biological link to the pre-Islamic Iranian past, Bowman would

441 Ibid., 723.
442 Ibid., 735.
443 Ibid.
cement this narrative into the international genetics literature of the 1960s. Unlike the Boués, Bowman formed close personal relationships not only with Muslim, Persian-speaking Iranians, but also with Zoroastrians, Armenians, Jews, Baha‘is, and other minorities, during his tenure as the head of the pathology department of the Nemazee Hospital in Shiraz between 1955-1961. Also unlike the other foreign geneticists who worked in Iran, Bowman nurtured these relationships with former Iranian students and colleagues for decades, even after returning to the United States to become the first tenured African-American professor at the University of Chicago’s Pritzker School of Medicine. He revisited Shiraz every few years during the 1960s and 70s (and again in 2004), sponsored many of his Iranian students for postgraduate study in the US, and maintained contact with them over the course of their careers in Iran or abroad.444

Bowman arrived in Shiraz in 1955 almost by accident. He had received his medical training, specializing in pathology, at Howard University and several hospitals in Washington, DC and Chicago with the support of the Army Specialized Training Program, and completed his military service at the US Army Medical Nutrition Laboratory in Colorado. After his discharge, Bowman and his wife Barbara decided to look for work somewhere overseas—anywhere would do—to escape the stifling segregation policies of their home country. By chance, Bowman heard of a pathology position in Shiraz, and applied through the US-incorporated Iran Foundation, Inc. for the Advancement of Health and Education in Iran (better known by the less-redundant name, Iran Foundation), the joint Iranian-American organization established in 1948 by Haj Mohammad Nemazee to manage and finance the construction and operation of the Nemazee Hospital. At the time Bowman assumed the position of director of pathology, nearly all the other departments were also headed by Americans, with Iranians filling out the remainder of the staff.

444 Oral History Interview with James Bowman, 26th-28th of June, 2006, Oral History of Human Genetics Collection (Ms. Coll. no. 316), History & Special Collections Division, Louise M. Darling Biomedical Library, UCLA. Hereafter “Bowman oral history interview, 2006.”
positions. Bowman noted that there were no British citizens employed by the hospital, although he met several working for the University of Shiraz medical faculty, which used Nemazee Hospital as a teaching facility. One of these, the British biochemist Deryck G. Walker, would join Bowman in his first foray into genetic research at the beginning of 1959.

This research trajectory was just as serendipitous as Bowman’s presence in Iran, since he had never received any specific training in genetics. It was sparked by Bowman’s chance encounter (since he usually spent his time in the laboratories) with a child brought to the hospital with severe symptoms of favism (G6PD deficiency), the same hereditary condition that was becoming synonymous with non-Ashkenazi biology in Israel. Bowman did not immediately recognize the condition, and only with the arrival of similarly afflicted patients did he begin familiarizing himself with the burgeoning literature on G6PD deficiency. He quickly took an interest in the anthropological aspects of genetic disorders, with their tendency to vary significantly in frequency among different peoples. Together with Walker, Bowman developed a chemical test for G6PD deficiency, and set out to do population surveys for the condition across Iran. Their first favism report, published in *Nature* in 1959, presented results from the Iranian “medical, nursing, and ancillary staff” at the Nemazee Hospital and University of Shiraz medical facilities and announced the presence of G6PD deficiency at a level of about 8% among Muslims “throughout Iran.”\(^{445}\) This analysis was restricted only to Muslim staff members, since the Jews, Armenians, Assyrians, and Zoroastrians involved “were not in sufficient number for evaluation,” and their samples had been separated out for future studies with a special focus on these minority groups. Those subsequent studies would reveal the extent of Bowman’s network of “native

---

informants” representing minority populations, who took a leading role in defining Bowman’s personal understanding and professional portrayal of Iran’s biological history.

Like André Boué, Bowman made several trips outside of his home base in Shiraz to collect blood samples from tribal populations maintaining a semi-nomadic lifestyle in the rural areas of Fars province. Namely, these included family groups from the Persian-speaking Basseri tribe of the Khamseh confederacy, the Turkic-speaking Qashqai confederacy, and the Luri-speaking Mamasani tribe. Unlike the Boués’ skeptical approach to the self-identification of the Kurdish groups they analyzed, Bowman demonstrated a greater sensitivity to conflicting narratives of group identity, particularly with regard to the Qashqai tribes. In his 1961 presentation with Walker at the Second International Congress of Human Genetics in Rome, he portrayed both “tribal legendary history” and the narratives of sedentary Iranians as equally plausible hypotheses for the levels of G6PD deficiency detected among the Qashqai:

According to the tribal leaders, the Ghashghai were brought to the province of Fars by Shah Abbas in the 17th century from what is now Russian Azarbajjan. Some Iranians state that they are of Seljuk Turkish origin; however, the Khans emphasize that although their language is a Turkish dialect, it was probably acquired in the not too distant past, and that their music and legendary tales are non-Turkish. Other Iranians believe that the Ghashghai originated from one of the Mongol tribes of Russia. 

Meanwhile, Bowman’s closest personal tribal connection appears to have been a “good friend” who served as a Nemazee Hospital technician and whose brother was a khan of the Mamasani tribe. Bowman’s plans to visit this tribe, which had a history of disputes with the Iranian government, attracted the attention of SAVAK, whose agents subjected Bowman to interrogation in Shiraz and surveillance in the field. According to Bowman, he earned the government’s trust

---

by consistently distancing himself from his colleagues’ criticisms of the Shah, professing his own ignorance of Iranian politics and exclusive interest in medical and scientific questions. In so doing, he preserved the freedom of his own research agenda, as well as (he believed) his personal safety within Iran. Bowman did genuinely believe himself to be providing an apolitical health service, as he and his technicians would raise awareness of the causes and symptoms of favism and report the results of the G6PD deficiency testing to the tribal khans. In any case, many of his Iranian friends were less fortunate in avoiding the state’s wrath; the Mamasani khan who had assisted his research was executed years later for attacking government soldiers who entered tribal territory (plausibly for the purpose of enforcing White Revolution land reforms).447

Sampling among the urban-dwelling minorities presented considerably fewer difficulties. Not only did Bowman have many more Armenian, Zoroastrian, and Jewish colleagues working with him in Shiraz, but also, these groups had well-established practices of recording their history, which Bowman inevitably perceived as more concrete than “tribal legends.” In the case of the Armenians, Bowman and Walker traveled to New Julfa, the Armenian quarter of Isfahan, to add a further 153 blood samples to the ten they had already collected from Armenian hospital staff in Shiraz. When publishing the data, they credited Caro Owen Minasian, the Isfahan-born physician and scholar of Iranian-Armenian history, as “making this survey possible” and thanked him for “his clarification of many points regarding the history of the Armenians.”448 These “clarifications” consisted primarily of a narrative of Armenian endogamy within the New Julfa community, which correlated with Bowman and Walker’s genetic findings:

447 Bowman oral history interview, 2006.

The Armenians in New Julfa were brought to Iran as Christian captives in 1604 and 1605 by Shah Abbas the Great from Julfa in what is now Soviet Armenia. [...] While religious intolerance has not been permitted in Iran for many centuries, the Armenians were not encouraged to intermarry with the surrounding population. According to Dr. Caro Minasian, an Armenian physician and scholar, Armenians who have intermarried live outside of the area of New Julfa. This fact is supported by our finding of a virtual absence of the erythrocytic defect and by the blood group data. This population is thus an excellent example of what has been termed “religious isolates” by [anthropologist Ashley Montagu].

On the other hand, the rosy account of the Armenians’ arrival and enjoyment of “religious tolerance” in Isfahan represents an Iranian nationalist narrative that glosses over the total destruction of Julfa, the coerced relocation of the Armenian population, and the centuries of formal and informal discrimination they experienced in Iran. The fact that Bowman, so active in the civil rights movement in his own country, could make such a distinction between captivity and slavery attests to his unquestioning acceptance of the dominant Iranian version of history, one to which Iranian Armenians also paid “homage” to secure their community’s safety.

Meanwhile, the striking absence of G6PD deficiency among the Armenians, which sharply distinguished them from the neighboring populations in Isfahan, also turned out to be a diagnostic character of the Zoroastrians in Yazd. This came as no surprise to Bowman, whose personal interactions with Zoroastrians had led him to expect evidence for their own claims to Iranian antiquity. Just as for the Armenians, the collection of blood samples was facilitated by a prominent community member: Manouchehr Mavendad, the Zoroastrian chief of surgery at the Nemazee Hospital, who was also similarly thanked “for his clarification of Zoroastrian customs.”

In a 2006 oral history interview, Bowman recalled, “[the Zoroastrians] knew that

---


they were different and [were] very proud of it. They would say, ‘We are the original Iranians.’ Bowman himself would continue to refer to Zoroastrians as “the original Iranians,” “the original Persians,” or even “the original Aryan populations,” for the rest of his career.

As seen above, Bowman’s rhetorical slippage between “Iranian” and “Persian” is symptomatic of Iranian nationalism generally, and of the constitution of “Iranians” as a coherent genetic population more specifically. In his 1961 conference report with Walker on the origins of G6PD deficiency in Iran, he foregrounded Zoroastrianism in his framing of the contemporary Iranians as the product of an ancient Persian population: "By the mid-sixth century B. C., a new people, the Persians, appeared on the world scene. They were Indo-Iranian in language, Zoroastrian in religion, and differed ethnically from Mesopotamians, Phoenicians, Hebrews and Egyptians,” and, in Bowman’s narrative, initially devoid of G6PD deficiency. Based on his population surveys, Bowman argued, the possible human sources of the condition who had introduced it into the ancient Persian population included the Muslim Arab forces who conquered Iran in the 7th century CE; Jews originally liberated by Cyrus in the 5th century BCE who settled in Iran and eventually converted to Islam; and nomadic tribal groups who “migrated or were brought to Iran from bordering countries since the Islamic conquests to act as buffers against local dissident groups,” many of whose descendants had gradually “left their peoples” and whose “progeny are lost in the Moslem population.” Central to his argument was the absence of favism among the Zoroastrian community, which despite its shrinking numbers maintained its total and permanent rejection of proselytism and outmarriage:

452 Bowman oral history interview, 2006.


454 Ibid.
The Zoroastrians are the closest to the original Persians now in existence and today number only 15 to 20,000. [...] Zoroastrians have a strict unwritten code: they do not proselytize, outsiders are not accepted into the religion, and if a Zoroastrian marries into another group, neither he nor his children are considered Zoroastrian. In this population, there is not only absence (or at least a very low frequency) of G-6-PD deficiency, but a clear difference in the frequency of the B gene from that of the Moslem population. This finding is unlike that of Boué and Boué [...] Zoroastrians believe that they were untouched by the Mongol invasions of the 13th-14th centuries. They most certainly were not the defending forces. If this is true, it suggests that the Zoroastrians, with their extensive Empire, were also reservoirs of the B gene. The importance of this group for future studies is incalculable. Unfortunately, if the present rate of loss of its members continues, they will probably be extinct within the next 50 years.455

Following up on this initial work on ABO and G6PD markers, Bowman expanded the genetic analysis to haptoglobins and transferrins, the results of which further reinforced his belief in the longstanding marital, and thus genetic, isolation of Zoroastrians from Muslim Iranians:

Zoroastrians, the “original” Iranians, are historically distinctive from Semitic and other peoples in the Middle East. [...] The Zoroastrians are...separable from the Moslems by ABO blood groups, G6PD assays and haptoglobins. Whatever the Zoroastrians were before the Islamic era, there is no doubt that they are a separate and genetically different breeding group from that of the present Moslem majority. There is no question of their cultural distinctiveness.456

Bowman’s convictions about the Zoroastrians’ perfect preservation of their original gene pool are all the more striking given the skepticism he meted out to Israeli geneticists who made similar claims about Jewish history. In the course of his G6PD deficiency research in Iran, he had established a friendly professional correspondence with Chaim Sheba, Aryeh Szeinberg, and Bracha Ramot related to their work on the condition among Mizrahi Jews in Israel. In Bowman’s view, the dramatic genetic variation observable between different Jewish communities (e.g. between Ashkenazim and Kurdish, Indian and Ethiopian Jews) was obvious evidence of past proselytization, even if Zionists had lately attempted to erase such incidents from their history:

455 Ibid., 585–6.

…going back to the history of Judaism, one of the things that I ran across that was very interesting was that Jews maintained they did not proselytize. I mean, they did not do it. I said, “But you do proselytize. Look at the Asian-Indian Jews. They're Asian Indians. Look at the Falasha in Ethiopia. They're Ethiopians. All of this is from proselytizing.” […] The Falasha—the Jews in Ethiopia—were there because you proselytized. That is part of your heritage, and it's a beautiful part… The Zoroastrians did not proselytize. They were a bunch to themselves.457

Bowman’s conceptualization of Jewish history and the cultural and biological distinctiveness of various Jewish communities was probably also informed by his familiarity with Iranian Jews and their interactions with Ashkenazi-dominated Zionist social welfare organizations. His wife Barbara, an expert in early childhood education, worked closely with the American Jewish Joint Distribution Committee (JDC) to develop a preschool program in Shiraz. In the process, the Bowmans witnessed Shirazi Jews’ dissatisfying encounter with Labour Zionism. In particular, James Bowman remembered “a large population” of Jews living on the north side of the city, who were relatively affluent merchants and professionals, emigrating to Israel and then returning to Iran en masse within a year: “They said, ‘We don't like that place. They wanted us to dig ground. We never did farming. We're merchants, we're bankers and teachers.’ They didn't like it at all. So most of them came back to Iran.”458 The disparities in the politico-cultural ideology between Iranian and Ashkenazi Jews surely reinforced Bowman’s perception of the latter as “Europeans,” an altogether “different people” from his Jewish friends in Shiraz, a perception further intensified by Bowman’s eventual visit to his (Ashkenazi) geneticist colleagues in Israel (see below).

457 Bowman oral history interview, 2006.

458 Ibid. Press releases and internal memoranda preserved in the archives of the JDC paint a decidedly different picture of the Jewish community in Shiraz, emphasizing the illiteracy and destitution of the majority of the community living in the city’s ghetto and the indifference of the “perhaps one percent” of the Jewish population that had accumulated significant wealth. See, for example, A. Blass, “Passover: 1954—First Rays of Hope for the Jews of Shiraz,” press release for Passover edition of News from American ORT Federation, March 15, 1954, New York Collection 1945-54, NY AR194554/2/435/1848; untitled memo from executive meeting, November 25, 1958, New York Collection 1945-54, NY AR195564/3/2/785, JDC Archives.
Following Bowman’s departure from Iran in 1961, he remained highly conscious of the diversity of Iran’s population and would continue to label samples primarily according to religious community. In a 1967 paper co-authored with “one of [his] best students,” Hossain Ronaghy, on a broad selection of polymorphisms (abnormal hemoglobins, G6PD deficiency, and more), he returned to the category of “Moslems in Iran” (i.e., the majority of hospital staff in Shiraz). The study compared frequency values of “Iran Moslems” in tables with British, US (subdivided as Caucasian and Negro), African (Uganda, Nigeria/Ghana), and South African (subdivided as white, colored, African, and Malay) populations. Such a breakdown reflects Bowman’s attention to the legal segregation of racial/ethnic subpopulations within white-majority countries, as well as his conflation of this phenomenon (at least in its biological manifestations) with the social divides between Iranian religious communities. It also brings Bowman’s Iranian research full circle, back to the study of the majority population of Persian-speaking Iranian Muslims, after Bowman’s quest to genetically characterize the “original Iranians/Persians” via the Zoroastrians.

A similar trend appears in the British-affiliated research in Iran between 1965-1972, most of which was financed by the WHO or the IBP. Curiously, the British hematologists involved (i.e., Mourant, Lehmann, Eric Sunderland, and Peter Beaconsfield) seem to have been unaware of Bowman’s 1959-1964 publications in Nature until about 1968, even though they shared a major interest in the variable incidence of favism in different Iranian groups. Instead, the first British studies compare their own findings only to the data published by the Bouës and Nijenhuis. Perhaps this indicates how divorced the main British players were from the American-dominated medical facilities in Shiraz—both the Iran Foundation’s management of the Nemazee Hospital,

---

459 Bowman oral history interview, 2006.
and the University of Pennsylvania’s project to help transform the University of Shiraz into an American-style medical and liberal arts school, the Pahlavi University. In any case, the British scientists ultimately covered similar ground to Bowman in other locations within Iran, although they were less interested in the Iranians as such and more preoccupied with accumulating comparative data for population isolates they had studied elsewhere in the Middle East, like Shi’ite Muslims in the Arabian Peninsula and Kurdish Jews in Israel. For example, in 1965, Eric Sunderland collected blood samples from 151 Shi’ite Muslims in Yazd and shipped them to Harry Smith, Mourant’s protégé in Beirut, for blood-group analysis. Sunderland noted the presence of Yazd’s “sizeable Zoroastrian community, presumably stemming from the pre-Islamic population of the town,” but only to argue that his Shi’a sample was probably not mixed due to the rarity of intermarriage.460 Meanwhile, Peter Beaconsfield was working closely with Iranian physicians at the University of Tehran’s Institute of Public Health Research to conduct a survey of G6PD deficiency in different regions of Iran. Based in southern Iran, Beaconsfield had independently embarked on the same effort about five years after Bowman’s work began. On the other hand, Beaconsfield and his Iranian colleagues, motivated to undertake the survey for medical rather than anthropological-historical purposes, tended to analyze populations by urban locality; only in Tehran and Yazd did they follow Bowman’s protocol of sorting samples by religious communities (separating out Jews and Armenians in Tehran, Zoroastrians in Yazd).461


461 Peter Beaconsfield et al., “Glucose 6 Phosphate Dehydrogenase Deficiency in Iran and Its Relation to Physiopathological Processes,” Acta Medica Iranica 9, no. 1–2 (1966): 35–42. The survey was carried out in response to the WHO-sponsored malaria eradication program for Iran, which relied heavily on the use of 14-day courses of primaquine—a medication that can cause a dangerous hemolytic reaction when taken in multiple doses by individuals with G6PD deficiency.
Mourant and Lehmann—like Bowman—were decidedly more interested in the anthropological interpretation of variable favism incidence and the possibility of aligning genetic data with historical narratives. Unlike Bowman, their primary research target was not the Zoroastrians but Iran’s Kurdish population, a direct development of the Israeli discovery of the remarkably high frequency of G6PD deficiency in Jewish Kurds. In 1969, Lehmann traveled to Iran with a team of British physicians; like Beaconsfield before them, their main base of operations was the Institute for Public Health Research. Lehmann enjoyed the personal hospitality of the director, Chameseddine Mofidi, who was also then-vice chancellor of the University of Tehran. Much like the Boués, Lehmann relied on Mofidi’s network of Iranian public health officials and clinicians to facilitate his fieldwork in Kurdistan province among Kurdish villagers who were “believed to be almost completely unmixed genetically with other populations.”

The main goal of the study was to compare the frequency of, primarily, G6PD deficiency, and secondarily, all other possible genetic traits that could be identified between Jewish and non-Jewish Kurds. Thus, in addition to 184 refrigerated blood samples that were shipped to the United Kingdom, Lehmann’s team also field-tested over 300 Kurds for PTC-tasting ability and over 500 for hereditary color blindness. Ultimately, they found that while Jewish and non-Jewish Kurds showed slightly more genetic divergence than Jewish and non-Jewish Yemenites, the only statistically significant differences were higher rates of PTC tasting among the non-Jewish Kurds (27% vs 14%) and much higher rates of G6PD deficiency among the Jewish Kurds (~40% to less than 7%). Although the publication of the study included an

---


introductory paragraph on various hypotheses regarding the ethnogenesis of the Kurds, the
overriding interest of Lehmann and his British colleagues in Jewish populations edged out any
evaluation of these hypotheses based on the genetic data, with the authors insisting “it is the
frequencies among the Kurdish Jews which require a special explanation.” The possible
explanations, in turn, appear in a separate paper comparing Israeli data on Kurdish and Yemenite
Jews, which offered as a final conclusion that the data “suggest a much higher degree of
exclusive endogamy in the Kurdish than in the Yemenite Jewish community.”

The correspondence between Mourant and Lehmann while the latter was in Tehran
further reveals not only the research priorities of the British geneticists in Iran, but also the type
of hierarchy perpetuated by Western scientists conducting fieldwork in “developing” countries.
Mourant expressed his interest in Lehmann’s discovery of “Romany speaking people” in Iran
and mused how to broach the topic with “essential collaborators” who should be involved in
future research on the population:

Perhaps Sunderland can be brought into this—in fact we can hardly do anything
about Romanys at the moment without discussing it with him. Also he has already
worked in Iran. […] As regards other people involved in Iran, I am not deeply
concerned about Beaconsfield and his colleague [Rebecca Rainsbury], especially
as it appears that they are not regarded as essential collaborators by Prof. Mofidi.
Bowman however I do not want to upset in any way, I think we perhaps ought to
discuss further plans with him, and I should be glad to know how Mofidi regards
him. He has of course been involved in Iran for some 10 years. […] Please give
my very kind regards to Prof. Mofidi who I have not had the pleasure of meeting,
Dr. Karimi Nejad, Professor Azhir and Dr. Amini if he has returned to Iran. Are
the Boués still at the Pasteur Institute?

---


Mourant’s letter shows that he was only concerned to avoid “upsetting” non-Iranian collaborators by seeking their permission before treading on their research turf, while he took the cooperation of Iranian hematologists (to say nothing of the prospective “Romany” subject population) completely for granted. This indicates the dominant authority he expected to exercise over Middle Eastern and other “developing national” researchers and subjects within the international scientific community—rather ironically, given his simultaneous troubles with Batsheva Bonné (for which, in this very same letter, he requested Lehmann’s mediation). Namely, Mourant envisioned himself and his colleagues operating in a purely extractive fashion in such regions, fostering relationships with local researchers mostly for instrumental (i.e. logistical) purposes rather than treating them as reciprocal partners in a scientific enterprise. After all, once the fieldwork was over, everything—the blood samples, the equipment, the funding, the British scientists themselves—returned to the United Kingdom to analyze and publish the genetic information; local researchers were privileged to be listed as co-authors or in the acknowledgments section, and rarely did Mourant mention, in publication or private correspondence, the fate of any of the individuals whose blood had been sampled.

Not all of the foreign researchers shared Mourant’s apparent lack of self-awareness vis-à-vis their positionality within Iran. The American researchers, in particular, demonstrated a higher level of geopolitical consciousness. Gajdusek noted with disapproval that during the 1950s, the Institut Pasteur in Tehran grossly underpaid its Iranian medical staff despite the fact that their skills as physicians and researchers often exceeded those of the “second and third rate American doctors” sent to Iran as medical advisors, a situation he regarded as “a serious failure…which

---

Gajdusek, A Year in the Middle East, 53–4.
may throw [the Iranians] someday into the arms of the Soviet autocracy.” The sympathy of Bowman for his Iranian colleagues is clearly discernible in his spring 1969 letter to the editor of the Middle East Journal, in which he scathingly chastised the condescending neo-colonial attitudes of an American educational consultant toward the Iranians of Pahlavi University:

A frequent cause of drastic modification or rejection of the advice of experts by the host country is the failure of the consultant to perceive that a program that is relevant to his own culture may be irrelevant to a foreign culture. Countries must establish their own priorities. The greatest shortcoming…is an attitude that is reminiscent of colonialists who created universities in the Middle East, the Far East and Africa many years ago. That day is past. The derogatory generalization “…The students…bring backgrounds of intellectual achievement, personal discipline and cultural mores which are inimical to creative thinking…” not only ignores the intellectual and cultural background of a people who for over 2500 years have made scholarly contributions in science and in the humanities, but also presumes a superiority that is unacceptable.

Bowman held similar misgivings about the discriminatory nature of Israeli society, namely the second-class status of Palestinian residents of Israel, which reminded him of the worst features of the United States. Upon the invitation of Sheba, Szeinberg, and Ramot, he and his family visited Tel Aviv (and the nearby Tel-Hashomer Hospital) for two weeks in 1961, during which he witnessed the stark inequities between Jewish and Palestinian residential areas. At a large dinner party in his honor, his Israeli hosts asked him to describe his experiences living as an African-American in the United States; much to their consternation, he compared Black-white segregation in his own country to the inability of a Palestinian Arab to purchase a house in Tel Aviv. According to Bowman, this sent the party into an uproar, with the Israelis accusing him of having spent too much time living in “an Arab country,” to which he pithily responded, “You

468 Ibid., 171.
better know your history. Iran is not an Arab country. Despite these political differences, he maintained his Israeli professional connections, which probably facilitated the publication of work by his Iranian students, Ekmal A. Mohallatee and Mansoor Haghshenas, in the *Israel Journal of Medical Sciences* in 1969.

However, the Mohallatee and Haghshenas report on ABO and Rh blood groups in Shiraz did not reflect much of their American advisor’s influence, since they chose to summarize existing data collected by hospital blood banks rather than seeking out and sampling among anthropologically-coveted “religious isolates.” In fact, although Mohallatee and Haghshenas acknowledged the city’s religious diversity (Muslim, Armenian, Jewish and Zoroastrian), they could only analyze the data as a single urban Shiraz population, because the blood banks did not record religious or ethnic data from the donors and recipients. As mentioned above regarding the data provided by Iranian military medical services to the WHO laboratories in France, this scenario was representative of all of the disparate blood transfusion services, including those provided by the army, the universities, or the Red Lion and Sun Society (RLS). In the early 1970s, Forouzandeh Brelian Jahanshahi, the head of the Blood Transfusion Center at the University of Tehran, compiled blood bank data collected by her own institution between 1962-1969 in order to resolve the [quite minor] lack of agreement between nationwide “Iranian” ABO frequencies obtained by the army and RLS. Ironically, her data turned out to differ considerably from either of the other two datasets, prompting her to attempt to construct a regional breakdown to identify the sources of variation. Although she cited Bowman’s publications as examples of population-genetics investigations in Iran, she could not emulate his ethno-religious data sorting.

---

470 Bowman oral history interview, 2006.

Instead, she could only track down broad geographic data—place of birth and “approximate ancestral [region of] origin”—for about 15% of her specimens. Ultimately, she argued that the partial statistics she obtained “may not be an absolute pattern for genetic markers in Iran’s different population[s], but it certainly gives an indication that such differences exist.” Jahanshahi’s report heralds a growing interest in collecting blood samples specifically for anthropological population genetic research among Iranian scientists, including many just returning to Iran after earning PhDs abroad, during the 1970s. Although foreign geneticists continued to conduct research in Iran, Iranians themselves began to take firmer control of genetic research priorities in their country and to publish their results independently or as primary authors, rather than functioning mainly as field and laboratory assistants to Westerners.

**Reinventing the Eti-Turks**

In April 1967, Marjorie Dalby, a medical student at the University of Leeds, wrote to Mourant for advice in her role as a representative of the Turkish Taurus Expedition, a university-organized summer trip for students and staff to carry out various research projects in Turkey. Dalby, the leader of a proposed medical project on “closed communities of Sephardic Jews,” asked Mourant how best to collect and store their blood, and whether he would be interested in the specimens. Mourant replied to her proposal with enthusiasm, but warned that the specimens would need to be shipped, with constant refrigeration, to a laboratory to be tested as soon after collection as possible. While he did not want to commit his own resources at the Serological Population Genetics Laboratory in London, he suggested, “an alternative possibility might be to send them to Israel which has I believe good air connections with Turkey. There is a group of research workers there who would certainly be most interested in what you are proposing to

---

do."\(^{473}\) Given the urgency and demanding logistics surrounding the transport of blood samples between field and laboratory, Mourant’s recommendation of Israel seems to overlook the obviously more convenient solution: why not send the samples to the nearest university or Red Crescent laboratory in Turkey? The existence of adequate facilities for the desired testing (for frequencies of ABO types, thalassemia, and G6PD deficiency) in the country could not have escaped Mourant’s notice. He had included ABO frequencies collected in Turkey in the 1954 edition of *Distribution of the Human Blood Groups*, and had directly collaborated on several publications (including one on thalassemia) with a Turkish hematologist, Muzaffer Aksoy.\(^{474}\) Moreover, just a few months after receiving Dalby’s proposal, Mourant was in contact with Necmettin Mizan, a director of Turkish Red Crescent laboratories, to discuss data from the latter’s papers for inclusion in the 1976 edition of Mourant’s compilation.\(^{475}\)

Mourant’s advice to send Turkish-Jewish blood samples to Israel, rather than any of the laboratories in Turkey capable of performing the relevant tests, underscores not only Mourant’s close personal and professional ties to Israeli scientists and (perhaps unconscious) acceptance of an Israeli claim to “ownership” over Jewish bodies, but also the relative marginalization of Turkish scientists within the global project to reconstruct human biological history. For example, Turkey was completely absent from Human Adaptability division of the IBP, both in terms of research sites and participating scientists. However, this does not mean that Turkish geneticists were not integrated into the international scientific community. Nor were they immune to its...

\(^{473}\) Dalby to Mourant, April 5, 1967; Mourant to Dalby, April 14, 1967. PP/AEM/E.21: Box 14, Mourant Papers.


norms of categorization and prioritization of exotic population isolates. Rather, this reflects the elements of Turkish domestic politics that viewed with deep suspicion any attempt to acknowledge and legitimate any non-Turkish ethnic identity within the state’s borders. After the Second World War, the power of the CHP (the political party of Kemalism) was constantly in flux, being ousted from executive authority by the main opposition party in the 1950 general elections, reinstated through the military coup of 1960, and facing further electoral losses by the late 1960s. Regardless, the ethnic factor of Turkish nationalism strongly persisted; despite the fact that Kurdish, Armenian, and Greek nationalist aspirations had already been brutally suppressed, government policy toward the non-Turkish minorities remained plagued by a paranoia sometimes deemed “Sèvres syndrome,” a collective fear of Turkey’s partition along ethnic lines in the manner of the failed 1920 League of Nations treaty. 476

As mentioned in Chapter 2, human blood-group genetics in Turkey is distinguished by the total non-involvement of scholars affiliated with the anthropology institutes and departments (such as Kansu and his students) between 1946 and 1975. Accordingly, this research was pursued specifically as medical genetics, and specifically by hematologists affiliated with blood transfusion services at state hospitals or the Red Crescent. Nevertheless, these medical researchers were not particularly less nationalist than the anthropologists who had preceded them; after all, this was the first generation of physicians whose primary and secondary educations were shaped by a standardized Kemalist curriculum. In fact, all of the relevant publications by these workers share the same general approaches to categorizing populations and reporting results as the overtly nationalist anthropometry and sero-anthropology work of previous decades. Furthermore, just as in Iran, the personal data collected from blood donors

never included ethnolinguistic or religious information, but only sometimes noted an individual’s province or region of origin. In this way, the population in question was always implicitly rendered “Turkish.” The resulting ABO, Rh, or other antigen frequencies would then be compared in tables against previously obtained Turkish data and/or other racial/national-level population groups, such as English, Japanese, or Native American people, evidently for the purpose of re-confirming Turkish genetic proximity to Europeans.

As for internal genetic diversity within Turkey, Turkish hematologists recognized and discussed this only on the basis of administrative geography—just like their contemporaries in the Iranian military medical services, and like Afet İnan on the Turkish Anthropometric Survey a generation earlier—and, sometimes, the relative proportions of Turkish immigrants from the Balkans (göçmenler) known to reside in particular areas, such as the city of Eskişehir. However, in the two studies in which these Turkish immigrants are analyzed in the greatest detail—featuring comparisons of figures between those from Greece, Bulgaria, Yugoslavia and Romania and the “Turks of Turkey” (Türkiye Türkleri)—the authors provide no historical or


social context that accounts for the apparent expectation of genetic difference. For example, the
Chief of the Red Crescent Blood Center Control and Research Laboratory in Ankara, Necmettin
Mizan, published a dataset he compiled of such immigrants during the four years (1958-1962) he
had worked as a bacteriologist at the Red Crescent Blood Center in Istanbul. He described them
only as “those of our race who have come from our Western neighbors” (*Bati komşularımızdan
gelen ırkdaşlarımız*).\(^{480}\) Cemal Büyükyüksel, who took Mizan’s former post in Istanbul, picked
up the data collection from 1963-1968 and used perhaps more tempered language to describe the
Balkan immigrants: “citizens who have immigrated from Bulgaria, Romania, Yugoslavia, and
Greece” (*Bulgaristan, Romanya, Yugoslavya, Yunanistandan göç eden vatandaşlar*).\(^{481}\) In both
cases, the essential Turkishness of these immigrants was not at all in question, even if they
showed some level of genetic difference from “Turks of Turkey.”

By the 1960s, it seems, the conceptual contradictions of Turkish national identity that
emerged during the “population exchanges” of the 1920s were essentially forgotten.
Büyükyüksel turned all his efforts at historical speculation onto the new national issue of the
time: the Turkish-Greek violence over the future of Cyprus.\(^{482}\) At the end of his 1969
compilation of Turkish ABO frequencies, he added “a study on the blood groups of Cypriot
Turks and Greeks,” in which he compared his own data from Turkey to those of an earlier British

\(^{480}\) Mizan, “(ABO) ve (Rh) Kan Gruplarının Dağılımı,” 347.


\(^{482}\) The Republic of Cyprus achieved independence from British colonial rule on August 15, 1960. The constitution
of the new country attempted to divide administrative responsibilities and privileges according to a Lebanese-style
proportional system, which satisfied neither Greek nor Turkish Cypriots. Many Greek Cypriots supported the union
of the island with Greece, while many Turkish Cypriots supported a partition of the island into self-governing
Greek- and Turkish-majority areas. The ensuing political violence between the two communities intensified through
the 1960s and culminated in Turkey’s 1974 invasion of the island, resulting in Cyprus’s de facto partition.
study on Greek and Turkish Cypriots. On the basis of ABO data alone, Büyükyüksel—in agreement with the British study—argued that Greek Cypriots ( Kıbrıs Rumları ) were much more closely related to Turkish Cypriots, Anatolian Turks, and Lebanese Assyrians, rather than to the Hellenes ( Elenler , i.e., Greeks of Greece). The British study had emphasized the extent of Arab invasions of the island, as well as the fact that the “Greeks” of Cyprus acquired their ethnonym as much through the Ottoman equation of Greeks with Orthodox Christians as through their spoken language; neither proved that Greek Cypriots shared their ancestry with the people living in Greece. Büyükyüksel took these assertions a step further by insisting on the primacy of Turkish ancestors: “[a]ccording to our opinion, the majority of Greek Cypriots are not of Hellenic origin, but the result of racial fusion in Cyprus throughout history, with the majority coming from Turkish, Assyrian etc. races and yielding today’s external appearance under [the influence of] Hellenic culture and religion.” Büyükyüksel did not state anything explicitly about the political situation in Cyprus at the time, but the intent to delegitimize Greek claims to Cyprus on biological grounds is abundantly clear. This in itself is less remarkable than the data that he personally added to the comparison: the ABO frequencies of 1100 Greek schoolchildren of Istanbul ( İstanbul Rumları ), which—like those of the Greek and Turkish Cypriots—more closely resembled the Turks of Turkey than the Greeks of Greece! With this comparison,


484 “Kanaatimize göre Kıbrıs Rumları büyük ekseriyette Elen menseli olmayıp ırkların tarih boyunca Kıbrısta kaynakmaları sonucu büyük ekseriyette Türk olmak üzere Arsl.. v.s. ırkından gelmekte ve Elen kültür ve dini altında bugünkü harici görünüşü vermektediler.” He did concede, “[t]hose having the main authority on this subject […] are our ethnologists and historians” (“Bu mevzuza esas selahiyet sahibi olan, başlıca da belirttiğimiz gibi etnologlarımza tariçilerimizdir.”) Büyükyüksel, Türkiye'de Kan Grubları Dağlımı, 36–7.

485 “The [Istanbul Greeks’] blood group results did not yield the percentages peculiar to the Hellene race but rather approximated those of the Turkish population.” (“Ana baba Rum 1100 çocuk üzerinde aldığımız kan grupu...
Büyükyüksel confirmed his membership in the tradition of self-contradictory nationalist logic underlying both the early Republican “Turkification” policies in the city and much of Turkish biological research up to that point. He applied the same notion to Cyprus that the earlier generation of Turkish anthropologists and serologists had already attempted to show for Anatolia and Istanbul: “everyone is a Turk,” at least at the core of their biological ancestry, yet minorities (like the Istanbul Greeks) were not Turkish enough, having been culturally and/or biologically hybridized.486 However, whereas his predecessors were more preoccupied with establishing Turkish racial purity and therefore defined the admixed Greeks and other minorities in pejorative terms as degraded “mongrels,” Büyükyüksel’s narrative of Turkish biological and cultural admixture on Cyprus was decidedly less negatively-inflected and thus more politically expedient.

In any case, his speculations on the racial history of Cyprus were not included in his 1973 French-language article on the same Turkish Red Crescent data. Instead, he focused on providing historical rationalizations for the fact that ABO frequencies in certain regions of Anatolia noticeably deviated from the Turkish national average:

…for the regions of the Black Sea, the Mediterranean and Southeast Anatolia, which are separated [from the rest of Anatolia] by difficult-to-access mountain chains, the insufficiency of naval circulation, as well as the pressure of the Ottoman authorities during the period of decadence to obtain more taxes and soldiers, obliged the peasants to leave their homes and take refuge in isolated lands almost without contact with their neighbors, which explains the heterogeneity of these regions. Since 1923, with the advent of the Republic, the conditions have changed with regard to both lines of communications and social conditions, opening a new era for the peoples who live in these regions. We believe that in a future time human circulation will offset the heterogeneity of

these regions, which will [then] have the same percentage as the averages for Turkey. Büyükyüksel’s language here echoes that of Afet İnan (Chapter 1), Nureddin Onur, and Sadi Irmak (Chapter 2) in their anthropometric and sero-anthropological work from three decades earlier; he essentially offers a historical-geographic apologetics for the patterns of genetic diversity within Anatolia and anticipates a future in which the policies of the Turkish Republic will progressively dilute this distressing heterogeneity. Also like the authors of the preceding generation, Büyükyüksel demonstrated a keen awareness of audience, saving his most overtly nationalist work (like the Cypriot comparisons) for Turkish-language publications, while taking an ostensibly more “neutral” approach for international journals. Ultimately, of course, the multilingual discursive sphere of international science was just as deeply implicated in the circulation and validation of particular national myths.

The complexity of this process emerges throughout the career of Muzaffer Aksoy, one of Turkey’s most prominent hematologists in between the 1950s and 1980s, and his contributions to Turkish blood protein genetics. Aksoy was born in 1916 in Antalya and was sent to Istanbul Boys High School (İstanbul Erkek Lisesi) in 1931, the same year his father, a member of the CHP, was elected as Antalya’s parliamentary representative. Muzaffer and his younger brother are apparently remembered by their classmates as great supporters of Atatürk, whose preferred

---

487 “…pour les régions de la Mer Noire, de la Méditerranée et de l’Anatolie Sud-Est qui sont séparées par des chaînes de montagnes difficiles d’accès, l’insuffisance de la circulation navale, ainsi que les pressions des autorités ottomanes pendant la période de la décadence pour obtenir plus d’impôts et de soldats ont obligé les paysans à quitter leurs demeures et à se réfugier dans des terres isolées presque sans contact avec leurs voisins, ce qui explique l’hétérogénéité de ces régions. Depuis 1923, avec l’avènement de la République les conditions ont changé aussi bien en ce qui concerne les voies de communication que les conditions sociales ouvrant une ère nouvelle pour les peuples qui habitent ces régions. Nous pensons que dans un temps prochain la circulation humaine compensera l’hétérogénéité de ces régions qui auront un pourcentage identique aux moyennes pour la Turquie.” Cemal Büyükyüksel, “Groupes Sanguins ABO et Rh (D) Dans La Population Turque,” Revue Française de Transfusion 16, no. 4 (1973): 407, 409.

theories on the Turkish race appeared in the Aksoys’ middle-school textbooks. Muzaffer entered Istanbul University’s Medical School in 1934, where he studied under the noted German-Jewish hematologist Erich Frank and graduated with honors in 1940. After serving as a ship’s doctor in the Navy, he returned to Istanbul for a medical residency, specializing in hematology. In 1947, Aksoy was assigned to work in Mersin State Hospital, where he first began collecting data on blood group frequencies in relation to his medical work on sickle-cell anemia and thalassemia. In 1952-53, he spent a year in Boston working with American hematologist William Dameshek, founding editor of the journal *Blood*, the foremost clinical journal of hematology in the United States. This trip would prove most significant to his research career, not least because it catalyzed his learning of English, paving the way to his increased visibility in the international scientific community (predominantly Anglophone in the postwar period). From then onward, Aksoy routinely published in English and participated in international genetics conferences, including the 1961 Jerusalem conference, as well as helping to organize and host visitors for international hematology symposia in Turkey (e.g., those on abnormal hemoglobins held in Istanbul in September 1957 and August 1974). Furthermore, his American connections made material contributions to his work, as many of his publications acknowledge equipment and research funding provided by the Blood Research Foundation in Washington, DC. In February 1957, Aksoy relocated to Istanbul for the rest of a long and award-winning career. He worked as both a physician in clinical settings and a faculty member at Istanbul University, wherein he continued his work on the populations of Mediterranean Turkey that had caught his interest in Mersin: namely, the Nusayri Alawites, whose designation as “Eti-Turks” during the 1930s dispute over the Sanjak of Alexandretta was discussed in Chapter 1.

489 Muzaffer Aksoy sözlü tarih [oral history]. Undated interview of Muzaffer Aksoy in Istanbul, probably early 1990s. DVD held by Milli Kütüphane (National Library), Ankara, Turkey, call number FL CD 2010 DK 201.
The conclusion of the “Hatay crisis” left a sizeable population of so-called “Eti-Turks” within Turkish borders, not only in Hatay province, but also in villages surrounding the cities of Tarsus, Adana, and Mersin, where they would become the foundational subjects of Aksoy’s career. In the 1950s, he discovered that Alawite populations in Mersin were afflicted by a high incidence of the abnormal hemoglobins that cause sickle-cell anemia. Aksoy’s discovery propelled his first English-language research publications in well-respected international journals, including *The Lancet, Blood, Nature*, and *Human Heredity*, and introduced the term “Eti-Turk” to Anglophone scientific literature, whereby it was immediately adopted by Lehmann, Mourant, and other high-profile geneticists. In subsequent decades, even as the term “Eti-Turk” fell out of general usage within Turkey, it was continually used without qualification in publications authored not only by Turkish citizens but also collaborative groups of scientists from all over Europe and North America, indicating its gradual normalization by the international scientific community.

Aksoy’s first English publication in 1955 introduced his study population without any communal name at all, offering only a vague description of the group’s historical origins:

> At Mersin, on the southern coast of Turkey, 15 cases of sickle-cell anaemia were found in a distinct and separate community [...] It was therefore interesting to determine the incidence of sickle-cell trait in this community, whose ancestors had been immigrants to Turkey from Syria and Egypt several centuries ago and, so far as is known, had no Negro blood but had intermarried among themselves, becoming inbred.  

A year later, writing for the American journal *Blood* in 1956, he repeated this description while openly using the Kemalist label: “[The patients] belonged to a distinct and separate community

---

[...] officially known as Eti-Turk.” However, he neither clarified the “Hittite” ancestry narrative associated with the term, nor did he mention the religious and linguistic features that had made this community “distinct and separate” within Turkey or the Levant. In both articles, Aksoy offered a hypothesis of historical genetic admixture to explain how sickle-cell anemia became so common in this segment of the “white race,” suggesting that perhaps some members of this community had long-forgotten African ancestors who had immigrated to the region during the Roman, medieval Islamic, or Turkish empires. In the later paper, wherein he explicitly used the term “Eti-Turk,” he also acknowledged a hypothesis by Hermann Lehmann suggesting that the genes for sickle-cell anemia in India and the Mediterranean had originated in South Arabia—the first direct suggestion that the “Eti-Turks” may, in fact, have some genetic relationship to the Arabs.

However, in his presentation to the Abnormal Haemoglobins Symposium held in Istanbul in September 1957, Aksoy clarified the earlier ambiguities of his description to conform to the core principle of the Kemalist Eti-Turk construction. He explained that the patients described in his presentation belonged to an “Arabic-speaking population, known officially as Eti-Turks,” which had emigrated centuries ago from Syria and Egypt to southern Turkey. Despite these geographic origins, he insisted that the Eti-Turks were not directly related to the majority population of the contemporary Levant: “The racial background of this community is obscure. Although they speak Arabic, they are not Arab. Some people of Syria and Lebanon, called Fellahs, might have the same racial background.” This explicit denial of Alawite Arabness


never appears in Aksoy’s collaborative papers with Lehmann, Mourant, and their colleagues (1955-1958) which reference the Eti Turks, wherein the population is consistently described as a “small Arabic-speaking group” living in southern Turkey. Furthermore, in his subsequent solo publications (1960 and later), Aksoy returns to the vague “separate and distinct community” description without any mention of language or ethnicity.

Aksoy’s 1958 collaboration with Mourant, Lehmann, and Elizabeth Ikin, which compared blood-type frequencies and hemoglobin abnormalities between Eti-Turks and “a control sample of Turks from the same region,” argued that the two populations were substantially similar in all aspects tested except for the Eti-Turks’ high frequency of sickle-cell anemia, a quite rare condition in the Turks. The researchers concluded, “as regards their blood groups, both Turks and Eti-Turks share the characteristics of the peoples of southern and eastern Europe rather than of Asia, and African characteristics are conspicuously absent,” casting serious doubt on the African admixture hypothesis. Three years later, in 1961, Aksoy performed a similar study to compare the frequency of Hemoglobin S (Hb S), the blood protein responsible for sickle-cell anemia, among Eti-Turks from Mersin, Adana, Antakya, and İskenderun to that of Alawite schoolchildren from Tripoli, Lebanon. Whereas Aksoy’s earlier papers had quite definitively identified the Eti-Turks as immigrants to southern Turkey, this article downgraded


496 Ibid.

497 Based on Aksoy’s acknowledgments, the Tripoli schoolchildren must have been sampled by Dr. Hanna Ghantus, with the exchange of samples facilitated by Musa Ghantus, the associate dean of AUB in Lebanon.
the certainty of this history by associating it with the discredited possibility of African admixture, favoring hypotheses that emphasized contact with the European Mediterranean:

If one speculates on the origin of hemoglobin S among Eti-Turks, one must consider the relative proximity of Africa to southern Turkey, the home of these people. Since this group probably emigrated to Turkey from Syria and Egypt, the hemoglobin S may be of African origin. [...] For centuries the Middle East has been the crossroads of trade, war, and emigration by different races. It is quite possible that some Veddoids from India or even some white races (Greeks or Italians) harboring a high incidence of sickle cell genes could have mixed with the Eti-Turks some time during the centuries. 498

Yet a far more dramatic level of revisionism is evident in Aksoy’s entire approach to the study. While his previous usage of the term “Eti-Turk” left his political attitudes toward the Turkish-dwelling Alawites relatively ambiguous, here he confronted the issue of their relationship to their Lebanese and Syrian co-religionists head-on:

It has been known for some time that the Eti-Turks possess the highest incidence of sickling in the white race. Several previous papers have discussed the characteristics of these people [...] . It was also pointed out in some of these papers that the Eti-Turks and the Allewits [sic] of Syria and Lebanon may have the same racial background. 499

The “some of these papers” identified are, unnervingly, Aksoy’s own from 1956 and his co-authored article with Mourant, Ikin and Lehmann from 1958. But these papers never made any mention of “Allewits,” and as shown, only at the 1957 Istanbul conference did Aksoy make any explicit connection between the Eti-Turks’ migration from Egypt and Syria and a “shared racial background” with anyone still living in those territories. That said, within this 1961 study, he presented his data and described the results in a way that over-exaggerated the genetic distinction between the Turkish and Lebanese Alawites. The entire abstract of the article is a repetition of


499 Ibid.
this contrast alone: “The incidence of sickling among 966 people belonging to the Eti-Turk community in southern Turkey was found to be 16.8 per cent. Among the Allewits living in Lebanon—who are considered to have the same racial background as the Eti-Turks—the incidence of sickling was only 4 per cent.” But if one makes the effort to examine his tables, this summary is misleadingly oversimplified. While his data from Lebanon came from a single village, the percentage he offered for Turkey is an average calculated from the populations of five different villages, which considered separately reveal highly variable frequencies of Hb S, ranging from 5.4 percent in one—coincidently, the one located closest to the Lebanese sample—to 27.3 percent in another, located furthest from the Lebanese sample. This data could well be interpreted as representing a genetic gradient, and construed as possible evidence of past emigration from the Levant with a serial founder effect—the historical migration path that Aksoy himself had always described for the Eti-Turks. Indeed, James Neel, in his review comments on the manuscript for Blood, directly pointed out this possibility. However, since Aksoy’s table in the final publication was not sorted either by geography or by Hb S frequency, this potential hypothesis was completely obscured. Aksoy was evidently convinced that “Turkish Alawites” were markedly different from Lebanese ones, and that the two populations did not share a racial background after all.

Who, though, was Aksoy out to disprove? No other scientists, Turkish or foreign, seem to have been conducting independent research on this population, or explicitly challenging his terminology. One possibility is that information demonstrating otherwise was lost in the process.

500 Ibid., 658.
501 James V. Neel, referee comments for M. Aksoy’s “Hemoglobin S in Eti-Turks and Allewits in Lebanon,” November 11, 1960. Neel also disagreed with Aksoy’s rejection of the African admixture hypothesis, insisting that it had been neither proved nor disproved by Aksoy’s data. William Dameshek file, Folder 3, Box 17, James V. Neel papers, American Philosophical Society (Philadelphia).
of reducing Aksoy’s original manuscript from a full-length article down to a “brief note” upon the decision of the journal editors. A slightly more likely scenario is that Aksoy was reacting to a local context in which Turks regularly referred to their Alawite neighbors with pejorative language. His biography contains extracts from an undated interview, including the following discussion of his motives in applying the term “Eti-Turk” to the Alawite community:

These patients all spoke Arabic along with Turkish and lived in the province’s Garden District neighborhood. In Mersin and Adana, an expression like “lowly Arab” was used to describe the place of this community. Despite speaking Arabic, it was not known exactly from what origins they plausibly came. Great Atatürk, in a manner appropriate to his genius, gave the name “Eti-Türk” to this community during the Hatay crisis. I too opted to use this term.

The “lowly Arab” expression is almost certainly “Fellah,” which Aksoy used at the 1957 conference to refer to the people of Syria and Lebanon he now called “Allewits.” In other words, Aksoy claimed that his usage of the term “Eti-Turk” did not reflect a discriminatory vestige of Turkish nationalism, but was rather a gesture of his own sympathy for his research subjects, a complimentary label he applied to a community held in low regard by their ethnic Turkish neighbors. However, this does not explain why he should have been so invested in producing and publishing an Anglophone scientific study to insist on an ethnic distinction between the “Fellah” of Turkey and of the Levant. After all, there is no indication that the results of this study were

---

502 Review decision letter from Dameshek to Aksoy, November 28, 1960. This possibility is rather unlikely given the comments of the second reviewer, Amoz I. Chernoff, that Aksoy should report his results as a letter to the editor since his data was statistically insignificant and the entire discussion section was “speculative, unsupported by critical data and essentially meaningless.” Chernoff, referee comments for M. Aksoy’s “Hemoglobin S in Eti-Turks and Allewits in Lebanon,” November 22, 1960. William Dameshek file, Folder 3, Box 17, James V. Neel papers, American Philosophical Society (Philadelphia).

ever published for a Turkish academic audience. Reading between the lines and considering the descriptive shifts from “separate and distinct” to “Arabic-speaking” in Aksoy’s collaborative papers with Lehmann, Mourant, and Ikin, Aksoy was surely responding to the British scientists’ approach to studying Arab populations across the Middle East.

While there is no surviving correspondence between Aksoy and his colleagues in London, Elizabeth Ikin’s presentation to the Seventh Congress of the International Society of Blood Transfusion in Rome in September 1958 (just a month before the British Medical Journal printed her jointly-authored paper with Aksoy) demonstrates how the British geneticists were contextualizing the work on the Turks and Eti-Turks alongside data from Arabic-speaking populations from Yemen and Socotra. Ikin explained that ABO and Rh system frequencies indicated that “Eti-Turks, who are Arabic-speaking people living in Turkey,” fell together with the Turks into a single category linked closely to Mediterranean Europe and separate from the other “Arabians.” However, “in the MNS system, but not in others, [Eti-Turks] show a greater resemblance to the other Arabic-speaking peoples than to the Turks.” She concluded her presentation with a call for more serological research in the Levant to bridge the geographic gaps in the tested populations. In the joint paper a month later, Aksoy cited her presentation as pointing out that “the rather higher frequency of M in the Eti-Turks and their high frequency of MS may be related to the high M and MS frequencies found in Arabia.” In so doing, he acknowledged the special interest of the Blood Group Reference Laboratory in drawing connections between the various Arabic-speaking populations that had been tested in the facility.

---

504 See the list of Aksoy’s lifetime publications, ibid., 151–167.


Aksoy’s inconsistencies in portraying the Eti-Turks are thus not a peculiar flaw of individual bias. Nor should they be read as a case of international collaboration causing a pushback against Aksoy’s usage of local nationalist terminology to insist on the essential “Arabness” of the Eti-Turks. Instead, this is only another example of how the human population genetics literature, as a whole, is rife with inconsistencies with regard to defining its subjects. Institutions like the Blood Group Reference Laboratory, inundated with specimens from all over the world, including many from populations the employees had no personal knowledge about, needed simple diagnostic features both to label genetically “closed” populations at a local level for statistical analysis, and to identify possible racial/ethnic relationships at broader geographic and racial levels for historical and anthropological interpretation. These dual purposes led genetic researchers to alternately select religious, linguistic, or ethnic markers as the most significant criterion for sorting population groups. As discussed above, in studies of Jewish populations, all of the researchers involved—whether they were Israelis, Americans, or British like Lehmann and Mourant—assumed that religious proscriptions had inhibited Jewish intermarriage with non-Jewish neighboring populations.507 In other contexts, distinct ethnic groups were diagnosed primarily by language, treating language barriers as nearly akin to physical ones.

It seems clear that in the case of the Eti-Turks/Alawites, the non-Turkish scholars regarded the Alawites’ language as a more significant isolating factor within Turkish society than did Aksoy. Aksoy, having worked directly with this population in its home region, surely communicated with its members in Turkish, as the Republican government had mandated that all

---

507 Kirsh, “Population Genetics in Israel in the 1950s.”
residents of these provinces be educated in Turkish no later than 1938.\textsuperscript{508} The fact that they were also an “Arabic-speaking” minority, from Aksoy’s own perspective on reproductive isolation, possibly seemed far less relevant than the fact that the Alawites all resided in “separate and distinct” small villages outside of the major cities, in which they married only other members of their religious sect, and not with other Sunni Arabic-speakers living in this region of Turkey. Beginning in 1968, Aksoy and his students described the Eti-Turk population in their publications as “an ethnic group,” a designation which they had never previously used, and one which seemed to once and for all acknowledge their distinctiveness from “normative” Turkish ethnicity.\textsuperscript{509} Perhaps this descriptive shift also reflects the influence, direct or indirect, of the British geneticists on Aksoy’s conceptualization of the “Eti-Turks” as a biological unit. This influence is also suggested by Aksoy’s increased attention to historical migration hypotheses after his experience collaborating with the British scientists. For example, in an article examining the frequency of abnormal hemoglobins in Turks, his group noted that higher incidences of these disorders appeared in Turkish citizens who had immigrated from the Balkans, and proposed that this phenomenon was the result of Turkish-Greek intermarriage in the Ottoman period.\textsuperscript{510} Similarly, they announced that their finding that haptoglobin type distribution among Istanbul hospital patients matched patterns typical of Asian countries was “not surprising, considering the historical fact that the Turks emigrated for several centuries from Central Asia to Asia Minor.”\textsuperscript{511}


\textsuperscript{511} Şakir Erdem, Muzaffer Aksoy, and Arif İsmet Çetingil, “Distribution of Haptoglobin Types in Turkish People,”\textit{ Nature} 210, no. 5033 (1966): 316. The results indicating Turks’ “Asian” haptoglobin patterns were further confirmed.
In turn, Aksoy’s work would influence other Turkish geneticists, both in regard to identifying the Eti-Turks as an ethnic (non-Turkish) group and to re-evaluating Turkish citizens’ genetic characteristics within historical context (see Chapter 4).

*Exporting national myths*

Twenty years after the first publication of his *Distribution of the Human Blood Groups*, Mourant sent the manuscript of the second edition to Oxford University Press, which printed it in 1976. Under Mourant’s direction, the Nuffield Blood Group Centre’s statistician Ada Kopec and secretary Kasimiera Domaniewska-Sobczak had begun work on the updated edition in 1960, dutifully extracting data from the thousands of publications on blood-group population genetics produced between then and 1970. With the addition of unpublished data gleaned from Mourant’s global network of correspondants, the book expanded from 400 pages (in octavo format) to over 1000 pages (in quarto format), including tables of data for 67 different blood-group systems, enzymes, and serum proteins. The volume of data was so high that Mourant could not incorporate the explosion of work on hemoglobins or immunoglobulins, a task he delegated to other authors. However, the differences between the first and second editions of the text do not reflect only the massive increase in human genetics research initiated in the wake of World War II and supported by international infrastructure created by UNESCO and the WHO. The 1976 edition included a significant reconceptualization of world geographic divisions. The six regional

---


chapters of 1954 were now divided into ten chapters, a change that significantly affected the
descriptions of Middle Eastern populations. Namely, the groups that had previously been
comparatively discussed in two chapters on the “Mediterranean area” and “Asia” were now
redistributed across six chapters on “Southern Europe,” “Near East: Arabs and Jews,” “North
Africa,” “Afghanistan and the Indian Region,” “South-East Asia,” and “Eastern, Central and
Northern Asia.”

Mourant included the Turks in Southern Europe, within a subsection called “the fringes
of Asia,” and classified their blood groups as showing a generally Mediterranean pattern. He also
compared the Turks to the “Arabic-speaking Eti-Turks of Mersin,” remarking that their ABO
frequencies somewhat differ, but ultimately concluding that the “Yörüük nomads… rather than
Arabic-speaking Eti-Turks, genetically resemble the Arabs of Arabia.”514 The new Near East
chapter, subtitled “Arabs and Jews,” demonstrates the depth of Mourant’s involvement in the
study of Arab and Israeli populations since the late 1950s. Indeed, the Jewish section
encompasses more than half of the chapter, and effectively offers of a rehash of Mourant’s 1959
summary on Jewish genetics (maintaining a Gurevitch-era division of Ashkenazim, Sephardim,
and “others,” i.e. North African and Oriental Jews and Samaritans) updated to incorporate the
results his own laboratory had produced from samples collected by Sheba (the Falasha),
Goldschmidt (Kurdish Jews), and Bonné (Samaritans and Habbanites).515 Even the Arab section
is dominated by Israeli research, both in the form of direct sampling as in Bonné’s work on the
Bedouins of southern Sinai, and indirectly through Mourant’s comparisons between Arab Jews
sampled in Israel and the local non-Jewish populations of various Arab countries and the Arabian

514 Ibid., 73.
515 Ibid., 79–83.
Iran and the Kurds are included in the “Near East: Arabs and Jews” chapter rather than the one discussing Afghanistan and South Asia, clearly due to Mourant’s desire to compare Iranian Arabs to other Gulf Arabs and Iranian Kurds to Kurdish Jews, rather than an independent interest in the Iranians themselves. The lack of interest is encapsulated in his contrast between “distinct populations and tribes” against the “dominant Iranians,” evidently but obliquely referring to Persian-speaking Shi’ite majority of the Iranian population. In line with Bowman, Mourant mentioned that the Zoroastrians of Yazd “must be descended from the original Iranians,” but downplayed their distinctive ABO and Rh frequencies as evidence of Parsi-Indian admixture rather than an accurate reflection of the ancient Iranian gene pool. The subsection devoted to Iranian Kurds includes a misinterpretation of Nijenhuis’s work as indicating that the serological characteristics of “the Iranians proper” suggest their descent from an ancestral population mixture of Kurdish-like and Qashqai-like groups.

If the second edition of Mourant’s book directly summarized the exponential growth of human genetics research in the first decades after World War II, it indirectly captured the colonialesque nature of the emerging international organizations that endeavored to standardize the terminology, procedures, and priorities of biomedical research worldwide. Mourant, as a prominent figure working in collaboration with the WHO and the IBP, sat at the center of an enormous web of scientific correspondents who provided his laboratory with thousands of blood samples from peoples he had never heard of living in countries he had never visited. With the many political, economic, and social assets at his disposal, Mourant—along with similarly situated Western scientists like William Boyd, James Neel, and Hermann Lehmann—ultimately controlled the interpretation and representation of the biological material and historical-cultural

---

516 Ibid., 76–9.
517 Ibid., 78.
information conveyed to him by “third-world” geneticists and fieldworkers for the Anglophone sphere of scientific discourse. However, this control did not go uncontested by Middle Eastern scientists, who challenged various aspects of Mourant’s research practices, assumptions, and interpretations either directly through their personal correspondence (as did Goldschmidt and Bonné) or indirectly through their own publications (as did Sheba, Aksoy, and Bowman with his Iranian colleagues). As is obvious from Mourant’s definition of the “Near East” as comprising mainly “Arab and Jewish” populations, the Israeli national scientific community wielded the strongest regional influence in human genetic research, at a level completely disproportionate to its geographic size or total population. Yet despite the Israeli geneticists’ Western-oriented networks of correspondence and collaboration, in fundamental ways, the Israelis occupied a similar position to that of the Turkish and Iranian researchers with whom they had looser personal connections. Superficially, scientists of all three countries worked on the same hereditary conditions (like thalassemia and G6PD deficiency) and overlapping population groups, which formed the basis of a regional network. More significantly, most Israeli, Turkish, and Iranian geneticists did not belong to the small minority communities of “isolates” that were the preferred research subjects of human population genetics. Rather, they represented the dominant forces of homogenizing national cultures within their own societies, just as they represented distinctive national identities on the global stage of their profession. In this intermediary role, Middle Eastern geneticists effectively exported certain nationalist myths about the biological origins and historical relationships of their compatriots into international science.

In the postwar period, the preferred image of scientific scholarship—especially with regard to human biology—involved a disavowal of political ideology, and Israeli, Iranian, and Turkish population geneticists alike presented their research in accordance with this image, even
if they did not hide their support for nationalist causes. Chaim Sheba, with his active role in the
Haganah and later the Israeli government, is certainly the most obvious example. Sheba always
framed his grandiose attempts to read biblical and Zionist history into Jewish genetics as part of
“an opportunity for the humanities to meet with the natural sciences,” alongside a general
exhortation “to prevent geneticists, epidemiologists and clinicians from drawing conclusions
which disregard already existing data.”\footnote{Sheba, “Jewish Migration in Its Historical Perspective,” 1340.}
Meanwhile, an obituary of Muzaffer Aksoy noted,
“Aksoy belongs to the first generation of modern Turkey that evolved after the foundation of our
republic by Atatürk, he did not sway from the scientific and democratic principles that Atatürk
had pointed out to catch [\textit{sic}] the contemporary civilization.”\footnote{“Prof. Dr. Muzaffer Aksoy,” Turkish Journal of Haematology 19, no. 1 (2002): 54.}
Yet Aksoy completely rejected any implication that his nationalist politics had affected his scientific work. During the interview
recorded in his biography, he effectively argued that the historical circumstances by which the
Alawites came to be called “Eti-Turks” had no significance in the scientific context:

“This name [Eti-Turk] was used as well in Western countries’ publications related to sickle-cell [anemia]” […] For him, the expression “Eti-Türk” did not imply a
political meaning. He thought thus: “It is not correct to make controversies out of political meanings that may arise, essentially extreme nationalism is the most

Aksoy insinuated that his own use of the term was legitimated by fact that Western scientists,
who were above ideological suspicion, also used it. Furthermore, he implied that any objection
to, rather than usage of, this term would itself be an example of “backward, extreme
nationalism.” The apparent irony of the latter statement reveals the extent to which scientists can
“assimilate” nationalist narratives, and the terminology associated with them, such that they can
be incorporated into “apolitical” scientific literature without compromising an image of scholarly
detachment. Accordingly, population categories which emerged within specific contexts of
Middle Eastern nationalism—such as the term “Eti-Turk,” the awkward constructions of
Ashkenazi vs. non-Ashkenazi Jews, even the seemingly self-evident but practically amorphous
meaning of “Iranian”—have cycled through the publications and databases of international
genetics research. Scattered far afield from the original contexts that produced their
sociopolitical significance, these categories became reified as biological populations to be
analyzed according to models of the natural world. The next chapter will explore how these
categories would be reconstructed and/or reinforced amidst the rapid technological advances in
genetic research, and the sociopolitical upheavals in the Middle East, that characterized the
1970s and 80s.
In the late 1950s, several European scientists, working independently, began to identify the immune-system proteins responsible for causing the rejection of human organ and tissue transplants. Eventually designated the human leukocyte antigen (HLA) system, this highly diverse series of cell-surface proteins allows the immune system to distinguish between the body’s own cells and foreign matter. Intensive collaborative research on the system began with the First International Histocompatibility Workshop in 1964; within three years, to coordinate the burgeoning number of laboratories joining the subfield, the WHO formed a committee to standardize nomenclature practices in HLA research. The seemingly unlimited variability of the HLA proteins, and the genes that encoded them, suggested that they might be able to reveal events in human evolutionary history at a much finer level than classical genetic markers could detect. As the 1970s arrived, geneticists came to believe that HLA research promised anthropological as well as immunological insights due to the special features of the HLA system (codominant alleles, highly polymorphic, very low levels of chromosomal recombination). HLA testing could provide definite answers to questions about family and population genealogies for which other blood antigen systems might give partial or ambiguous results, such as paternity determination and reconstruction of the haplotypes of deceased individuals (including common ancestors to long-segregated populations). The primary goal of the Fifth International Histocompatibility Workshop, held in France in 1972, was the collection of a global dataset of HLA variations. The genetic characterization of ever more racial, national, and ethnic groups would constitute a key feature of each workshop thereafter until 1996.
Israeli and Iranian scientists began actively participating in HLA population studies with the workshops of 1972 and 1975, revealing a series of changes in local biomedical infrastructures and research priorities. Batsheva Bonné, by now the established human population geneticist at Tel Aviv University, still worked closely with Mizrahi Jewish communities and shipped her blood samples to the United Kingdom, as she had before. However, her primary collaborator was no longer Mourant but Walter and Julia Bodmer, the husband-and-wife team of immunogeneticists based at Oxford University. The Bodmers had first visited Israel early in 1971, meeting Chaim Sheba just months before his death, and proposed a joint Israeli-British HLA research project on Israeli populations.521 In April and May 1971, Bonné and her students kicked off the project by collecting blood from Yemenite Jews in Rosh Ha-Ayin, then air-mailing the samples to the Bodmers’ laboratory.522 The other main Israeli collaborator—Sarah Nevo, an M.D. at the University of Haifa—represented a new research orientation by targeting non-Jewish Israeli citizens, specifically Muslim and Druze Palestinians, for the joint project. Although Palestinians had been included in Israeli genetic research since at least 1961, they had been treated as incidental to Jewish populations (using blood collected from hospitals and blood banks) rather than a central focus of field studies. Nevo thus reflected idealistically on her work, writing to Walter Bodmer, “you are contributing, indirectly, to develop [sic] communication between Arabs and Jews here as I am beginning to socialize with

521 Draft letter from Batsheva Bonné-Tamir to Ephraim Gazit, undated [summer 1976], MS Bodmer 94, fol. 1, Bodleian Library, Oxford University.

Arab doctors [for the purposes of the study].”\textsuperscript{523} Through this socializing, Nevo finally collected blood samples from a maternity hospital and a genetic counseling clinic, both near Acre.\textsuperscript{524}

HLA research in Israel further revealed the rapid expansion of the Israeli genetics community, which meant that its members were not as closely connected as in past decades. Even as Nevo in Haifa and Bonné’s team in Tel Aviv shipped their specimens to Oxford for HLA testing, Chaim Brautbar, an immunologist at Hadassah, was building up his own HLA laboratory in Jerusalem. At the sixth HLA workshop, held in Denmark in 1975, Brautbar presented data, collected and processed by his own research team, on the “black Jews” of Cochin, India, who had settled in Israel in 1954.\textsuperscript{525} Yet despite these shared research interests, only through the Bodmers’ intervention were Bonné and Nevo coaxed into inviting Brautbar into the joint project and making use of Brautbar’s lab for their own specimens. Finally, Mizrahi and Palestinian challenges to Ashkenazi sociopolitical supremacy in Israel, as well as the emergence of narratives that threatened to undermine Ashkenazi biological descent from the ancient Israelites, redirected the joint project and subsequent Israeli HLA research toward the study of Ashkenazi subpopulations. Before 1974, Bonné, Nevo, and Bodmer had planned to study two Ashkenazi groups, five Sephardi or Mizrahi groups, and three non-Jewish groups; when the resulting research papers went to press in 1977, the ratio had shifted to four Ashkenazi, three Sephardi/Mizrahi, and one non-Jewish group.

Also at the 1975 workshop, a team of Iranian immunologists affiliated with the newly founded Iranian National Blood Transfusion Service (NBTS) presented HLA results from 400

\textsuperscript{523} Nevo to Bodmer, June 1, 1971. MS Bodmer 28, fol. 3, Bodleian Library.


blood donors “from all over Iran.” Unlike many of their predecessors who had similarly relied on
blood samples collected from donors in Tehran without ethnic labels, the NBTS researchers
commented that this practice was not satisfactory for “a population… which is not uniformly
distributed and composed of many ethnic groups.” They detailed the “heterogeneous origin” of
Iranians, including “Islamic invaders [who] were predominantly Arab with a sprinkling of Jews
and Africans,” Babylonian Jews liberated by Cyrus the Great, and “ethnically distinct” tribes of
local or Central Asian origin, resulting in “fertile ground for investigation.” Of their own
blood donors, they concluded, “[o]bviously, these subjects are not representative of the different
population groups in Iran, and studies on representative samples of the different ethnic groups
will be the subject of further investigations.” The emphasis on identifying and cataloging
ethnic differences in Iran represents a dramatic about-face in Iranian scientists’ approach to
human genetics. While foreign researchers in Iran like André and Joelle Boué, James Bowman,
and Hermann Lehmann had long been preoccupied with such differences, their Iranian
counterparts had preferred to treat all Iranian samples in blood banks as a single, undifferentiated
national unit to compare nationwide frequencies with those of other countries. The comments at
the 1975 HLA workshop were not empty promises; a range of new medical and genetic research
institutions founded in Iran in the 1970s placed a rising generation of Iranian scientists at the
helm of a research agenda that outlasted the Shah’s regime. This new interest in rendering Iran’s
internal genetic diversity legible in a manner that privileged identification with the Iranian
nation-state would survive the 1979 revolution and persist effectively to the present day.

Turkish researchers were conspicuously absent from the HLA revolution, even though
Turkish blood found its way into the global data collection. For the 1972 workshop, Necmettin

Mizan of the Ankara Blood Bank shipped 110 Turkish blood samples to a team of Danish
researchers. The Danish team noted that though the samples originated from individuals born in
a range of different Turkish cities (including Ankara, Istanbul, and Konya), they had “no proof
that they are Turkish from an ethnic point of view.”\(^{528}\) However, the team then struggled to
define the nature of Turkish ethnicity, pronouncing it to be “based mainly on the Turkish
language,” spoken by about 90% of Turkey’s population, as opposed to Kurdish-speakers. As for
the matter of actual biological descent, the team argued, “Turks originate from the mixture of
Seljukids and Ottomans with the indigenous populations of Anatolia and neighbouring countries,
in particular Arabs, Armenians, Greeks and Albanians. In addition there might be some
admixture of the Mongols.”\(^{529}\) Ultimately, the Danes determined that there was no significant
genetic difference between Turks born in different cities, but that such a difference did exist
between Turks as a whole and the Danish population. Similarly, at the same workshop, a German
study without any Turkish collaborators compared 162 Turkish “guest workers” and students in
Munich with “German Caucasians,” and duly found differences in antigen and haplotype
frequencies between the two national groups.\(^{530}\) The solely passive inclusion of Turks in the
early HLA workshops reflects the trend of relative conservatism prevailing in Turkish genetics
until the 1990s; unlike in Israel and Iran, in this period Turkish genetics remained largely the
preserve of medical researchers rather than anthropologists, and geneticists in both disciplines
continued to avoid targeted studies of ethnic minorities in their country.

International Workshop & Conference: Colloque de l’Institut National de La Santé et de La Recherche Médicale,
Held at Evian, France 23-27 May 1972, ed. Jean Dausset and Jacques Colombiani (Copenhagen: Munksgaard,
1973), 139.

\(^{529}\) Ibid., 140.

\(^{530}\) E. D. Albert et al., “Study of the HL-A System in the Turkish and German Populations;” in ibid., 147–52.
Genetic anthropology and the threat of ethnic politics

The technological advances that drove HLA research coincided with several other developments that allowed “genetic anthropology” to crystallize as a functioning branch of physical anthropology. As shown in Chapters 2 and 3, physicians and immunologists like Boyd, Mourant, and Lehmann had never wavered in their belief that their work on inherited blood traits represented an enlightened form of anthropology, although most physical anthropologists remained skeptical of the utility of blood-based genetics through the 1960s. A new generation of biochemists, led by Emile Zuckerkandl and Morris Goodman, took over the cause of human genetics at a 1962 Wenner-Gren symposium, promoting a “molecular anthropology” which would “privilege the point of view of hemoglobin.” Again, most of their colleagues working in paleontology, anatomy and taxonomy initially received this idea poorly. However, certain centers did begin to incorporate genetics and anthropology research around this time. For example, the Institute for Anthropology at Johannes Gutenberg University in Mainz, Germany, and the anthropology department founded at Durham University in the United Kingdom, developed strong programs in human genetics research by the mid-1960s.

Meanwhile, anthropologists also penetrated the boundaries of the medical establishments that had largely dictated the practices of genetic research. In 1965, Batsheva Bonné founded the Human Genetics department at Tel-Aviv University Medical School; with the successive deaths of Elisabeth Goldschmidt and Chaim Sheba in 1970 and 1971, Bonné dominated the scene of Israeli genetics for the next two decades. Her Iranian counterpart, Dariush Farhud, graduated from Mainz in 1972 with doctorates in both medicine and anthropology; from his post at Tehran

---

University’s School of Public Health, he founded a research unit for anthropological genetics. In Turkey, social anthropologist Nephan Saran and physical anthropologist Armağan Saatçioğlu both initiated genetics projects in the mid- to late 1970s by collecting data from Turkish blood banks. Did the growing involvement of individuals with anthropological training make a difference in the practice of human genetics in the Middle East? The effects are inconclusive for the cases of Turkey and Israel. Until the 1990s, Turkish anthropologists still mostly relied on blood donor records instead of directly collecting blood through field surveys. Conversely, Israeli scientists, regardless of their disciplinary background, still tended toward field surveys of populations they perceived to be socially bounded and, at least to some degree, isolated. Only the Iranian case demonstrates a gradual but relatively dramatic shift, away from blood-bank research toward the field survey, under Farhud’s guiding influence.

The divergent paths toward genetic anthropology in the three countries are all the more fascinating given that all three endured major political and social upheaval throughout the 1970s, culminating in the dramatic restructuring and reorientation of the states and their domestic policies. Each case involved a shattering of the consensus on national identity in terms of the state’s ideological relationship to, *inter alia*, religion and ethnicity. The “ethnic factor” in these conflicts, and the tendency of the nationalist ruling classes (of which Middle Eastern geneticists were part) to conflate ethnic-based political movements with violence, made the notion of diversity deeply contentious. For Iran and Turkey, this prompted an intensification and adaptation by new regimes of previous nationalist policies to co-opt or outright deny the recognition of ethnic minorities and their grievances. For Israel, it provoked the traditional Ashkenazi elites to close ranks for the sake of defending and justifying their dominant position over the numerical majority of Mizrahi and Palestinian citizens.
Of the three, the transformation of the imperial Pahlavi state into the Islamic Republic of Iran easily constitutes the most drastic reorientation of national culture and political ideology. However, it must be remembered that the Iranian revolution coalesced around popular resistance to the policies and autocratic rule of Mohammad Reza Shah, not around any particular ideology. The hundreds of thousands of Iranians who participated in the snowballing protests between October 1977 and the departure of the Shah and his family in January 1979 represented a broad coalition of liberal nationalists, leftists, Islamists and everything in between, including a range of activists for ethnic minority rights. Leftists and Islamists alike had appealed for the support of disaffected Azeris, Turkmen, Kurds, and Arabs who hoped for relief against the highly centralized Pahlavi state in the form of increased regional autonomy, a reversal of government resettlement policies, and rights to property, free movement, and education and media in their native languages. Ayatollah Ruhollah Khomeini and his immediate supporters were strongly anti-nationalist, and many outside his circle also believed that the hypothetical Islamic Republic, based on a religious program of social justice, would end the ethnocentric Persian-oriented nationalism that had defined the Pahlavi dynasty. But after Khomeini returned to Iran and began consolidating his personal authority and vision for clerical rule, turning against the secular leftist groups with whom he previously held tenuous alliances, these ethnic activists also saw their hopes crushed. While the new constitution approved at the end of 1979 contained several provisions for the protection of minority religious and cultural rights (including the public use of “ethnic languages”) and prohibited all forms of discrimination, the autonomist movements in the border provinces that had emerged in the heat of the revolution were quickly labeled communist dissidents and suppressed by Khomeini’s supporters.
In a phenomenon that attests to the highly contingent formation of the Islamic Republic, Saddam Hussein can be partially credited for preserving Iranian nationalist sentiments. The Iraqi invasion of western Iran in September 1980—beginning a war that would drag on for eight bloody years—proved to be a boon to Khomeini’s new regime as it constructed a hybridized religious-nationalist discourse, lending a patriotic façade to its insistence on Iranian national unity and embargo of all requests for increased local self-government. The public campaigns of Islamization, such as the “cultural revolution” that shut down the country’s universities between 1980 and 1983, belied the extent to which the Islamic Republic ultimately co-opted much of the state structures and nationalist mythologies the Pahlavis had left behind. This included not only the central government’s privileging of Persian language and culture as the normative national identity, but its approach to managing and representing other ethnic identities. In 1968, the Pahlavi regime funded a major expansion of activities at the Center for Iranian Anthropology, charging it with the task of conducting research in ethology, folklore, and cultural and physical anthropology. During the early 1970s, the majority of Iranian anthropologists worked in rural and tribal areas, where upon the completion of a given study, they organized exhibitions “to familiarize the local people with their local culture.” Medical and, in turn, genetic research mirrored this pattern, with physicians and scientists dispatched from Tehran and other urban universities to measure and interpret the characteristics and problems of marginalized ethnic and tribal groups. The Islamic Republic tacitly approved and


perpetuated this approach to “domesticating” ethnic difference, i.e. ensuring that all of its expressions fundamentally identified with the Iranian nation-state.

The 1970s marked a period of severe political polarization in Turkey, with government repression against left-wing activists accompanied by the local resurgence of the Kurdish nationalist movement. Kurdish activists had long affiliated themselves with the Turkish radical left, but after 1975, they embraced a new language for their plight, describing Kurdistan as a colony of Turkey. This concept, although first developed by a Turkish sociologist sympathetic to the Kurdish struggle, “came as a sudden shock to Turkish intellectuals who considered Kemalist Turkey an anti-colonialist and anti-imperialist country […] now, in the hands of Kurdish intellectuals… Kemalist Turkey had become a colonialist and racist state.” New militant parties, such as the Kurdistan Workers Party (PKK) and National Liberators of Kurdistan (KUK), mobilized under the contention that only violence could end “Turkish colonialism” and secure a free, independent Kurdistan. Combined with the violence of left- and right-wing militant groups across Turkey, over 5000 Turkish citizens lost their lives between 1975 and 1980. Citing the breakdown of law and order, the military dissolved the civilian government and parliament, suspended the constitution, and declared martial law on September 12, 1980. Over the next three years, the ruling generals harshly suppressed all expressions of left-wing and ethnic separatist ideologies, arresting, torturing and imprisoning hundreds of thousands of suspected dissidents. This included a thorough purge of all “politically unreliable” staff from the universities, which now came under strict state supervision. Finally, in addition to rewriting


the constitution, the military government endorsed a new formulation of national identity, the “Turkish-Islamic synthesis,” intended to undermine the threat of communism. A military representative charged that communist sympathizers had “not only fostered class conflict but, even worse, also accentuated differences of identity among the people” and “fomented conflicts among the different Muslim sects and between the ‘so-called Kurdish citizens’ and the rest of the population.”

Even as it extended the ban on using the Kurdish language, the junta enabled the expansion of religious education and the construction of hundreds of mosques, believing that the ascendancy of a new Islamic public culture and a reduced emphasis on ethnic nationalism could provide an appealing alternative to communism and a more stable social unity. By the time a new civilian government established itself in 1984, the PKK renewed its guerrilla warfare. In response, while the military lifted martial law over most of Turkey by 1987, the southeastern provinces home to most of Turkey’s Kurds remained under a “state of emergency” until 2002.

In Israel, the violence involved in replacing the dominant regime was much more symbolic than actual, but nevertheless represented a serious identity crisis for the Ashkenazi Zionists who had defined the nature of the Jewish state. The aftermath of the 1967 June War and David Ben-Gurion’s 1970 retirement from politics paved the way for Mizrahi Jews and non-Jewish Palestinian citizens of Israel (sometimes called “Israeli Arabs”) to voice their grievances against the Ashkenazi political elite that had marginalized their needs and interests. In fact, it was in this period that the Mizrahim first began to self-identify as such, with activists claiming to speak for all “Oriental Jews” rather than more localized concerns. The depressed Mizrahi

---


neighborhoods of Jerusalem fostered the most visible and provocative movements, such as the Israeli Black Panthers (inspired by, but not directly affiliated with, their American counterparts). In 1971 and 1972, demonstrations organized by the Black Panthers drew thousands of participants, several of which involved violent clashes with police. The militant rhetoric of the Panthers, although never adopted by the majority of Mizrahim in their quest for full “integration” into Israeli society, deeply shocked and threatened the Ashkenazi public, prompting a “white backlash” that denied any legitimacy to Mizrahi claims of ethnic discrimination in social and economic policies. Although the Labor Party government formed a committee to investigate the “ethnic problem,” the October War (or “Yom Kippur War”) of 1973 enabled the Israeli establishment to turn its attention back to the all-consuming issue of national security, sidelining Mizrahi demands for equitable access to social services. Meanwhile, in response to the Labor government policies of “Judaizing the Galilee” involving massive expropriations of Arab land, Palestinians in northern Israel staged a revolution in municipal elections and demonstrations in 1975 and 1976. All these developments contributed to the May 1977 “earthquake,” the Knesset elections in which the Labor Party—representing normative Israeli politics since 1948—suffered a resounding defeat. Palestinian voters had flocked behind Rakah (New Communist List), while Mizrahim turned in droves to small “ethnic” parties as well as Likud, the party of militant Revisionist Zionism headed by Menahem Begin. Begin’s charisma as a fiery orator who exploited Mizrahi resentment against the Ashkenazi establishment is widely credited with Likud’s landslide victory in 1977. This establishment (including most Israeli geneticists) fully


articulated its extreme revulsion for Begin and his Mizrahi supporters during the 1981 Knesset campaigns. Labor Party leaders publicly accused Begin of inciting his supporters to violently disrupt their party rallies, describing Likud voters in ethnically loaded terms as hot-tempered, illiterate hooligans, and even “Khomeinists” who were “still unfamiliar with democracy.” Criticism of Begin and the Likud Party thus became a cipher for the Ashkenazi intellectual elite to express its fear of losing ethnocultural supremacy by labeling such a loss an existential threat to the Israeli state.

Despite this extraordinary turmoil, Middle Eastern geneticists suffered only short-term setbacks to their research rather than long-term infrastructural or technological deprivation. In fact, this same time period witnessed the increased development of local scientific facilities in all three countries, which all became less dependent on foreign laboratories for testing most genetic markers. Furthermore, the expansion of the scientific communities in each country during the 1970s meant that local investigators, especially in Turkey and Iran, took on more leadership roles in the dissemination of their own research. Iranians in particular opened many new scientific journals; for example, the Iranian Journal of Public Health, founded in 1971, became a significant venue for Iranian genetics research. However, language barriers made these venues a sort of echo chamber, and networks of European and American collaborators remained very important for high-profile Anglophone publications. Iranian and Turkish scientists also hosted a higher number of international conferences and symposia than in prior decades. A useful illustration is the 1974 abnormal hemoglobins symposium held in Istanbul, 17 years after the

---


542 Criticisms of Begin’s militancy were certainly justified by his actions in office, particularly his authorization of the brutal Israeli invasions of Lebanon in 1978 and 1982. Furthermore, although he signed a peace treaty with Egypt in 1979, which involved relinquishing the Sinai Peninsula, Likud’s policy toward the remainder of the occupied territories—namely, that they belonged irrevocably to Israel, and should be settled by Jewish Israelis—exacerbated the intractability of the Israeli-Palestinian conflict.
1957 conference on the same topic organized and funded by a UNESCO/WHO affiliate. This time around, the symposium was organized and funded exclusively by local sources, the Istanbul University Medical Faculty and Turkish Society of Hematology, and presided over by Muzaffer Aksoy. In 1957, Aksoy had been the only Turkish presenter out of 25 researchers, who mostly hailed from Europe and North America. At the 1974 symposium, out of 45 presentations, 18 involved Turkish scientists.\(^5\) However, as part of a professional class subject to political scrutiny, the expanding Turkish scientific community remained quite conservative in its approaches toward studying the country’s genetic diversity. While Iranian geneticists increasingly conducted research on the communities most marginalized by the dominant national culture, no such change can be observed in Turkey. Turkish researchers recognized ethnic difference—even, in some cases, that of the Kurds—but only within the strictly-bounded frameworks of hereditary disease rates and classical blood markers.

---

\textit{The limits of the Israeli “melting pot”}

In March 1973, Bracha Ramot and Aryeh Szeinberg of the Tel-Hashomer Hospital (renamed the Chaim Sheba Medical Center) organized a symposium on human genetic polymorphisms and diseases, held in Sheba’s honor. Among nearly 50 other presentations by dozens of Israeli, British, and American biologists, Batsheva Bonné spoke on “the merits and difficulties” of conducting genetic research on Middle Eastern populations, specifically the “true isolates” like the Karaites as well as the Samaritans, Habbanites, and Jebeliya Bedouin she had studied herself. She argued that the long and well-documented histories of social isolation and endogamy made these groups ideal for genetic research. On the other hand, she noted, this very

\(^5\) Of those 18, 13 were the products of all-Turkish research teams, and 5 of international collaborations between Turkish and foreign scientists. Muzaffer Aksoy, ed., \textit{International Istanbul Symposium on Abnormal Hemoglobins and Thalassemia: August 24-27, 1974, Istanbul, Turkey} (Ankara: TÜBİTAK, 1975).
advantage also “raises some difficulties,” particularly the theoretical issues of how to assess the
degree and consistency of this isolation over centuries, and whether similar gene frequencies
could be reliably interpreted as evidence of two communities’ common ancestry. Bonné added,
“Another rather unusual and inconvenient aspect of these studies is the very special sensitivity
which most of the subjects show with respect to the findings. It is very important for them to be
assured that the results confirm their tradition and strong feelings of identity.” Although she
intended this comment to speak only of these specific isolated groups, Bonné’s words prophesied
the response of her own community, i.e. the Ashkenazi scientists who had consistently
dominated the narratives of Jewish genetic anthropology, when their own identity came to be
challenged in political, professional, and even biological terms over the next few years.

As mentioned in the previous chapter, Bonné’s intensive fieldwork on the Samaritans and
Sinai Bedouins during the 1960s amounted to a pioneering endeavor within Israeli population
genetics, whose earlier practitioners had been most invested in Jewish populations. While Sheba
and his Tel-Hashomer colleagues had routinely utilized non-Jewish blood samples in their
research, they did not deliberately seek out non-Jews as research subjects. Rather, they employed
non-Jewish hospital patients and blood donors (designated “Arabs” or “Israeli Arabs,”
sometimes divided into “Moslem Arabs” and “Druze” after 1957) to serve as comparative
“outgroups” for the Jewish populations. In the first decades of Israeli statehood, the notion of
“ethnicity” appeared primarily to describe differences among Jewish Israelis, specifically the
cultural and physical differences of Mizrahim from Ashkenazim, and it was in this sense that the
first generation of Israeli geneticists had investigated the biological relationships of Jewish
“ethnic groups” (i.e., ‘edot). Bonné, however, had planted the seeds for a more expansive

544 Batsheva Bonné, “Merits and Difficulties in Studies of Middle Eastern Isolates,” Israel Journal of Medical
Sciences 9, no. 9–10 (1973): 1294.
concept of “Israeli ethnic groups,” which would include categories of non-Jews subject to Israeli military authority. The 1967 Israeli occupation of the West Bank and Sinai Peninsula had enabled her to access the Nablus Samaritans and Sinai Bedouins; in 1972, in connection with the joint Israeli-British project initiated by Walter Bodmer, she turned her attention to the Armenian community living in the Old City of Jerusalem. After securing the cooperation of teachers at the Armenian Theological Seminary and Sts. Tarkmanchatz School, Bonné led weekly trips with Tel Aviv medical students to the Armenian quarter, collecting blood from 20 seminary students and 140 high school students.\(^{545}\)

On the other hand, Bonné’s attitude to the Armenians, as displayed in her autobiography and scientific publication on the community, is strikingly detached compared to the effusive descriptions of her relationships to the Samaritans and even the Sinai Bedouins, explaining her interest in the Armenians as due only to their status as “one of the ancient communities of the area” and “the resemblance between them and the ancestors of Sephardi Jews.”\(^{546}\) This seems to reflect the extent to which Armenians were culturally and economically integrated with Arab Palestinians under British Mandate and Jordanian rule, as well as the shared experience of expulsion by Zionist forces during the 1948 war, which had driven thriving communities of Armenians in Haifa and Jaffa across the borders to Lebanon and the Jordanian-held Old City of Jerusalem.\(^{547}\) After 1967, the few thousand Armenians who remained in Jerusalem and the West Bank under Israeli occupation mostly retained their Jordanian citizenship, as well as what Bonné

---


\(^{546}\) Batsheva Bonné-Tamir, *Hayim ‘im ha-genim: hamishim shenot mehkar ba-geneṭikah shel ‘edot Yišra’el* (Yerushalayim: Karmel, 2010), 110.

characterized as “close contact with Armenians in Lebanon in Jordan.” Despite acknowledging these contacts, Bonné treated the Old City Armenian Quarter as an isolated community somehow immune to the effects of Israeli-Palestinian violence, mentioning only that “about half of them are descendents of the original Armenians and the rest are later ‘joiners,’” with no further elaboration or analytical acknowledgment of either this original-latecomer distinction, or the recent historical events, including Israeli state policies, that had produced this population structure. Rather, Bonné and her coworkers chose to flatten the Armenians’ complex demographic history by treating them, like the Arabs, as a single undifferentiated “Middle Eastern population” against which the various Jewish categories were measured.

Meanwhile, Sarah Nevo, based in Haifa in northern Israel, took charge of the “ethnic groups” living nearest to her: Muslim and Druze Palestinian citizens of Israel. Her aforementioned enthusiasm for the work as an opportunity to promote social relations between Jewish and Arab citizens was abruptly derailed by the death of her 19-year-old son, an IDF soldier, in the October War of 1973. While the Nevo family mourned, Bonné forged ahead with studies of Jewish populations for the joint project, exacerbating a professional rivalry between the two collaborators and ultimately proving illusory the notion that “Israeli ethnic groups” could offer a conceptually neutral basis for the genetic comparison of Jewish and non-Jewish citizens. By March 1974, Bonné was able to resume her sampling of Libyan, Moroccan, and Iraqi Jews near Tel Aviv after the disruption of the war; Nevo could not even make satisfactory arrangements to sample the Druze of Isfiya village (outside Haifa) until June 1975. This meant

550 Bonné to Walter Bodmer, March 14, 1974, MS Bodmer 94, fol. 1; Nevo to Bodmer, June 2, 1975, MS Bodmer 28, fol. 3, Bodleian Library.
that Nevo was embarking on new fieldwork at a time when a significant portion of “Israeli Arabs” were undergoing a process of “Palestinization” through their deteriorating relationships with the Israeli state and renewed contact with Palestinians in the occupied West Bank.

The success of the Palestine Liberation Organization (PLO) in attaining UN recognition in 1974 appealed to Palestinians who rightly observed that cooperation with Israeli authorities—and, in the case of the Druze, their service in the Israeli military—had not secured their equal status as Israeli citizens with their Jewish counterparts. By the end of the year, a harsh campaign of land expropriations by the Israeli government had provoked the simmering discontent among the Muslim, Christian and Druze Arabs of northern Israel to take political action against the “collaborationist elite” of their communities.\(^{551}\) Sakhnin, one of the towns from which Nevo had collected Arab Muslim blood samples, was particularly affected by land expropriation. The Druze Initiative Committee formed in 1972 to demand an end to the compulsory conscription of the Druze, calling it a “blood tax” on the community which nevertheless suffered from socioeconomic discrimination, neglected town infrastructure, and land confiscation, just like other Arab citizens who did not serve in the military.\(^{552}\) The Committee’s activities intensified into a violent demonstration against foreign minister Yitzhak Rabin in April 1974 and a campaign to support the inhabitants of Kisra, a Druze town on whose agricultural lands the Israel Land Administration encroached in the summer of 1975. Meanwhile, Christian and Muslim leaders met in Nazareth to form the “Arab Committee for the Protection of Lands” (\(al\)-\(lajnah\ \\(al\)-\(wataniyyah\ \li-himāyat\ \al-arāḍī\)) in October 1975, which organized a national day of strikes and demonstrations on March 30, 1976. Druze, Muslims, and Christians alike participated in the

---


The events of “Land Day,” which drew a brutal response from the Israeli army and ended with the death of six Palestinian citizens, half of them from Sakhnin.  

In her correspondence with the Bodmers, Nevo mentioned that she was temporarily forced to stop collecting Druze samples due to “some objections to being bled among the villagers,” and did not achieve her desired sample size of 200 until April 1977. Although she did not offer a reason for the villagers’ resistance, the aftermath of the Land Day protests and the polarization of Druze communities into pro- and anti-Israel camps surely played a role. The layers of communal tension and fear, coupled with the more typical setbacks and frustrations that Nevo encountered in her fieldwork, occasionally bubbled into anger at colleagues like Bonné-Tamir, whom Nevo perceived as disproportionately advantaged in her comfortable position at Tel Aviv University, studying more “friendly” populations. In the summer of 1976, when Bonné-Tamir requested Nevo’s data on Muslim and Druze Arabs to incorporate into Bonné-Tamir’s statistical model of genetic relationships between Israeli populations, Nevo lashed out: The Arab Moslems and the Druzes are ‘my baby.’ I spent a ‘fortune’ in time, effort and money, to get this done. I need not tell you how difficult it is to collect blood samples from Arabs, in villages, here. [...] I see no justification in handing over all the results of my ‘toil and trouble’ to make two more points in the model you are working on. You can use them... after [my data] are presented as my work, which is the truth. And I dare say, scientific honesty. I simply cannot...
afford to sell for so cheap, so much hard work of mine to just be mentioned as “unpublished data of Nevo S.”

In fact, Bonné-Tamir’s request was not particularly untoward, as the entire joint British-Israeli team was wrapping up work and preparing to publish the results at this time. Nevo herself had hoped to be able to include her Druze data in the publication drafts, but unexpected laboratory results slowed down the process such that the information was not ready in time. Ultimately, completion of HLA testing on the Druze samples took nearly two more years, and the first data to be published from Nevo’s samples (on a different genetic marker) was buried in a paper that did not compare the Druze to other Israeli populations at all. Nevo’s subsequent publications ultimately emphasized the genetic similarity between Muslim and Druze Arabs.

Having had sufficient difficulty working with the “Israeli Arabs,” it is hardly a surprise that Nevo rejected Bodmer’s 1978 suggestion to conduct a study “amongst the refugee camps in Gaza,” where Israeli researchers could not expect willing participants. In the aftermath of the 1979 Egyptian peace treaty with Israel, which involved evacuating Israeli settlements in the Sinai Peninsula, Nevo expressed a decided ambivalence (likely shared by many Israelis) toward her relationships with different categories of Arab neighbors. In a 1980 letter to the Bodmers, Nevo

556 Nevo to Bonné-Tamir, June 7, 1976. MS Bodmer 28, fol. 3, Bodleian Library.
557 Nevo to Walter and Julia Bodmer, August 17 and August 30, 1976. MS Bodmer 28, fol. 3, Bodleian Library.
enthusiastically insisted that she would buy an “authentic Bedouin embroidered dress” for Julia; lamented the loss of Dahab, a Sinai tourist resort, and mentioned her desire to visit Neviot (i.e. Nuwayba), a similar resort town, before it passed from Israeli to Egyptian control; and finally proposed a new study of local Arab villagers. She commented that she had “already secured ‘Arab collaboration’—a very rare thing these days in Israel when we find at the university such lovely messages written by Arab students [in the restrooms] reading: we are all PLO, when the time comes we will slaughter you all […following] the achievement of the free Palestine. Great, is it not? The era of peace in the Middle East has started.” On a slightly less sarcastic note, she concluded, “as you see Arab collaboration with me in one of the most hostile villages in the country (this is where your samples came from), is a real historical event.”

The grand plans to integrate non-Jewish groups into the genetic study of “Israeli ethnicities” thus faded out of project, whose title went through several telling revisions: Brautbar labeled it “HLA Polymorphism in Jewish Ethnic Groups;” Bonné-Tamir amended this to “Israeli Ethnic Groups” to acknowledge the Armenian and Arab data; and Walter Bodmer finally reduced it to “HLA Polymorphism in Israel,” as he said, “for brevity.”

Although a number of factors, including non-political ones, had led to the elision of non-Jewish material from the project, its final format as a series of nine short papers (seven on Jewish groups, one on the Armenians, and a final comparative analysis which mentioned Armenians and Arabs only in passing) represents the overall trajectory of Israeli social politics in the 1970s, not only in its marginalization of non-Jewish citizens but also in its transferrance of a Jewish “identity crisis” from the Mizrahim to the Ashkenazi elite. The HLA project’s lower number of Mizrahi and

561 Nevo to Julia Bodmer, May 22, 1980. MS Bodmer 61, fol. 1, Bodleian Library.

562 Bonné-Tamir to Walter and Julia Bodmer, October 10, 1976 and Walter Bodmer to Bonné-Tamir, June 8, 1977. MS Bodmer 1895, fol. 1, Bodleian Library.
Sephardic populations can again be partially attributed to Sarah Nevo’s fieldwork problems; her plans to study Jewish immigrants from Iran, Turkey and the Balkans were delayed for years, such that only the work by the teams of Bonné-Tamir and Brautbar on Moroccan, Libyan and Iraqi Jews were included in the final publication. However, the significant emphasis on Ashkenazi populations, particularly their consideration by specific country of origin (Russia, Poland, Germany and Romania), rather than as an undifferentiated “block” as pioneered by Chaim Sheba, served as a response to scientific and journalistic challenges to the most fundamental assumptions of Zionism and, accordingly, of the Ashkenazi geneticists in Israel.

As shown in the previous chapter, since the foundation of the state, Israeli geneticists had enjoyed a form of Ashkenazi privilege linking them to other major figures in the international scientific community working abroad. Relative to Turkish and Iranian scientists working at the same time, the historical narratives proffered by Israeli researchers had a generally more sympathetic—and more widespread—audience. The academic field of Jewish studies, both in Israel and abroad, was similarly dominated by Ashkenazi scholars, which is perhaps related to the discipline’s more receptive attitude toward genetic anthropology than the comparable Orientalist scholarship on Iran and Turkey. Chaim Sheba’s interpretive approach of imposing biblical narratives on genetic data inspired articles in the academic journal *Jewish Quarterly Review*, which made colorful assertions that genetic data showed that Ashkenazim were the descendents of the tribes of Judah and Benjamin while Mizrahim were a mixture of the ten “lost” tribes.563 Yet within a few years of Sheba’s death, the veneer of a Zionist symbiosis linking Jewish historiography and genetic research rather dramatically shattered.

---

The first blow came in the form of a father-daughter team, Raphael Patai and Jennifer Patai Wing, who attempted to reconcile Maurice Fishberg’s approach to understanding Jewish biological variation—specifically his argument that Jews could not be categorized as a single race due to their remarkable diversity—with a commitment to Zionism. As a molecular biologist, Wing took on the mantle of the “genetic expert,” writing a review of the published data on Jewish genetics for *Human Heredity* in 1974 in which she concluded that in terms of most (but not all) genetic markers, “different Jewish populations…tend to resemble their surrounding non-Jewish populations more closely than they do one another.” She interpreted this pattern to reflect a history in which “Jewish people originated in the Mediterranean basin and were then dispersed, subsequently undergoing extensive interbreeding with the peoples among whom they lived.”\(^5^6^4\)

Her treatise on genetics was incorporated into the book she co-authored with her father, an anthropologist and historian of the Orientalist mold, which they titled *The Myth of the Jewish Race*. Raphael Patai contributed the first half of the book, which detailed all of the historical evidence that the Jewish people from biblical times onward had experienced regular gene flow, i.e. “race mixture,” with their non-Jewish neighbors through proselytism, intermarriage, slavery and concubinage.\(^5^6^5\)

The Patai-Wing arguments about race were not particularly innovative. In fact, their work should be read as an elaboration and update of the UNESCO pamphlet produced by American Jewish anthropologist Harry L. Shapiro in 1960, which had similarly contended that Jews could not be considered a single race due to the great morphological and blood-group heterogeneity of

---


Jewish communities around the world. Patai merely added more detailed historical information to account for a relatively high degree of Jewish-gentile admixture, while Wing provided the newer data on serum protein and enzyme research, as well as a recently devised statistical formula of “genetic distance” to measure the relative similarity of Jewish populations to one another and to their non-Jewish neighbors. According to their interpretation of these genetic distance values, the Jews could not constitute a race (indeed, nor could virtually any other population group). Although the book did not explicitly identify Ashkenazim as more intermixed with gentiles than other Jews, Patai’s historical information slanted heavily toward the various countries of Europe; furthermore, Wing’s discussion of the genetic distance values also pointed out that the distance between Ashkenazim and and Eastern European and English non-Jews was lower than that between Ashkenazim and any category of Sephardim or Mizrahim. This could offer the casual reader a superficial impression that Ashkenazim shared less of the purported “original” Mediterranean gene pool than Middle Eastern Jews.

It took a second author and book, Arthur Koestler’s *The Thirteenth Tribe*, to broach the specific question of Ashkenazi origins. Koestler, a journalist, drew approvingly on the work of Patai and Shapiro in debunking the racial status of the Jews, and combined this genre with the historical hypothesis that the Ashkenazi Jews of Eastern Europe descended not from the Levantine tribes of ancient Israel, but the Turko-Slavic tribes of Khazaria, an early-medieval kingdom in the Caucasus region whose ruling classes had converted to Judaism. Koestler therefore claimed no originality, but rather thoughtfully synthesized the “racial” arguments of

---


567 The formula in question was a slightly modified form (i.e., arithmetically manipulated but without any new variables) of the equation derived by Luigi Luca Cavalli-Sforza and his colleagues for a study on African pygmies in 1969. See Patai and Wing, *The Myth of the Jewish Race*, 299.
anthropologists and geneticists with the historical argument of Tel Aviv University historian Abraham Polak (or Poliak), whose book propounding the hypothesis, *Khazaria*, won the 1943 Bialik Prize in Jewish Thought from the Tel Aviv municipality. Unfortunately for Koestler, what had once been an acceptable, if not popular, hypothesis on the origins of Ashkenazim was received in 1976 as a polemic of anti-Zionism and antisemitism. Koestler had included an appendix to *The Thirteenth Tribe* stating “whether the chromosomes of [Israel’s] people contain genes of Khazar or Semitic, Roman or Spanish origin, is irrelevant, and cannot affect Israel’s right to exist—nor the moral obligation of any civilized person, Gentile or Jew, to defend that right.” But this disclaimer fell on the deaf ears of Koestler’s critics, who noted that the potential Khazar ancestry of Ashkenazim, the majority of the world Jewish population, had been repeatedly invoked by opponents of Zionism at the United Nations—from the 1947 vote to partition Palestine to the 1975 vote, just months before his book’s debut, of a resolution that designated Zionism as “a form of racism and racial discrimination.” American Zionists thus vehemently attacked Koestler’s work as a product of Jewish self-hatred even as, ironically, they generally praised Patai and Wing’s *The Myth of the Jewish Race*, which also acknowledged the Khazar hypothesis without as thoroughly endorsing it.

Patai and Koestler, incidentally, shared similar backgrounds and motives. Both were Hungarian Jewish intellectuals who had embraced Zionism and spent time living in Mandate Palestine before settling in the United States and United Kingdom. Both of their books aimed to discredit the ethnoracial basis of antisemitism, namely, the lingering vestiges of Nazi-influenced

---


ideas they encountered in Europe and North America. However, the critical response to their works, particularly within the Israeli genetics community, revealed what the authors themselves were unable or perhaps unwilling to recognize: the significant extent to which Zionism, like any other nationalism, relies on an ethnoracial logic. A political scientist at SUNY Binghamton, wary of the implications of Koestler’s book, remarked: “If, as Koestler maintains, most Jews are descended from the Khazars, this theory is hardly valid for the Jews of Israel. More than half of them are neither Ashkenazi nor European, but came to the country from long established African and Asian communities unrelated even in theory to the Khazars.” In other words, American Zionists were satisfied with the idea that the Mizrahi majority in Israel and its indisputable ethnic connection to the “original” Israelites could still validate the Israeli state’s existence. The Ashkenazi geneticists in Israel, however, were in no mood to entertain the notion that their status as “authentic” or “legitimate” Jews was somehow lesser than that of the Mizrahim, who were concurrently agitating for an end to their socioeconomic disenfranchisement. The appearance of The Thirteenth Tribe, and especially The Myth of the Jewish Race (which bore more directly upon genetic research), transformed Israeli population genetics from a largely descriptive enterprise to a vigorous refutation of the books’ assertions about historical levels of admixture between Jews and non-Jews.

Neither book was translated into Hebrew for over two decades. Batsheva Bonné-Tamir, as an anthropologist familiar with Raphael Patai’s work, ordered The Myth during her 1975-76 sabbatical at the Bodmers’ lab in Oxford, and later expressed in her correspondence that she was “rather critical” of the book. This reaction understates the effort she dedicated to

---


571 Bonné-Tamir to Walter Bodmer, February 1, 1977. MS Bodmer 94, fol. 1, Bodleian Library.
deconstructing Patai and Wing’s arguments in all of the scientific publications related to her work on the HLA project. Bonné-Tamir was responsible for the original draft of the comparative summary of all the results of the Israeli HLA research, which she mailed to Walter Bodmer for editing in October 1976. While she waited for Bodmer’s revision of the manuscript (which he did not complete until June 1977), she published all of the data on non-HLA genetic markers she had gathered from her samples of Libyan, Iraqi, and Moroccan Jews.\footnote{See MS Bodmer 1895, fol. 1, Bodleian Library.} For all three populations, she insisted that her data testified to little or no admixture with local non-Jewish groups. She concluded her paper on the Libyans with a direct rebuttal to \textit{The Myth of the Jewish Race}:

In the literature one encounters statements that blood group data show that Jews of any given area tend to resemble the non-Jews of that area, or that genetic similarities between Jews and non-Jews of the same region are probably due to interbreeding, coupled with environmental effects (Patai, 1975). We would like to suggest, on the basis of the data presented, that the question of genetic similarities between Jews and non-Jews of the same region must be carefully examined in each instance before general statements on Jewish mixture with surrounding populations are made.\footnote{Batsheva Bonné-Tamir, Sarah Ashbel, and Jehudit Modai, “Genetic Markers in Libyan Jews,” \textit{Human Genetics} 37, no. 3 (1977): 327, doi:10.1007/BF00393615.}

One of the most interesting features of Bonné-Tamir’s argumentation is the somewhat awkward sense of self-awareness that emerged in her charges that other researchers had subjectively interpreted Jewish blood group data. For example, she emphasized the differences of Iraqi Jews from Iraqi Assyrians and Muslims, and complained that previous studies noting genetic similarities between Jewish and non-Jewish Kurds “can be misleading” because of their small sample sizes and use of fewer genetic markers. Attacki
assessment of genetic differences (which also characterized her own work), she called for quantitative approaches with the assumption that the latter would prove more objective: “Conclusions drawn...will depend on one’s point of view—whether one is seeking similarities or differences, and, on how much weight one ascribes to a difference of 5% in allele frequency in one system. Descriptive terminology... is vague and emphasizes the need for a more quantified treatment of the variability encountered in as many genetic markers as possible.”

She further asserted that the blood of Moroccan Jews she had sampled in Israel contradicted well-known historical accounts of entire Berber tribes converting to Judaism, even while acknowledging that her collection procedures—symptomatic of the flattening of Mizrahi diversity in Israel—had not made sufficient distinction between Jewish Moroccans of urban (more likely Sephardi) and rural (more likely Arab and/or Berber) origins to fully substantiate this argument.

Bonné-Tamir had reserved her strongest rebuttal for the final draft of the HLA project, wherein the bulk of the discussion concerned the four Ashkenazi populations from Russia, Poland, Germany, and Romania:

As has been shown in all our analyses, Ashkenazi Jews seem to show substantial differences in HLA frequencies from those found in the populations among which they have lived now for many centuries. Similarities in frequencies of blood groups between Jewish and non-Jewish populations have, on the other hand, often been reported... [leading] to statements such as “Jews of any given area tend to resemble the non-Jews of that area” (Patai & Patai-Wing 1975, our emphasis). [...] The HLA data presented in this study... are not compatible with the above simplified statements. [...] In spite of their limitations, our data do suggest clear elements of a common origin for the diverse Jewish populations, superimposed inevitably on some admixture with the populations into which they were embedded following the diasporas. In those cases where there are frequency


While she acknowledged a certain degree of “inevitable” admixture between Jews and non-Jews, she specifically downplayed any such admixture between Ashkenazim and non-Jewish Europeans, arguing that Ashkenazim not only shared common origins with other Jews but also with non-Jewish Middle Eastern groups.

Bonné-Tamir’s redemption of the Ashkenazim went to press shortly after Likud’s victory in the May 1977 Knesset elections. The ensuing sense of crisis among the Israeli Ashkenazi intellectual elite was palpable at the symposium on Ashkenazi genetic diseases held in New York in mid-December 1977. One of the first speakers at the event, Tel Aviv University historian Zvi Ankori, opened his lecture on the origins and history of Ashkenazi Jewry with an attack on Arthur Koestler’s promotion of the Khazar hypothesis, which he insisted professional historians had found “unwarranted on documentary and methodologic grounds.”

Having thus dismissed Koestler, Ankori then offered a lengthy exposition on the genesis of Ashkenazi Jewish communities from Mediterranean Jewish traders who immigrated into Western Europe with the Roman Empire. Shortly thereafter, Batsheva Bonné-Tamir began her talk on Ashkenazi genetic markers with, she claimed, a true story, one that indirectly highlighted the particular sensitivity of Israeli Ashkenazim to arguments like Koestler’s in light of the shifting dynamics of Israeli social politics:


In a small village outside of Tel-Aviv, a little blond boy about seven years old, comes home from school and asks: ‘Mother, what is an Ashkenazi?’ In the [discussion] which follows, the mother learns that in his school, […] kids from a village settled predominantly by Tripolitanian Sephardi Jews, use the term Ashkenazi as an insulting, mocking nickname. About 15-20 years ago, this designation was used by members of this same ethnic group from Tripoli as a reference to well established old-time citizens in Israel. This story illustrates perhaps how the term Ashkenazi has acquired different connotations and strayed so far from its original meaning.578

The rest of Bonné-Tamir’s talk reads as rather non sequitur, and the “true story” was ultimately removed from the published proceedings of the symposium. However, it certainly offers the impression that she was at least partly inspired to recuperate some “original meaning” of Ashkenazi, i.e. a well-established Jewishness, in her ensuing treatment of the Patai-Wing and Shapiro books as representing a reactionary, anti-racist school of thought whose claims about Jewish and gentile admixture were “not substantiated by our data…as far as the Ashkenazim are concerned.”579

The non-Ashkenazi scientists present at the symposium seemed far less perturbed by either the Patai-Wing or Koestler hypotheses. In fact, James V. Neel, favorably citing Koestler’s work, proposed that the Khazars might be the historical source for the high frequency of Tay-Sachs disease among Ashkenazi Jews.580 As he later recounted to Raphael Patai, “not altogether unexpectedly, I encountered considerable resistance at this meeting to the acceptance of either the degree of admixture that you and Jennifer have suggested in The Myth of the Jewish Race or

578 The little boy is most certainly Bonné-Tamir’s son Eldad, who would have been seven years old in 1977. Typescript of talk on “Genetic markers; benign and normal traits of the Ashkenazi population in Israel,” filing date December 27, 1977, MS Bodmer 94, fol. 1, Bodleian Library.


my suggestion that the Khazars might have figured rather prominently in what intermixture we are forced to postulate.”

Besides Bonné-Tamir’s lecture, the most direct resistance appeared in the talk delivered by Aryeh Szeinberg, Sheba’s close friend from the Tel-Hashomer Medical Center, which insisted that blood groups and protein polymorphisms provide “strong evidence for the Mediterranean origin of the Ashkenazi Jews but do not support the claims of Patai and Patai-Wing of an extensive gene influx from the European populations among whom they lived in the Diaspora.” The distribution pattern of genetic variation upon which Szeinberg’s argument relied, however, only appears in seven out of the 15 marker systems he considered.

In the decade following the 1977 meeting, Szeinberg directed further studies on enzyme variations to compare Ashkenazim with seven categories of “non-Ashkenazi Jews” as well as “Arabs living in Israel,” demonstrating an increasing preoccupation with “redeeming” the Ashkenazi link to the rest of the Jewish people. “In most polymorphic systems,” he and his coworkers ultimately argued, “the Ashkenazi Jews [are] similar to non-Ashkenazi Jewish communities and markedly different from non-Mediterranean European populations among which they lived for many centuries.” The designation of this pattern as normative involved emphasizing data on enzymes which did not vary significantly between the Jewish groups and


the Israeli Arabs, or otherwise highlighting results that distanced Ashkenazim from non-Jewish Europeans, while noting heterogeneity among the Jewish groups in a relatively cursory fashion. The two out of four tested enzymes that linked Ashkenazim more closely to Europeans than to other Jews, or otherwise failed to reproduce the desired pattern, were deemed exceptional.

Szeinberg’s team relied on the well-trodden, relatively simple technique of direct comparison of gene frequencies. Meanwhile, the geneticists based at the Hadassah Hospital and Hebrew University of Jerusalem, specifically the core laboratories headed by Tirza Cohen and Chaim Brautbar, did not explicitly frame their work in opposition to the Patai-Wing thesis, yet nevertheless made use of genetic distance calculations (like Wing) in a fashion that indicates their disagreement with the contention that all Jewish groups had experienced high levels of admixture with non-Jews. Their publications acknowledge a great deal of such admixture—but only within certain Mizrahi communities, like Yemenite, Iranian, and especially Cochin Jews, and not in Ashkenazim. They also studied Mizrahi communities newly arrived in Israel, like the Bukharan and Georgian Jews, for whom a full set of comparative data on local non-Jewish populations did not exist. In the absence of such data, they concluded simply that “frequencies of many markers in Bukharan and Georgian Jews were similar to those observed in other Jewish


populations examined.” Cohen’s lab also participated in a study of the Duffy blood group, an antigen system considered to be a candidate diagnostic for sub-Saharan African admixture. They proclaimed that their results—which suggested a higher level of African admixture in Muslim Arabs and Mizrahi Jews, a lower level in Christian and Druze Arabs, and none at all in Ashkenazi and Balkan Sephardi Jews—“were compatible with historical evidence of interactions with native African and admixed regional populations,” therefore making the Duffy system “a more useful genetic marker for recognizing African admixture in Middle Eastern populations.”

Many other scientists, by contrast, answered the call of Bonné-Tamir and Bodmer to subject the question of Jewish common origins and levels of historical Jewish and non-Jewish admixture to a range of more sophisticated “quantitative” methods, namely, computer-generated algorithms of cluster analysis. For this purpose, Bodmer introduced Bonné-Tamir to his former colleagues at Stanford: renowned Italian geneticist Luigi Luca Cavalli-Sforza and the American Jewish mathematician, Samuel Karlin. Between 1970 and 1976, Karlin enjoyed a dual appointment at Stanford and the Weizmann Institute of Science in Israel, where he mentored numerous graduate students like Ron Kenett and Dorit Carmelli (who eventually became Karlin’s wife). Bonné-Tamir worked closely with Karlin and Kenett to develop a statistical model for analyzing the data on Israeli populations sampled for the HLA project; at the same time, she shared her raw data with Cavalli-Sforza and Carmelli, who were already in the process of developing a model of their own using an older dataset based on Mourant’s *Distribution of the

---


Both teams hoped to address similar questions about the history of the different Jewish populations, seeking genetic evidence about common origins, dispersion and migration rates, and levels of genetic drift and admixture with non-Jews. While they devised different algorithms to arrive at the answers, both shared a two-pronged critique of the Patai-Wing approach, namely that the existence or non-existence of a “Jewish race” was not a constructive question for population genetics, and that their methods of calculating genetic distance via multivariate analysis (considering values for multiple genes at once) were superior to Wing’s method of calculating distance for each gene separately and averaging the results.

Despite these basic shared assumptions, the two teams’ methods initially produced quite different results and interpretations. At first, Cavalli-Sforza and Carmelli concluded that the Patai-Wing assessment of extensive admixture was correct for many of the Jewish populations after all, and especially for the Ashkenazim. In contrast, Karlin, Kenett and Bonné-Tamir determined a close genetic relationship between Ashkenazi, Sephardi, and Iraqi Jewish groups, and a major difference between Ashkenazim and European non-Jews, concluding, “[s]ince the Christian reconquest at the end of the Middle Ages, the contribution of non-Jews to the Jewish gene pool has been extremely small.”

In light of these disparate results, Cavalli-Sforza and Carmelli then added the HLA data, which had previously been omitted, into their model. To their surprise, the HLA genes indicated zero admixture for Ashkenazim, contradicting the results provided by all other genetic markers. When Cavalli-Sforza presented their work at the 1977

---


New York symposium, he announced that the severe discrepancies in the results might be caused by one or more problems—such as sampling errors in the Ashkenazi or European populations, or genetic markers that were not selectively neutral—but in any case, they prevented any firm conclusion on historical Ashkenazi admixture rates. In response, several of the other attendees simply questioned the validity of Cavalli-Sforza and Carmelli’s model and implied their preference for Karlin’s apparently more consistent results, as presented by Bonné-Tamir.592

Bonné-Tamir herself wrote up the results from Karlin’s algorithm in Hebrew for the Israeli popular science magazine Mada’, but did not mention those of Cavalli-Sforza.593

Meanwhile, Sergiu Micle and Eugene Kobyliansky, physical anthropologists based at the Tel Aviv University School of Medicine, set out on “an extended study devoted to anthropological characterisation of Israeli Jews,” essentially seeking to independently replicate the majority of Jewish genetic research since the 1950s, which encompassed seven blood antigen systems, three enzymes, and a range of morphological traits.594 Rather than relying on previously collected blood samples, Micle and Kobyliansky collected over 1000 fresh ones from donors who testified to “unmixed” ancestry originating from one of six broad geographic regions: Eastern Europe, Central Europe, Southern Europe (i.e. Turkey and the Balkans), Middle East, North Africa, or Yemen. Finally, they pooled their own new results with a large dataset of published gene frequencies on Jewish populations from around the world and corresponding


non-Jewish populations. Applying four distinct methods of calculating genetic distance to this dataset, Micle and Kobyliansky argued—like Bonné-Tamir and Karlin—that all Jewish populations shared a common origin, and that genetic similarities between certain Jewish communities and their non-Jewish neighbors were the product of convergent adaptive selection rather than extensive admixture. In drawing this conclusion, they explicitly panned the anti-racist works of Harry Shapiro, Patai, and Wing in contrast to those of Bonné-Tamir and Karlin (and of Carmelli and Cavalli-Sforza), which used “better methods” of data analysis and “objective criteria” to assess the genetic diversity of Jewish populations. Micle and Kobyliansky also drew on the methodologies of anthropological dermatoglyphics (the study of the inheritance of fingerprint patterns and other lines on the skin of the palm) to corroborate their blood-based data. In fact, when dermatoglyphic traits yielded a similar dendrogram to that of the blood groups, they framed the result not as more evidence in favor of their own hypotheses about Jewish history, but rather as evidence of the reliability of dermatoglyphic methods for population genetics! Sarah Nevo, too, independently marshalled her old Arab Muslim and Druze data, in addition to newer work on the Sephardi Jews of Bulgaria, for use in a cluster analysis algorithm to refute the Patai thesis and argue for a Middle Eastern origin for all Jewish groups.


However, the appeal to quantitative methods did not actually resolve the issue of “objectivity” in assessing the historical rate of Jewish admixture with non-Jews. The prominent American population geneticist Newton Morton sharply disagreed with virtually every point advanced by Karlin and Bonné-Tamir, accusing them of “subjective assessments” of statistical results which the mathematical model could not possibly address. Assembling a new dataset of Jewish and non-Jewish populations from published literature, he applied his own trademark statistical analysis, the “bioassay of kinship,” to resolve the contradictions between the Karlin and Cavalli-Sforza models in favor of the latter: “Not only does genetic evidence support historical records of gene flow (Patai and Patai-Wing 1975), but it reveals remarkable consistency among Jewish populations, most of which seem to have undergone gentile admixture at the mean rate of about 1% per generation.” In response to no less than nine peer reviews with highly mixed opinions on Morton’s work, Morton accepted critiques of his methods, but not of his conclusions: “Reliable methods to detect heterogeneity of admixture estimates have yet to be developed. Those who reject the present evidence for substantial admixture have an obligation to support their position with objective, quantitative arguments, necessarily based on biological data rather than fragmentary history and beguiling tradition.”

Israeli geneticists were not so ideologically driven at this time that they refused to publish data that apparently contradicted their preferred narrative. However, such results were presented in a more guarded fashion that limited the scope of their interpretation. For example, Bonné-Tamir and Arthur Steinberg opened a paper on the gammaglobulin haplotypes of her previously

---


599 Ibid., 160.

600 Ibid., 166.
discussed Ashkenazi, Libyan and Armenian samples with two paragraphs emphasizing the genetic similarity of different Jewish populations to each other and to Eastern Mediterranean non-Jews—despite the fact that the gammaglobulin data did not reflect this pattern. Curiously, while the introduction also mentioned that gammaglobulins “seem to offer better discrimination among races and more direct evidence of racial admixture than any other genetic polymorphism,” their haplotype results for the Ashkenazim were effectively rejected out of hand. One marker provided “strong evidence of Mongoloid admixture” with the Israeli Ashkenazim; the authors referred to older data on US and Canadian Ashkenazim who lacked the “Mongoloid haplotype” to argue that “there must be considerable reservation about these values.” As for the marker whose haplotype frequencies were “surprisingly similar” to Polish non-Jews? “This may be a coincidence.” So much for vaunted utility of the gammaglobulin system; in this case, it had detected a racial admixture which could be interpreted in support of the ideas of Koestler or Patai and Wing, and therefore merited caution.

Summarily, beginning in the mid-1970s, Jewish common origins within the Middle East could no longer simply be taken for granted by Israeli geneticists. This fundamental assumption had undergirded the relatively placid descriptive surveys of Jewish genetics that characterized prior decades of research. The profound challenges to this assumption in both academic and journalistic quarters forced a reorientation in genetic practice that portrayed the shared Middle Eastern ancestry of living Jewish populations, especially Ashkenazim, as a testable hypothesis which genetic data could confirm or deny with the aid of statistical techniques. As the next


602 Ibid., 394–95.
chapter will demonstrate, the advent of DNA sequencing would intensify the use of mathematical modeling to confirm the genetic links of Ashkenazim to Mizrahim and Palestinians—the very groups that Israeli Ashkenazim had politically and socially excluded since the founding of the state. In his defense of Zionism, Koestler wrote, “the geographical origin of the native Israeli’s parents or grandparents tends to be forgotten in the bubbling racial melting pot.” Little did he know that his own work would fuel the obsession of many Ashkenazi geneticists, both in Israel and the United States, to further segregate the various Jewish ingredients of the alleged melting pot to compare them with non-Jewish Middle Eastern groups—those communities who were never intended to “melt” into Israeli society. The attempts of Patai, Wing, and Koestler to prove that Zionism’s legitimacy did not rely on a shared Jewish racial identity paradoxically transformed Israeli population genetics into a discipline that invented such a racial identity, masked, of course, in the language of “common origins” and “gene pools.”

Revolutionizing Iranian biology

In 1972, a team of Japanese scientists, led by Hideo Matsumoto, traveled to the northern Iranian provinces of Gilan and Mazandaran in an IBP-affiliated expedition. The team collected over 2000 samples from the local populations, whom they determined to be “anthropologically… located between the Caucasoid and the Mongoloid.” More specifically, as the Japanese authors explained in concert with Dutch laboratory collaborators, most of the immunoglobulin haplotypes found in their samples matched those “prevalent in Caucasians, with a low frequency

603 Koestler, The Thirteenth Tribe, 223.

of Asiatic haplotypes.605 When this material was rewritten with the collaboration of Iranian biologists in 1984, the decidedly spare description of the Iranian populations was inflated with ethnographic details, and the relevance of the research to Iranian history was highlighted: “The origin of the Iranian population is rather uncertain. It is commonly agreed that modern Iranians are racially the result of a mixture over several thousands of years, of the aborigines with ‘Aryans’, Parthians, Turks and Mongols, Aramaeans, Greeks and Arabs.” Northern Iranians, they specified, had been particularly affected by historical migration from Central Asia, explaining the presence of “Turks” in the northwest region of Azerbaijan and the “anthropologically Mongoloid types” of people residing in the northeast provinces of Khorasan, Gorgan and Mazandaran.606 The reference to Aryans seems to be the contribution of the Iranian authors (the term never appeared in the Japanese team’s prior publications), and its presentation in quotation marks suggests that the term was a point of dispute. At stake was the basic historical narrative that linked Iranians to Europeans, as well as the slippage between “Iranian,” “Aryan” and “Persian” created by the conflation of linguistic categories with ethnic ones. The 1984 paper describes the study populations accordingly: “The Mazandaranians… are mainly so-called Persians but they also include a large intermixture of Afghans and Kurds. [...] The Guilanians are mainly Persians but they also include a large component of Turks.”607

The Japanese-Iranian team analyzed 15 genetic markers in their Mazandarani and Gilaki samples, which they then compared with the results of other “Mongolian and Caucasian populations,” ultimately concluding that both Iranian groups showed “genetic influence of both


607 Ibid., 28.
Mongoloid and Caucasoid populations. However, it seems that the Mongolian influence is stronger than the Caucasian.\textsuperscript{608} Reading between the lines, the paper offers an unstable compromise between an Iranian ethnic commonsense at odds with the research goals of the Japanese researchers. The descriptions of the populations of Mazandaran and Gilan reflect a sensibility common among Iranian nationalists that, despite distinct languages and cultural practices, both groups could be linguistically classified as speaking “dialects” of Persian and therefore ethnically classified as Persians.\textsuperscript{609} Meanwhile, the Japanese team had never aimed to learn anything in particular about the origins of the Iranian people. Rather, its members were interested in a range of medical and anthropological questions about Asian populations, and their venture to Iran was prompted by their perception of the country’s historical status as “a border state between the Mongolian and European invaders.”\textsuperscript{610} For example, one of the senior researchers, Koji Ohkura (who had trained with James Neel in the United States), came to Iran as part of his decades-long project on medical genetics, studying the distribution of the gene for acatalasemia (deficiency of the enzyme catalase), which occurs most frequently in Asians. Meanwhile, Hideo Matsumoto wanted to compare Gilakis and Mazandaranis with other Asian “Mongoloid” populations with the ultimate goal of tracing the origins of the “Japanese race.”\textsuperscript{611}

Japanese geneticists were not alone in their use of Iranian populations to answer broader questions about the human history of Asia. In fact, this period represents a significant shift in Iran’s regional orientation within global genetic research. In prior decades researchers like the

\begin{footnotes}
\footnote{Ibid., 37.}
\footnote{Elling, \textit{Minorities in Iran}, 19.}
\footnote{Ohkura et al., “Distribution of Polymorphic Traits in Mazandaranian and Guilanian in Iran,” 29.}
\end{footnotes}
Boués, Lehmann and Mourant had taken a major interest in the Iranian Kurds and linked them to Kurdish populations elsewhere in the Middle East, particularly Israel and Iraq. Bowman’s interest in favism had also linked him to Israeli geneticists and contributed to Iran’s participation in a Middle Eastern regional scientific network. By the end of the 1970s, Iranian genetics became increasingly tied, both conceptually and institutionally, to South and Central Asia. The various revisions of the Japanese work between 1972 and 1984 also trace the emergence of a distinct Iranian community of human geneticists in the late 1970s, not only through the eventual direct inclusion of Iranian scientists, but also through the increasing citations of papers with Iranian first authors. Through their formation of new institutions, this nascent conglomerate of Iranian geneticists would revolutionize the practices of human genetic research in Iran, as well as ensure the survival of a nationalist approach to Iranian biological identity even after the downfall of the Pahlavi regime.

The key institutions driving the new Iranian genetics formed in rapid succession during the late 1960s and early 1970s: the Genetics Society of Iran (anjuman-i zhinitīk-i īrān) in 1968, and the Genetic Research Center at Jundishapur University in Ahvaz, the Iranian National Blood Transfusion Service, and a research group on “Human Genetics and Anthropology” at the University of Tehran, all in 1974. Each of these organizations emerged separately, largely at the behest of individual scientists with disparate research agendas, professional ambitions, and relationships to the Pahlavi government. Yet taken together, they provided the infrastructural foundations for a major shift in the practices and approaches of Iranian human genetics, with Iranian geneticists (in concert with foreign investigators) leading more and more field surveys targeting ethnic, linguistic, and religious subpopulations across Iran.
The institutional pioneer was Pezeshkpour Mostashfi, a native of Tehran. After earning a doctorate in biology from the University of Geneva, he worked at the Institut Pasteur between 1955 and 1957 before securing a professorship at the University of Tehran, where he became a popular genetics instructor and worked his way up the administrative ranks. In June 1968, he organized the first meeting of the Genetics Society of Iran, including just seven other physicians and biologists, all from Tehran University. The first society congress, featuring topics from agriculture and plant genetics to medicine, was held in October 1969 at Ferdowsi University in Mashhad. For the next four years, conferences were held annually, then switched to a biannual schedule beginning in 1976 (Tehran) and 1978 (Ahvaz). By 1978, the Genetics Society had more than 200 members across Iran, and Mostashfi remained the Society’s director in addition to his duties as the Vice Chancellor of the University of Tehran.\footnote{Mohammad Hasan Kariminezhad, Houshang Khavari Khorasani, and Mansour Omidi, “Tārīkhchīh-yi zhīnitīk dar īrān va jahān, bakhsh-i dahhom: zindagi-nāmah-yi doktor-i Pizishkpūr-i Mustashfi,” \textit{Genetics in the 3rd Millenium} 11, no. 3 (2013): 4–8.}

Habibollah Fakhrai, a native of the southwestern city of Dezful, studied agriculture at Jundishapur University in Ahvaz, where he first became interested in genetics. In 1966, he began graduate studies at Michigan State University, ultimately completing his thesis on human genetics under the mentorship of Herman Slatis and James Higgens. While in Michigan, Fakhrai wrote “a number of nasty letters calling the Shah a murderer,” but did not go as far as other Iranian student activists who called for regime change.\footnote{Habibollah Fakhrai, interview by the author in San Diego, California, December 22, 2014. Hereafter listed as “Fakhrai interview, 2014.”} However limited the extent of these activities, they were sufficient to affect his career in Iran. In 1974, Fakhrai returned to teach at his alma mater, Jundishapur, on the condition that he be allowed to establish a genetics research center. He traveled to Tehran to present his proposal for the center to the deputy minister of...
science, who asked Fakhrai to nominate a fellow scientist to review the proposal. Fakhrai considered nominating Mostashfi, his acquaintance at the University of Tehran, but—worried that the request might be an imposition—ultimately chose someone else. A few months later, this nominee, together with the Ministry of Science, announced the foundation of his own genetic research center in Tehran, using the program drawn up by Fakhrai. Although his idea had been stolen, Jundishapur’s royal patron, the Shah’s sister Princess Ashraf, indicated her endorsement of Fakhrai’s center in Ahvaz. According to Fakhrai, the Jundishapur Genetics Research Center was far more active than the copycat version in Tehran, with multiple research programs in cytogenetics, hemoglobin abnormalities, blood groups and disease, and even a seminar series on the origins of life. Fakhrai’s center played host to the final pre-revolution meeting of the Genetics Society in 1978.

The long-term effort to reform Iran’s blood-banking system fell to Fereydoun Ala, the son of the Shah’s trusted advisor, ambassador, and sometime prime minister Hossein Ala. Equipped with a Harvard history degree, medical training from the University of Edinburgh, and a wife descended from English aristocracy, the young Ala founded the University of Tehran’s hematology department in 1965. In 1972, he proposed a national administration for blood transfusion that would take over the hitherto uncoordinated efforts of blood collection, testing, and storage from individual hospitals and universities. Within two years, Ala attracted grants from the British Wellcome Trust and the Iranian government, including the patronage of the Shah’s wife Empress Farah, and purchased state-of-the-art equipment for the Iranian National Blood Transfusion Service (INBTS). This organization was so successful that by 1978, it had largely taken over the independent blood services of the Iranian military and the Red Lion and
Although genetic research was never a primary function of the INBTS, the institution ultimately played a significant role in Iranian population genetics due to its ready access to blood samples and laboratory facilities, as well as its close links to British and Australian geneticists. For example, a British trainee of Mourant’s, Victor Alan Clarke, took up a position as “Principal Scientific Officer” in July 1975, overseeing the serology laboratory and tracking population-genetic markers in donated blood samples. Meanwhile, around the same time that Fereydoun Ala and Behrouz Nikbin participated in the 1975 HLA workshop on behalf of the INBTS, they and other Iranian public health officials were also collaborating with noted geneticist Robert L. Kirk and several of his colleagues from Australian National University. The Australian researchers provided laboratory testing services for an epidemiological survey of the Caspian littoral region of northern Iran, which emerged out of an investigation of the high incidence of esophageal cancer in the area.

The Caspian Cancer Registry, administered and funded by the Tehran-based Institute of Public Health Research and the International Agency for Cancer Research, collected detailed statistics on each cancer diagnosis in the region, obtaining information on cancer patients (such as ethnicity, language, and religion) left out of standard census data. The Iranian researchers took the opportunity to conduct population genetics research on blood samples from the region’s “normal” (that is, non-patient) villagers, which they characterized in ethnolinguistic terms as “Turkoman,” “Gizilbash Turkic,” and “Persian” (under which they subsumed speakers of the

---


615 Recommendation letter for Victor Alan Clarke by Fereydoun Ala, December 10, 1981. PP/AEM/K.226, Box 37, Mourant Papers.

highly differentiated dialects of Mazandarani and Gilaki). The samples were first brought to Tehran for basic blood group testing, then frozen and shipped to Canberra for further laboratory analysis of serum proteins and enzymes. The Australian-Iranian research team found “marked genetic differences” between Caspian ethnolinguistic groups, and ultimately argued that their genetic data correlated with a simplistic historical model wherein genetically distinct peoples successively “invaded” Iran. Kirk and his Australian colleagues took leading authorship in publishing the results, beginning with a lengthy introduction describing Iran’s long history of “complex population movement,” including “Aryan invaders” followed by “Assyrians, Greeks, Arabs, Turks, and Mongols.” To explain why non-Iranian scholars of “human population structure and evolution” should take an interest in Iran, they argued, “[i]ts geographical position, especially in relation to India and to Europe, and the important part played by the Aryans in contributing to its highly developed culture makes its people an important subject of study.”

A revival of Aryanism in Iranian public discourse emerged in 1967, when the Iranian parliament bestowed Mohammad Reza Shah with the new title of “Aryamehr” (“light of the Aryans”) on the occasion of his formal coronation ceremony. In the ensuing decade, the usage of the term “āryā” (Aryan) proliferated in the names of new neighborhoods and public structures in Tehran (including Aryashahr district, Aryamehr University of Technology, and Aryamehr Stadium). However, the emphasis on Aryans in the Australian-Iranian research project is still remarkable given the total absence of Aryan references in any genetic research on Iranians since the 1930s. I argue that the term’s sudden reappearance reflects not a simple breakthrough of Iranian nationalist voices into scientific authorship, but a pronounced shift in the professional

---


618 Ibid., 377–78.
profile of foreign geneticists who worked with Iranian researchers by the late 1970s. In earlier decades the Boués, Bowman, and even Mourant and Lehmann had primarily approached Iran from the West, looking for connections to populations in Europe, Israel, and the Arab states. Kirk signaled the increasing involvement of Anglophone scientists who came to study Iran via the Indian subcontinent, many of them interested in testing the professed ancestral link between Zoroastrians in India (i.e., Parsis) and Iran.619 The American, British, Australian, and Indian collaborators who held a primary interest in South Asian populations generally shared a certain South Asian-Iranian ethnonationalist vision of Aryanism, invoking the historical narrative of an ancient “Aryan invasion” to explain patterns of ethnogenetic variation first in India, then in Iran. Iranian geneticists would quickly adapt Kirk’s model of emphasizing an Aryan biological substrate for most Iranian groups, while simultaneously gravitating away from identifying any single population unit as “Iranian.” This influence is all the more crucial in the case of researchers who took up long-term employment in Iran, such as Kanwarjit Singh Sawhney, an anthropologist of Punjabi Indian descent who earned his doctorate under the guidance of Eric Sunderland at Durham University. In 1975, Sawhney completed a dissertation comparing the blood group frequencies of Iranians, Kuwaiti Arabs, Indian Punjabis, and Nepalese, which assumed the shared Aryan ancestry of the Iranians and Punjabis.620 By 1978, Sawhney had relocated to Iran, where he worked for the blood transfusion services of the Red Lion and Sun (soon to be renamed Red Crescent) as well as the School of Public Health at the University of


620 Kanwarjit Singh Sawhney, “Genetic Polymorphisms in Selected Populations in Southwest and South Asia” (PhD dissertation, Durham University, 1975).
Mostashfí, Fakhrai, and Ala, along with the institutions they created, represented the strong medical roots of human genetic research in Iran; throughout their training abroad and their careers at home, they remained embedded in a healthcare context. For these investigators, population genetic research on ethnic and religious minorities in Iran was not of much interest for its own sake, but only if it could be correlated to disease incidence. The medical priorities of the emerging Iranian genetics community are demonstrated by the array of papers presented at the 1978 Genetic Society meeting in Ahvaz. Out of the 23 papers dealing with human genetics, 17 are directly related to health and disease, while only six are concerned with population genetics. Even most of these six were simply side projects derived from medical research. For example, Fakhrai and his colleagues contributed a paper comparing the ABO frequencies of Arabic- and Persian-speaking residents of Khuzistan province. This research was an outgrowth of the Genetics Research Center’s hospital-based research program to link blood types with disease resistance (for example, type B correlates with higher resistance to smallpox). Fakhrai’s colleagues discovered that an inordinate amount of the type-B hospital patients all originated from the same small, Arabic-speaking tribal population. With the help of Fakhrai’s brother, who by chance was the governor of the rural area where the tribe resided, the Jundishapur researchers visited the tribe three times to collect blood samples.

The figure who claims to have singlehandedly introduced the field of genetic

---


623 Fakhrai interview, 2014.
anthropology to Iran, Dariush Daneshvar Farhud, can at least be credited with promoting an anthropologically-oriented research agenda that established Iranian population genetics as an independent field distinct from medical genetics. This is undoubtedly due to his educational experiences in Germany, where he spent ten years successively obtaining a bachelor’s degree in psychology, a medical degree, and finally a doctorate in anthropology from the Institute for Anthropology in Mainz, Germany (founded in 1946). The first director of the institute, Egon Freiherr von Eickstedt, had previously been deeply involved in the theory and implementation of Nazi racial policy. Following his retirement in 1961, his longtime assistant Ilse Schwidetzky took his place, and largely carried on the institute’s research emphasis on physical anthropology and anthropometric methods. Hubert Walter, who joined the faculty of the institute in 1962, was eager to remedy these lingering negative associations with German anthropology and counteract racist scientific concepts and discriminatory practices. Beginning in the early 1960s, Walter developed a strong program in serological genetics, attracting a number of students who had been engaged in medical studies.\footnote{See Hubert Walter’s obituary by Uwe Hossfeld, “Nachruf Prof. Dr. Rer. Nat. Habil. Dr. Med. H. C. Hubert Walter, 14 April 1930-6 Dezember 2008,” Verhandlungen Zur Geschichte Und Theorie Der Biologie 16 (2010): 281–307.}

Farhud was not the first, but rather the third, Iranian student at the Mainz institute, and the second one to specifically pursue Walter’s specialty in genetics. Schwidetzky supervised an Iranian student, Dariush Jahanshahi, who in 1962 conducted an anthropometric survey of the Abimarchi, a settled branch of the Qashqai tribes, living in villages around Jahanshahi’s hometown of Shiraz.\footnote{Letter from Dariusch Djahanschahi to Ilse Schwidetzky, June 8, 1962. Bestände 89, No. 1, University Archives, Johannes Gutenberg University in Mainz, Germany.} In addition to the dozens of physical measurements and demographic data he recorded, he collected 97 blood samples from the villagers and shipped them to Mainz,
where Walter tested them for haptoglobin and immunoglobulin types. Farhud joined the institute in 1964, the same year as his compatriot Mansur Bayatzadeh. Bayatzadeh, Walter’s first Iranian protégé, completed a doctoral thesis on “Persian population genetics” between 1964 and 1967. Bayatzadeh collected 48 blood samples himself from fellow Iranian students in Mainz, and received a further 972 samples delivered by air from the Tehran Reference Laboratories of the Iranian Ministry of Health.

While Farhud seems to have devoted himself exclusively to his studies, Bayatzadeh was a prominent figure in the local Iranian community, particularly in his anti-Shah activism. By 1966, he was a board member of the university’s Iranian Student Union, and participated in anti-Shah demonstrations organized by the Confederation of Iranian Students-National Union (CISNU). CISNU, since its founding in the early 1960s, connected pro-National Front Iranian students in Tehran with their compatriots studying abroad in Europe and the United States, bringing together a range of opposition ideologies. Bayatzadeh’s decision to cancel the Mainz Iranian Student Union’s planned Nowruz (Iranian New Year) event in March 1967 to honor Mohammad Mossadegh’s recent death attests to Bayatzadeh’s sympathies with Mossadegh’s vision of Iranian nationalism. A more dramatic expression of his political views occurred on May 27, 1967, when Bayatzadeh and a contingent of about 150 other Iranian students traveled to Bonn, greeting the Shah’s arrival in West Germany with a spontaneous demonstration. Hundreds

---


628 Memo from Iranian Student Union board members to Johannes-Gutenberg University Rector’s Office, December 20, 1966. Hamid Shawkat collection, Box 14, Folder 7, Hoover Institution Archives.

629 Letter from Iranian Student Union board members to Günter König, March 15, 1967. Hamid Shawkat collection, Box 14, Folder 7, Hoover Institution Archives.
of policemen surrounded the protesters, and one allegedly dislocated Bayatzadeh’s shoulder in the process of arresting him. His ensuing legal and medical troubles did not prevent the approval of his dissertation, granted on July 21. However, he remained in Mainz for at least another five years after standing trial for civil disorder in October and November 1968. Bayatzadeh continued to conduct and publish genetic research with Walter, but he now relied exclusively on Iranian students or residents within West Germany to supply his Iranian blood samples, indicating that he was no longer able to travel to Iran or make use of government institutions like the Ministry of Health laboratories. On the other hand, the relatively high sample sizes he obtained (ranging from 185 to 565) for his research suggests his ongoing leadership in the local Iranian community. Meanwhile, Farhud forged stronger ties to Tehran, specifically with Ahmad Azhir, who in the early 1970s headed the blood transfusion services of the University Clinics of Tehran. Azhir granted Farhud access to the clinic’s blood donors to obtain samples for his own research.

All of Bayatzadeh and Farhud’s publications co-authored with their German advisors demonstrated a primary concern with comparing genetic difference at the racial level, using the WHO-sanctioned racial categories of “Caucasoid,” “Mongoloid,” and “Negroid.”

630 “Der Fall Bajatzadeh,” extra page issued by Gutenbergblatt, 1968. Stadtarchiv Mainz (Mainz City Archives). ZGS / N 6, 8. Another copy available in Hamid Shawkat collection, Box 14, Folder 20, Hoover Institution Archives.


632 Farhud, interviewed by Ehsan Amini in Tehran, November 8, 2015.

633 Farhud and his colleagues also incorporated this terminology into Persian-language journals (nizhād-i safīd/zard/siyāh, or safīd-pūštān, zard-pūštān, siyāh-pūštān); see, for example, Dariush Daneshvar Farhud, Parivash Amirshahi, and Shua’ al-din Hedayat, “Ta’ayīn-i anvā’ häftūglūbīn dar ustān-i sāhilī (Bandar-i ‘Abbās),” Iranian
papers categorize Iranians as Caucasoid with more confidence than Bayatzadeh, who occasionally raised the possibility of “‘Mongoloid influence.’” Of perhaps greater interest is the comparative response of Bayatzadeh and Farhud to the limitations imposed on their work by the collection practices of the Tehran blood banks. As described in Chapter 3, these institutions did not collect ethnic or religious data from blood donors, restricting Iranian geneticists to comparisons of Iranians on a provincial or regional basis, and/or comparisons of nationwide averages with those of other countries. Bayatzadeh and Farhud both acknowledged regional genetic diversity within Iran, though only Bayatzadeh expressed this in the form of a critique, repeatedly complaining that regional differences could potentially be attributed to the “ethnic structure of Iran,” but due to lack of “suitable information,” this could not be confirmed. Yet even when Bayatzadeh was collecting his own samples from Iranians in West Germany, he claimed similar difficulties in obtaining information on the “ethnic structure” of his blood donors, ultimately maintaining the same geographical categorizations (six broad regions) in all of his work for the sake of comparative consistency. He argued that if significant genetic differences existed between ethnic groups, this regional division should be able to expose it, correlating as he did certain ethnic groups with Iranian geography (for example, “North Iran is


635 Mansur Bajatzadeh and Hubert Walter, “Serumprotein Polymorphisms in Iran,” *Humangenetik* 6 (1968): 40–54; Bajatzadeh and Walter, “Investigations on the Distribution of Blood and Serum Groups in Iran.” Farhud only mentions “As our probands were born in various parts of Iran, the results of our typings are likely, at least to a certain extent, to be representative for Iranians.” Dariush Daneshvar Farhud and Hubert Walter, “Hp Subtypes in Iranians,” *Human Heredity* 22 (1972): 185.
mainly settled by ancient Iranians…Northwest Iran by Turks, Kurds and Armenians…”). But after years of surveying about a dozen genetic markers, Bayatzadeh discovered that his data was characterized by “striking” homogeneity and, after re-examining his own work alongside that done by the Boués and other foreign geneticists in Iran, concluded that “on the basis of the genetic data from Iran published up to now… there is no clear evidence for the assumption of marked regional or ethnic genetic differences within this country.” Nevertheless, he called for further genetic research in Iran, “which should be based on representative samples of the various ethnic groups.” In any case, Bayatzadeh’s work in Germany emphasized the analysis of Iranian regional variation, through the use of maps and comparative charts, far more than did Farhud’s, which consistently treated Iranians as a single unit in constrast to other nationalities arranged in racial supercategories. Only when Farhud returned to Iran did he begin to direct his attention to ethnic groups within Iran, effectively taking up Bayatzadeh’s call.

While Bayatzadeh’s career in genetics appears to have been stymied by his political activities—in 2015, Farhud spoke of him dismissively as a “carpet merchant” (farsh-furūsh) who had failed to earn a medical degree—Farhud’s own connections back home set him up for success. Immediately after completing his doctorate in 1972, Farhud returned to Iran to join the faculty of the University of Tehran, where he soon formed the first research group on “Human

---


637 Ibid.

638 Ibid., 414.


640 Farhud, interviewed by Ehsan Amini in Tehran, November 8, 2015.
By 1974, he also began serving as the secretary of the Genetics Society of Iran, a post he would hold until 1981. Although Farhud claims to be the first genetic anthropologist in Iran, there is evidence that Iranian geneticists’ interest in anthropological applications predated his return from Germany. Specifically, the proceedings of the Second National Genetics Congress, held in Tehran in 1970, included an abstract on the “anthropological features” of five villages of the Fars region. These “features” were primarily demographic, i.e. data on household structure and marriage patterns with a particular emphasis on the incidence of consanguineous marriages, a topic of interest to geneticists worldwide at this time.\(^{642}\) The congress proceedings also contained an introductory article on the genetic basis of “human races,” which discussed differential geographic distribution of human blood groups as well as “visible racial differences,” namely traditional anthropometric measurements like skin and eye colors, shapes of skulls, lips and noses, etc.\(^{643}\)

Regardless, prior to the creation of Farhud’s special research unit, it is fair to concede that genetic anthropology was not an Iranian research priority. The rising number of field surveys targeting ethnic, linguistic, and religious subpopulations across Iran—such as those previously described of Fakhrai in southwestern Iran, the INTBS collaboration with Australian scientists in the Caspian littoral, and other work on urban religious minorities\(^{644}\)—had primarily medical rather than anthropological objectives, and publications on population genetics were

---

\(^{641}\) Ibid.


\(^{643}\) The anonymous article took an anti-racist position, clarifying that no clear boundaries between races exist and that racial discrimination had no scientific basis. “Mabnā-yi nizhādhā-yi insānī,” in Dāvvumīn Kungrih-yi zhiniṭk-i īrān: 26-28 shahrīvar māh 1349 (Tihrān: Dānishgāh-i Tihrān, 1970), 1–17.

simply derivative material from expeditions funded by national and international health organizations. In this atmosphere, the recognition of genetic ethnic difference was a matter of disease etiology rather than an interrogation of prevailing narratives of Iranian history. Farhud’s own faculty position at the School of Public Health within the University of Tehran enabled him to participate in the School’s 1973 health survey of the Qashqai nomads in southern Iran, which collected a vast amount of sociological, demographic, and anthropometric data alongside blood samples and various health indicators.645 Farhud’s colleague in the School of Public Health, Kambiz Montazemi, tested the Qashqai blood samples and eventually published a detailed comparison with thousands of other Iranian samples collected by various regional health institutions across the northern provinces as well as the Persian Gulf coast.646

Farhud’s other colleagues in the School of Public Health joined him in initiating haptoglobin and HLA studies dedicated more specifically to anthropological questions of ethnic differentiation. Farhud further contributed to research on haptoglobin types within Iran, looking to fill in regional data gaps (such as in the southern coastal city of Bandar-e Abbas647); however, he argued that Iranian groups, taken as a whole, resembled other Middle Eastern populations, and that the region represented a cline of type frequencies between Europe and India.648 Meanwhile, Nahid Mohagheghpour and her student and research assistant, Hamideh Tabatabai,


647 Farhud, Amirshahi, and Hedayat, “Ta’ayîn-i anvâ’ häptîqâlbûn dar ustân-i sâhilî (Bandar-i ‘Abbâs).”

took a special interest in Tehrani religious minorities as windows into Iran’s “ethnic history.” Tabatabai completed a master’s thesis comparing HLA types in Iranian Armenians and Jews in 1977, and Mohagheghpour directed a similar study comparing Tehrani Muslims and Zoroastrians even as the revolution intensified. The work on Zoroastrians invoked the familiar claim of total reproductive isolation that had driven genetic research on the community for decades: “Zoroastrianism is one of the most restrictive religions in existence today. It does not accept converts and those who marry outside the faith are excommunicated.” As a result, the non-Zoroastrian authors explained, “the small size and isolation of the Zoroastrian population through the ages makes it a very important population for genetic studies,” in contrast to Iranian Muslims, who “represent a racially heterogeneous group of people.” Like Bowman before them, Mohagheghpour and her assistants concluded that “the HLA profile of the present-day Zoroastrians is quite distinct” from that of their sample of Iranian Muslims “with no ethnic affiliations.”

The study on Jews and Armenians, two minorities occupying a more marginal and unstable position in relation to the Aryanist national narrative than Zoroastrians, unveils further layers of ethno-national negotiation. While most Iranian Jews spoke Persian, they were understood to be “racially” Semitic migrants to Iran who retained their ethno-religious distinctiveness through endogamy. Likewise, Armenians, though perceived to fall racially within the Indo-European fold, self-segregated according to their linguistic and religious differences.

---


650 Ibid. The paper’s acknowledgements confirm that the authors are not Zoroastrian, as they name two members of the Zoroastrian Society (Mr. K. Keshavarz and Mr. H. Hormozdiari) and a Zoroastrian priest (Moubed Rustam Shahrzad) for “consultation” and “cooperation” (presumably both for information and facilitating the collection of blood samples).

651 Ibid., 259.
Tabatabai and her colleagues departed from the “Aryan invasion” narrative proper (as adopted by Robert Kirk) to identify Aryans as the “original inhabitants” of Iran (implying autochthony). In contrast, all subsequent peoples had “invaded” Iran, along with the Jewish and Armenian populations, who arrived by migration at precise times:

The ethnic history of Iran, originally inhabited by Aryans, is marked by invasions of Assyrians, Medes, Greeks, Arabs, Turks and Mongols. In addition to these major invasions, other occasional migrations have occurred, such as the settlement by Jews in 538 B.C. after the conquest of Babylon by Cyrus, and by the Armenians in the 17th Century. [...] because of religious restriction the Jews and the Armenians have remained relatively isolated from the surrounding populations...

Tabatabai’s introduction therefore marked Jews and Armenians as ethnically distinct from the rest of the “assimilated,” i.e. mixed, urban Muslim populations of Iran. However, after comparing their HLA results to those of Jews from Yemen and India, they argued that Iranian Jews had a closer genetic relationship to the Iranian Armenians and the “control group” of Mazandaranis (“descendants of ancient Medes … and speakers of Persian dialect”) than other Jewish groups. The authors attributed this result to “a certain degree of admixture” between the three Iranian populations, implying that Iranian Jews and Armenians have not necessarily been as exclusively endogamous historically as they might presently appear. Curiously, they cited the work of Chaim Sheba to argue that “the close relationship between the Armenians and the Iranian Jews agrees generally with the historical background of these populations,” although

---


653 The authors further identified Armenians as racially “Mongolo-Aryan,” citing Henry Field’s 1939 book. Ibid., 310.

654 Ibid., 314. The reference to Sheba and not more recent work on Jewish populations is all the more interesting given that Mohagheghpour, seeking comparative data for Jerusalem Armenians, had written to Walter Bodmer (who referred her to Batsheva Bonné-Tamir) before the article was published. Mohagheghpour to Bodmer, December 8, 1976, and Bodmer to Mohagheghpour, January 24, 1977. MS Bodmer 94, fol. 1, Bodleian Library.
their explanatory emphasis on admixture sharply contrasts with Sheba’s own devotion to constructing the unbroken family tree of Jewish tribes (see Chapter 3). Tabatabai and Mohagheghpours effectively wrote the protocol for how Farhud and other Iranian researchers would frame their genetic studies of minorities. All categories of difference (religion, language, geography, etc.) came to be subsumed by “ethnicity,” and furthermore, they all became “Iranian populations,” “Iranian groups,” “Iranian ethnicities:” variations on an essential Iranianness defined by nation-state boundaries. The terminology Tabatabai employed in her Persian-language thesis—īrāniyān-i yahūdī and īrāniyān-i armanī (that is, “Jewish Iranians” and “Armenian Iranians” rather than “Iranian Jews” or “Iranian Armenians”) testifies to such an underlying conceptualization of minority identities as a superstrate over Iranian subjecthood, rather than the other way around.655

Although the 1979 revolution and Iran-Iraq War (1980-1988) were major disruptions in Iranian politics and society, with regard to scientific development, these events were not turning points so much as accelerants for processes that had already begun. For example, the Iranian government had been fretting since the late 1960s over the “brain drain” that sent many of Iran’s physicians and biologists abroad for good.656 Habibollah Fakhrai, who had planned a 1979 sabbatical in the United States, chose to remain in California indefinitely, although as of 2014 he had never been officially fired from his faculty position in Ahvaz (now known as Shahid Chamran University).657 Fereydoun Ala, after a harrowing arrest that would have brought him before the ruthless Revolutionary Tribunals, managed to smuggle himself out of Iran and settled


657 Fakhrai interview, December 22, 2014.
in the United Kingdom in 1981. However, genetic research continued apace under those few established scientists who chose to remain in the country, namely Dariush Farhud. As mentioned in the Introduction, Farhud proudly identifies as an Iranian nationalist. One of Farhud’s protégés, Parivash Amirshahi, dedicated her dissertation “to my country, Iran.”

Farhud’s leadership in the field therefore represents the continuity of certain threads of Pahlavi-era nationalism within Iranian intellectual culture generally and within Iranian genetics specifically. Amidst the political turmoil surrounding the downfall of the Shah’s regime and the subsequent “cultural revolution” that purged foreigners and all potential dissidents from Iranian universities and government institutions, Farhud managed both to keep field studies underway and to strengthen ties with prominent British geneticists and thus the model of Iranian population genetics inspired by South Asia. Kanwarjit Sawhney, who had joined Farhud’s unit of Human Genetics and Anthropology around 1978, helped foster connections between the Tehran unit and Eric Sunderland, his former advisor at Durham University. Sunderland, in turn, introduced Farhud’s work in Iran to his British/Indian colleagues Derek F. Roberts and Surinder Singh Papiha, who had built up the human genetics department at nearby Newcastle University upon a strong program of genetic research in South Asia. Other crucial institutions, like the

---


661 See Chapter 4 in Elling, Minorities in Iran.

INBTS, continued to function (in Ala’s absence), and its British scientific officer Victor Alan Clarke was invited to resume his post there in 1981, though with a sharply reduced salary. Clarke described Farhud, his close friend, as a “workaholic” dedicated to securing the necessary funds and laboratory connections to make good on his “enthusiastic” assessment of Iran’s genetic research potential. Even as the revolution and Iran-Iraq War were raging, between 1978 and 1982, Farhud helped orchestrate sample collection and blood-group testing on over a dozen populations in Iran. Meanwhile, several of his protégés, working on their doctorates at Durham and Newcastle, carried the samples to Britain for further study.

Sunderland’s anthropology department at Durham hosted Yousuf Seyedna, who pursued a study of Iranian Zoroastrians. Like Mohagheghpour in Tehran, Seyedna was not himself Zoroastrian but relied on contacts through the Zoroastrian Association to facilitate his collection of blood samples and demographic information from Tehran, Yazd, and Kerman between 1979-1981. In addition to showing that Zoroastrians were genetically distinct from other “indigenous” (i.e. Aryan) Iranian groups, Seyedna devoted much of his dissertation to discussing the biological relationship between Iranian Zoroastrians and Indian Parsis and Iranis, even combining the three groups together to speculate on the genetic profile of the “ancestral Zoroastrians” and, by extension, the ancestors of all Iranians. Meanwhile, during the same time period, Amirshahi collected samples from eleven separate populations: Muslim Tehranis, Muslim Kermanis, Lors

663 Letter from Victor Alan Clarke to Mourant, October 29, 1981. PP/AEM/K.226, Box 37, Mourant Papers.
664 Clarke to Mourant, June 12, 1982. PP/AEM/K.226, Box 37, Mourant Papers.
665 Clarke to Mourant, August 30, 1983. PP/AEM/K.226, Box 37, Mourant Papers.
from Khorramabad, Baluchis and Zabolis from Zahedan, Zoroastrians from Yazd and Tehran, and “Turks” and Kurds from two different regions at the northwest and northeast corners of the country. According to Amirshahi, the Turks, Kurds, Tehranis and Kermanis “did not show any conclusive genetic heterogeneity” among themselves, while Zoroastrians, Baluchis, and Zabolis showed a particular “affinity to populations of the Indian subcontinent.” Overall, she argued, regardless of ethnicity, Iranian blood groups and serum proteins “all show a departure from the values found in the countries to the west and an approach to those in the Indian region.” With her senior colleague at Newcastle, Surinder Papiha, she noted that among the “ethnologically distinct” populations she had investigated along the borders of Iran, the “level of differentiation is nearly similar to the populations of north-west India […] their genetic affinity is influenced by their historical affiliation and vast geographical separation in the Iranian plateau.”

At the same time, Mohammad Taghi Akbari brought blood samples from several hitherto ignored populations to the Human Genetics department at Newcastle. In addition to “Mongoloid” Turkmens from the northeast, Akbari and Farhud had collected samples from the

---


Bandaris, the “morphologically…rather negroid” group dwelling in Hormozgan province on the Persian Gulf coastline. In Akbari’s words, “Ethnically and linguistically they represent admixture of Portuguese and Arabs with the negroes brought into the region in the 15th century.”672 He further targeted Iranian Christian communities, sampling Assyrians from three urban and rural localities, and Armenians from four. Akbari completed his work with a comparison of this selection of religious and ethnic minorities with Persians, “the predominant group in Iran[,] in racial origin they are thought to derive from admixture of the ancient inhabitants of the Iranian Plateau with Arabs and Aryans.”673 Ultimately, he determined that the frequencies of Persian blood groups, serum proteins, and enzyme variations most resembled those of Armenians and Assyrians, especially those living in Tehran, and that Turkmens and Bandaris—i.e., the non Indo-European populations—formed distant outgroups. Meanwhile, he argued that his results for the geographically separated populations of Assyrians and Armenians “indicate[d] the relatively closed nature of the Christian community as a whole but that moderate differentiation has already occurred among the local groups.”674 Overall, he concluded, “the genetic constitution of these populations reflects their ethnohistory.”675

In the early 1990s, Farhud published two reviews of Iranian blood-based genetics with Hubert Walter, his former advisor at Mainz, to detail exactly what this “ethnohistory” was and to align it with the countrywide distribution of genetic markers. Farhud sorted all existing genetic


675 Akbari et al., “Population Genetics of the Persians and Other Peoples in Iran,” 215.
data on Iran into 21 population categories, which included not only the standard religious minorities and ethnolinguistic groups, but also subdivided Shi’ite Persians according to province of origin. The authors deemed that the latter groups, which they called “‘true’ Iranians,” clustered together according to ABO frequencies, while those “ethnic groups…with a different origin and history” deviated from these frequencies.\textsuperscript{676} Patterns of enzyme variations, too, seemed to “link up” to Iran’s “ethnic structure,” in which “geographical, linguistic and religious factors apparently prevented an extensive intermixture of the entire population of Iran and thus contributed decisively to the maintenance of their genetic diversity.”\textsuperscript{677}

Like in Israel, a program of anthropological dermatoglyphics, initiated shortly before the revolution, mirrored the trends in blood-based genetic research. Farhud’s unit, including Sawhney, conducted a small study of 200 Tehrani Muslims’ fingerprints in 1978, for which Indian Parsis were the primary standard of comparison.\textsuperscript{678} However, the arrival of another Iranian physical anthropologist, Mohammad Sharif Kamali, proved more influential in driving research toward a more South Asian model of population genetics, in which “Iranian” (like “Indian”) denoted a territorial rather than a biological identity. Kamali, who earned his doctorate from the University of Pune in India, joined the Center for Iranian Anthropology in Tehran in 1979, where he finally initiated research in physical anthropology—specifically, anthropometry with an emphasis on dermatoglyphics. (The Center had long prioritized folklore studies and qualitative ethnography; see Chapter 1). Kamali’s dissertation at Pune had analyzed the


dermatoglyphics of populations living in Hormozgan province, which he divided into
“Caucasians (Aryans)” and “Negroes,” i.e. the Bandaris, which Kamali described as a fusion of
African former slaves with “native dark-skinned” people who had inhabited the area since before
the Aryan invasion. Over the ensuing decades, Kamali maintained a close relationship with his
former advisors in India, B. Vijaya Bhanu and Kailash C. Malhotra, and extensively compared
various Iranian populations to Indian ones. Early in the 1980s, he created a boilerplate
introduction of “ethnographic notes” or “ethnohistoric background,” which he would recycle
with minor revisions throughout much of his work:

The region now called Iran has throughout history been invaded by peoples of
different races, each of them has left its contribution to the gene pool of the local
populations. Most of the Iranian ethnic groups derive from Caucasian populations,
for example the Kurds and Azaris. There are religious minorities also of
Caucasian origin, such as the Zoroastrians. There are also populations of
Mongoloid origin, such as the Turkman and Kazak living in the northeast of Iran,
and others of Negroid origin in south Iran.

In the mid-1980s, Kamali worked with Fakhrai’s former research assistant Mansour Marzban to
help publish their earlier research on blood group frequencies among the Arabic- and Persian-
speaking populations of Khuzistan. The two resulting articles featured nearly-identical
introductions to Iranian ethnic history which borrowed heavily from Kamali’s other publications,
with the notable substitution of the term “Aryan” in the paper on Persians for the term

---

679 Mohammad Sharif Kamali, “Bio-Anthropology of the People of South Iran,” Indian Journal of Physical

680 See Mohammad Sharif Kamali, “Dermatoglyphics of the Caucasians of South Iran,” Iranian Journal of Public

681 Mohammad Sharif Kamali, “Simian Crease Polymorphism among Fifteen Iranian Endogamous Groups,”
Anthropologischer Anzeiger 43, no. 3 (1985): 217–18. See also the uncited use of this paragraph in Dariush

682 Mansour Marzban, Mohammad Sharif Kamali, and T. Hosseinbasi, “Blood Groups of the People of Ahwaz,
“Caucasian” used in the paper on Arabs.683

Kamali rendered his conceptualization of the variety of ethnic groups within the Iranian state most clearly in a critique of Newton Morton’s attempt to test the level of non-Jewish admixture in Jewish populations: “In my opinion, we should not use terms like ‘Iranians,’ ‘Indians,’ and ‘Arabians.’ Iranians and Indians are composed of many endogamous groups […] and the names of these groups should be used instead of these broad terms in studying and comparing populations. I wish that the authors had given the names of the Iranian, Indian, and Arabian populations used.”684 However, Kamali’s later publications confirm that his interests lay not specifically in the “many endogamous groups,” but in the biological structure of all ethnically labeled populations, whether or not they were reproductively isolated. He used dendrograms of palm-line data to visualize a sort of family tree of relationships between 13 “Iranian populations:” Arabs, Armenians, Assyrians, Azaris, Baluches, Kurds, Lors, three distinct Turkmen tribes, Talesh, Zoroastrians, and the non-Bandari “South Iranians” he had studied in Hormozgan, which he described as a non-endogamous group, “originally Indo-Europeans with both Arab and African admixture.”685 Depending on the specific traits he examined, the branching pattern of the dendrograms constantly shifted, and like the Israeli anthropologists Micle and Kobyliansky, Kamali thoroughly discussed and evaluated each configuration based on “known ethnohistory” to conclude which dermatoglyphic traits provided


acceptable results. The only consistent feature to fuse the branches together is the label of the nation-state; regardless of how the structure of ethnogenetic diversity fanned out, it was all diversity internal to the tree of “Iranian populations.”

Overall, the late-1970s methodological and discursive transformation of Iranian human genetics was not hindered by the post-revolutionary structural and ideological changes. In fact, since the Islamic Republic was slow to create any systematic policy or organization of human genetic research at the state level, the research agenda of Farhud and his network of students and collaborators dominated Iranian population genetics through the 1980s and early 90s. Largely through his own international connections to Germany and the United Kingdom and his influence in the Iranian scientific community, efforts to analyze minority groups and situate them within a national biological narrative intensified. Meanwhile, by the mid- to late 1980s, dozens of new public universities opened throughout the country, making higher education more accessible than ever before. With the conclusion of the Iran-Iraq War, the Ministry of Science, Research and Technology authorized the development of PhD programs in the sciences and opened a number of research centers, including the Tehran-based National Institute of Genetic Engineering and Biotechnology (NIGEB). Under these circumstances, a new cadre of locally trained graduate students and technicians enabled the pursuit of increasingly ambitious projects, which rapidly caught up with global developments in genetic research. Specifically, as the US-based Human Genome Diversity Project struggled to get off the ground during the mid-1990s, Iranian scientists were beginning to plan a similar project, with state funding, to document the genetic diversity of ethnic groups within Iran. Chapter 5 will examine this project in detail alongside other contemporary developments that tied the notion of Iran’s territorial integrity to the conceptual management of ethnic diversity.
Turkey: Interpreting the multi-ethnic empire

In Israel and Iran, many geneticists explained the urgency of their field studies among small ethnic groups in terms of their assumptions that such minorities, who would soon be biologically and culturally absorbed by the dominant majority, should have their divergent genetic characteristics catalogued. In contrast, Turkish researchers from Afet İnan onward regarded their detection of genetic variation across different regions of the country as troubling evidence of the “impurity” of the Turkish national population—or rather, reading between the lines, evidence of the presence of non-Turkish ethnicities with competing nationalist movements. Accordingly, most Turkish hematologists had not sought out shrinking non-Turkish minorities to catalog their distinct blood-protein characteristics, but rather analyzed Turkish blood systems through large, “random” datasets of blood donors, all the while welcoming the prospect of future nationwide genetic homogeneity. The work of Cemal Büyükyüksel epitomizes this trend; in 1979, he and a co-author published a study that essentially recapitulated his work of 1969 and 1973 (discussed in Chapter 3) and relied upon the same dataset collected from blood donors to the Istanbul Red Crescent Blood Center. Attempting to explain why ABO frequencies in different regions deviated from the national average, he and Pervin Binyıldız pointed to the distorting effect of the cosmopolitan cities of Istanbul and Izmir for the Marmara and Aegean regions, and the relative historical isolation of Mediterranean, Black Sea and Southeast Anatolian populations behind mountain ranges. “However,” they predicted, “due to the much increased speed of mass transit between all the regions in Turkey after [the establishment of] the Republic,
we believe that in the future the heterogeneity between the regions will also disappear, and increasingly the appropriate percentages will be able to reach the average for Turkey.”

Despite the eagerness for this imagined homogeneous future, within the “interim period” of their current reality, Turkish hematologists did perform targeted field studies of ethnically-defined subpopulations, and even did so with state funding—but exclusively within the context of medical research, such as Muzaffer Aksoy’s analyses of blood conditions among the Nusayri Alawites or “Eti-Turks.” Indeed, Aksoy and his students and colleagues received funding from the state agency TÜBİTAK (Turkish Science and Technology Research Council) for their surveys on both Eti-Turks and the “Greek population” living on the Turkish-owned Aegean island of İmroz (Imbros) in the late 1960s and early 1970s. As described in Chapter 3, by this point Aksoy, after years of collaboration with anthropologically-minded British scientists like Mourant and Lehmann, had already begun invoking historical factors that could explain the incidence of inherited blood diseases within the Turkish population, particularly the possibility of Ottoman-era admixture between Turks and Greeks residing on Aegean islands and/or the


Balkan peninsula.\textsuperscript{689} Nevertheless, Aksoy and his colleagues maintained an exclusionary view of Turkish identity, which emerged in their analyses of blood traits aimed at characterizing the category of “Turkish people.” For example, they found only one form of transferrin protein within all but one of 300 serum samples of “unrelated Turks” collected from the clinic of Istanbul Medical School—but since the donor of this deviant sample turned out to be “a Gypsy,” it was removed post-facto from the study, which could then make a simple claim of Turkish homogeneity in terms of this particular genetic marker.\textsuperscript{690}

More concerted efforts to analyze Turkey’s population along ethnic lines took place under circumstances of medical emergency, such as the malaria epidemic that broke out in Turkey’s Eastern Mediterranean region of Çukurova (including the provinces of Mersin, Adana, and Hatay) in 1977. With the aid of the WHO, the Turkish government mounted an intense campaign to control the epidemic, which included the widespread use of antimalarial drugs chloroquine and primaquine.\textsuperscript{691} Unsurprisingly, the campaign uncovered a demographic of citizens afflicted with G6PD deficiency, who experienced hemolytic shock upon taking such drugs. In response, a group of Turkish hematologists from Çukurova University investigated rates of G6PD deficiency among “five groups of people from 18 villages selected by the [Turkish] Malaria Eradication Organization [and] thought to represent the different population groups in the area: Arabic speaking Eti-Turks” divided into western (Adana/Mersin) and eastern (İskenderun/Antakya) groups, “ethnically unmixed Turcomen,” Armenians, and “mixed”


\textsuperscript{691} World Health Organization et al., \textit{The Long Road to Malaria Elimination in Turkey} (Geneva: World Health Organization, 2013), 40–41.
The two Eti-Turk populations were found to have considerably higher rates of G6PD deficiency than the other groups. In a curious conclusion to the study, the authors remarked, “although Eti-Turk groups from Antiochus and Adana both speak the same language, it is not known whether any blood relationship exists [between them]. Both groups differ noticeably in physiognomical appearance and social characteristics,” indicating their anthropological interest in the results. However, they offered no further speculations.

The ongoing “problem” of genetic diversity within the Turkish population, as well as the increasing visibility of ethnic separatism, seems to have influenced a small number of Turkish anthropologists to dabble in genetic anthropology during the mid- to late 1970s. However, unlike the simultaneous developments in Israel and Iran, in Turkey this amounted to a short-term revival of interest in 1930s-40s sero-anthropology rather than an embrace of any of the new approaches or techniques. These anthropologists, like their colleagues in the medical field, did not conduct any ethnic-based field surveys, although some mentioned ethnic differences as possible sources of geographic variation—acknowledging, but certainly not emphasizing or celebrating, the presence of non-ethnic Turkish citizens within the Republic’s population. The work of the anthropologists was substantially divorced from the ongoing research of physicians and hematologists like Aksoy and Büyükyüksel, although the former group made use of data generated by the latter.

The first example of this sero-anthropological revival was undertaken by the students of Istanbul University’s social anthropology and ethnology division, directed at this time by Nephan Saran, during the 1969-1970 academic year. According to Saran’s 1975 write-up for the

---


693 Ibid., 28.
university’s in-house social anthropology journal, the project involved an ABO and Rh survey of 1,421 Istanbul University students from multiple campuses; she noted that the ABO results nearly exactly matched Büyükyüksel’s 1969 data from Istanbul Red Crescent blood donors. Comparing the Istanbul students’ ABO type distribution to a table of national averages generated by Leslie Dunn and Theodosius Dobzhansky in 1952, Saran found that her student population most closely approximated that of Finland and other European countries. Yet rather than emphasizing these results as yet more proof of Turkish Europeanness—as did her sero-anthropologist predecessors in the 1930s—Saran only remarked, “Seeing as the Turks are known to have come from Central Asia, and the regions in which the B group is most prevalent are generally considered to be [in] Asia, the loss of the B group’s predominant status within Turkey is interesting. [... The ‘B’ gene] is prevalent among Asian mongoloids. But the frequency decreases in every direction outward from Central Asia.”

Effectively, the ABO and Rh surveys performed by Saran’s students in Istanbul achieved little more than a reiteration of the work by hematologists like Büyükyüksel. Meanwhile, members of Ankara University’s Language and History-Geography Faculty (DTCF) engaged in their own similar studies, used blood group data to bring up the issue of ethnic minorities in Turkey. Between 1975 and 1978, physical anthropologist Armağan Saatçioğlu analyzed ABO frequencies across Turkey, aiming to historicize geographic variation with reference to long-term population movements. In some respects, her work was more revolutionary than Saran’s: she sharply critiqued earlier sero-anthropological works for their geographically limited sampling.

---


procedures and poor statistical methods. She framed the importance of her work in the language of salvage genetics: “If any genetic variation exists, then it is important to record it while there is yet time, because increased mobility and intermixing will cause any remaining genetic heterogeneity to disappear rapidly by the beginning of the twenty-first century.” Most significantly, her study was the first in Turkish genetics research to explicitly discuss the existence of the Kurds as a distinct ethnic entity in eastern Turkey, and consider their genetic relationship to Turks as well as to Kurds living in Iraq and Iran.

On the other hand, these seemingly major departures from previous Turkish scholarship belie the fact that Saatçioğlu’s work was ultimately a conservative product of the nationalist foundations of Turkish anthropology. She had been trained, from baccalaureate to doctorate between 1961 and 1970, by the old hands leading Ankara University’s Physical Anthropology Division: Şevket Aziz Kansu and Seniha Tunakan. The Division’s research methods still leaned heavily on anthropometry and racial paleoanthropology, which formed the basis of most of Saatçioğlu’s own scholarly oeuvre. Kansu and Tunakan both retired in the early 1970s, leaving Saatçioğlu as the only physical anthropologist at Ankara University still actively engaged in research by 1975. Meanwhile, Nermin Aygen Erdentuğ—the scholar who had effectively shut the door on Turkish sero-anthropology in 1946—held the university’s chair in Ethnology. Despite, or perhaps because of, these factors, in preparation for her promotion to associate


professor, Saatçioğlu decided to produce a blood-group genetics project for submission to her promotion committee (which included Erdentuğ as well as Nephan Saran). 699

The foreword to the Turkish publication of her study, in addition to outlining her scholarly indebtedness to Kansu and Tunakan, described her work as a national advancement in Turkish population genetics: “The determination of the genetic condition of the people of Turkey, from both a historical and a biometric approach, is an unavoidable task for contemporary anthropologists. To fulfill this task and to make a contribution to the emerging ‘population genetics’ science from the perspective of our country, I set out on such a study.” She also expressed the hope that others would further her research by investigating other blood systems. 700 Her actual research methods can be best described as an awkward fusion between the blood-bank surveys produced by hematologists like Cemal Büyükyüksel and the anthropometrically-based racial histories constructed by her mentors at the Ankara DTCF. The process of data collection was facilitated by the Blood Bank at the Gülhane Military Medical Academy in Ankara, who provided information on “3881 Turkish persons” sampled in 1975. Just like many hematologists before her, Saatçioğlu sorted the donors’ birthplaces into regions, and compared the frequency averages of the pooled regional data. But her assessment of the genetic differences indicated by the blood data was preceded by a 77-page section titled “the arrival of the genes” (genlerin gelişi), actually a detailed history of racial groups migrating


700 “Türkiye halkının bugünkü gensel durumunun saptanması, hem tarihsel hem de biyometrik bir yaklaşımla saptanması günümüz antropologlar için kaçınılmaz bir görevdi. Bu görevi yerine getirme ve giderek gelişimekte olan ‘topluluk genetiği’ bilimine ülkemiz açısından bir katkıda bulunma amacı ile böyle bir araştırmaya giriştim. Yalnızca ABO genleri yönünden yapılan bu araştırmının, diğer kan sistemlerine değin verilerin toplanması ve bu tür gensel araştırmaların yürütülmesi konusunda isteklendirci bir başlangıç olacağını umudundayım.” Saatçioğlu, ABO genleri yönünden Türkiye’nin yerı ve bu ülkedeki gensel çeşitlilik üzerine biyometrik bir inceleme, iii.
through Turkey, from the first arrival of *Homo sapiens* in Turkish territory to the post-Ottoman period. The paleoanthropological research of the DTCF and European anthropometrists constituted the bulk of the evidence for Saatçioğlu’s narrative, which coincides significantly with the “race history of Turkey” that Kansu had recently published.\(^{701}\) Her discussion of the racial origins of Armenians and Kurds, leaning on the speculations of European racial anthropologists, stands out as the major distinguishing feature.

Furthermore, the majority of her blood data analysis is given over to issues of Turkish racial classification. Like the sero-anthropologists before her, as well as many of the medical hematologists, Saatçioğlu made detailed statistical comparisons of average Turkish ABO frequencies to those of various European, Asian, and Middle Eastern countries. Also like many of her predecessors, she identified Eastern and Central Europeans as genetically most similar to the Turks. Specifically, she noted that her Turkish data differed markedly not only from average East Asian frequencies, (such as those of the Japanese and Chinese) but also those of Central Asian Turkic groups sampled in the Soviet Union (such as Tatars, Kyrgyz, Kazaks, Turkmens and “Turkestanis”— *Türkistanlı*, i.e. Turkic-speakers from the former Russian Turkestan, possibly Uzbeks). She then applied her statistical modeling to compare each of these Turkic groups to the East Asian averages to determine the Turkic populations’ relationship to “the Mongol race” (*Mongol ırkı*).\(^{702}\) She decided that the Kyrgyz alone could be classified as “Mongols,” while the other Turkic groups descended from an original “white race” that had lost its distinguishing characteristics under the pressure of Mongol admixture. As for the descendants of the Oghuz Turks who now populated present-day Turkey, she suggested that they had either

---


been a “purer Turkish nation” to begin with, or had biologically differentiated from other Turkic groups since their arrival in Anatolia. On the one hand, her work echoes the 1930s Kemalist anxieties and ambivalences about the relationship between the Turks of Turkey, the Turkic peoples of Central Asia, and the “Mongol race.” On the other hand, it may also represent a more timely rebuke to the ultra right-wing Nationalist Action Party (Milliyeti Hareket Partisi, MHP), whose brand of nationalism emphasized the Turkish racial connection to Central Asia, and whose youth branches (known as ülkücüler, “idealists”) notoriously contributed to the public violence of the 1970s.

The most novel analytical section, and the only part of Saatçioğlu’s serological research published in English, experimented with the geographical divisions of Turkey. Many researchers before her, including Afet İnan and Cemal Büyükyüksel, had presented and analyzed their data according to the seven broad geographical regions of the country delineated by the First Turkish Geography Congress in 1940. Saatçioğlu intervened by subdividing the length of the Black Sea region into three parts, creating nine total regions, which she believed would provide a clearer picture of frequency variation between East and West Anatolia. Furthermore, she cross-checked those results against a slightly different scheme of geographical divisions: the eight “population regions” outlined by the State Statistical Institute in 1973. In the process, her analysis departed sharply from the sero-anthropologists of the Atatürk era, who had narrowly focused on the east-to-west increase of A-type frequencies as proof that the Turkic migrations had brought the “A allele” from Central Asia to Europe. Rather, she associated high B-type frequencies with Turkic ancestry. She therefore argued that pockets of high B-type frequency in western inland Anatolia represented the genetic effects of Tamerlane’s more recent Turkic invasion at the beginning of

---

703 “Oğuzların, daha Türkiye’ye geldikleri dönemde diğer Türk gruplarından farklılaşmış, ya da daha arı bir Türk budunu olduğu çıkarsanabilir.” Ibid., 137.
the 15th century, while attributing the low B frequencies in the eastern Black Sea region to the gene pool of the Greek Trebizond Empire.  

Saatçioğlu reserved her most remarkable comments for the region of Southeast Anatolia, which (like Western Anatolia and the Eastern Black Sea) varied conspicuously from the national frequency averages. To explain this heterogeneity, she noted state statistics that the majority of the region’s population had a “mother tongue” other than Turkish, and that “[İsmail] Beşikçi writes that they are Kurds.” The publications of Beşikçi, a leftist Turkish sociologist who abandoned his academic career to campaign for Kurdish rights, had roused the ire of both the Turkish government and much of the Turkish intellectual establishment. At the time of Saatçioğlu’s writing, Beşikçi had been arrested for the second time (of many), soon to be convicted of “undermining national feeling.” Saatçioğlu, despite distancing herself through the reference to Beşikçi, effectively accepted the Kurds’ existence as a distinct ethnolinguistic group and their likely influence on the genetic variation displayed by the population of Southeast Anatolia. For example, she pointed out the similarity between her Southeast Anatolia ABO frequencies and those that Iraqi researchers had calculated for Iraqi Kurds. However, she then emphasized the extensive genetic diversity within the Kurdish population as evidence of its historical admixture with many other regional ethnicities, mentioning Hermann Lehmann’s assertion that Iranian Kurds had probably intermixed with Turkish people. Finally, she argued that the figures for Southeast Anatolia more closely resembled those for Arabs residing in Aleppo and Baghdad, and “therefore, it should be wrong to think that the Kurds alone are

705 Ibid., 372.
responsible for the population of southeast Anatolia being one of the sources of heterogeneity in Turkey.\textsuperscript{707} Saatçioğlu’s revolutionary acknowledgment of a distinct Kurdish population thus ultimately served to undermine the potential “national feelings” of Kurds in Southeast Anatolia by highlighting their status as an admixed people, their differences with Kurds in Iraq and Iran, and even their inability to appear as an incontestable genetic bloc within Turkey.

Shortly after she completed her own work on Turkish ABO frequencies, Saatçioğlu supervised a master’s thesis by Can Şentuna which analyzed Rh frequencies. Unsurprisingly, Şentuna’s methods and interpretations borrowed heavily from his mentor, although he used an independent sample population. In 1978, he obtained Rh data on 2,096 Turkish blood donors tested over the previous four years by Ankara’s Specialized Medical Training Center and Istanbul’s Red Crescent Blood Center. Unlike Saatçioğlu, he did not analyze his data according to Turkish geography. In fact, he neglected any discussion of internal diversity within Turkey, instead simply comparing Turkish national average frequencies of Rh genotypes to those of other national and ethnic groups. In this regard, he echoed the most conservative features of Saatçioğlu’s research, namely its concern with racial classification, and Şentuna too used his results to distance Turks from the “Mongol race” and emphasize their close relationship to Central Europeans. He also repeated Saatçioğlu’s historical interpretations regarding Ottoman-era admixture between Turks, Kurds, and Arabs. However, Şentuna did not stop there, but felt the need to explain the proximity of Turkish Rh frequencies to a broad number of groups—ranging from Greeks to French, Latvians, and Hungarians—by recourse to some historical

\textsuperscript{707} Saatçioğlu, \textit{ABO genleri yönünden Türkiye’ nin yeri ve bu ülkedeki gensel çeşitlilik üzerine biyometrik bir inceleme}, 160; Saatçioğlu, “An Analysis of the ABO Gene Frequencies in Turkey,” 372.
narrative of direct gene flow between distinct national entities. This phenomenon attests to the Turkish physical anthropologists’ outdated understanding of genetics as a set of simple markers for racial classification, alongside their more familiar anthropometric methods. On the other hand, the significance of Saatçioğlu’s emphasis on internal genetic diversity—as well as her oblique acknowledgment of Kurdish and Arab populations residing within Turkey—should not be discounted, given that she worked for an institution who *raison d’être* had always been to prove the racial unity of the Turkish Republic.

The work of Saran, Saatçioğlu, and Şentuna appears to have had little immediate impact upon the methodological practices of either anthropology or human genetics in Turkey. Firstly, the anthropologists did not maintain their collaborative connections to the blood banks, but instead returned to their primary research topics and methods (for Saran, the social problems of immigrants to Istanbul; for Saatçioğlu, anthropometry and skeletal analysis). Secondly, the 1980 coup presaged a major restructuring of Turkish universities; the newly created Higher Education Council (Yükseköğretim Kurulu, or YÖK), pressured the anthropology programs at the DTCF to reorganize in 1982. Although no faculty from the anthropology division were directly purged, the experience took its toll. By October 1983, Saatçioğlu had resigned from her position at Ankara University. As the only active professor in physical anthropology, her absence effectively suspended the university’s program for years. The neoliberal economic paradigm that emerged after the 1980 coup further prolonged the downturn in physical anthropology research,

---


710 Unat and Erol, “Doç. Dr. Armağan Saatçioğlu,” 280. Nermin Erdentuğ, the division chair, retired two years later.
as the discipline’s limited marketability and career prospects in the Turkish context attracted few students to rebuild the ranks of practitioners.\textsuperscript{711}

Due to these factors, medical practitioners and blood bank directors like Aksoy and Büyükyüksel continued to dominate the field of human genetics. Neither one routinely cited historical or archaeological research as sources for the historical narratives they occasionally attached to their data. Most nationwide ABO and Rh frequency compilations produced by Turkish medical personnel in the late 1980s and beyond maintain a conservative pattern: data from hospital and blood bank donor records was compared at the national level to the averages of other nations or racial groups, then broken by region, province, or city to identify genetic variation within Turkey, without much historical speculation regarding the sources of such variation.\textsuperscript{712} On the other hand, in contrast to the physicians and hematologists, evolutionary biologists Sertaç Önde and Aykut Kence of Middle East Technical University in Ankara demonstrated a deep interest in Saatçioğlu and Şentuna’s historical approach to ABO and Rh frequency data. In 1994, they published what was essentially a recapitulation of Saatçioğlu’s work, although rather than doing any blood sampling themselves, they settled for performing principal component analyses of Büyükyüksel’s 1969 ABO and Rh data along the finer geographic breakdown of Turkey’s 67 provinces. They cited Saatçioğlu’s history of the many ancient peoples who progressively migrated through Anatolia; however, their own interpretation of the diversity emphasized natural geographic barriers and made no reference to extant ethnic

\textsuperscript{711} Erdentuğ, “The Pioneering Anthropologists of Turkey,” 42.

groups such as the Kurds.\textsuperscript{713} The only example of a targeted blood survey for anthropological rather than medical purposes was performed in the early 1990s by Mükkades Gölge, a student of the former Mainz anthropologist Hubert Walter, now posted in the Human Biology department at the University of Bremen. However, Gölge’s serum samples—drawn from patients in Aksoy’s Istanbul clinic and shipped frozen to Germany—were still sorted by four broad geographical regions of birth, rather than by ethnic or linguistic labels. In their conclusion, Walter and Gölge could only express interest in conducting future ethnic-based studies.\textsuperscript{714} Taken together, these two publications foreshadow the takeover of Turkish human genetics research by university faculty in emergent “basic sciences” departments from medical researchers in the late 1990s.

A brief return to the subject of the term “Eti-Turk” and its usage during the 1980s aptly demonstrates how the vestiges of the Kemalist-nationalist understanding of ethnicity lingering in Turkey worked at cross-purposes to the “anthropological turn” prevailing in the international sphere of human genetics. The Aksoy research group proceeded much as it had before, identifying the Eti-Turks as “Arabic-speaking” in a 1985 publication without assigning much genetic or historical significance to this factor, and without citing any works of history or sociology.\textsuperscript{715} Meanwhile, in two different collaborations between Turkish and foreign scientists, nearly opposite trends appear. A study produced in 1980 by Turkish and American medical biochemists, including Nobel Prize winner Baruch S. Blumberg, revealed that a serum protein mutation independently discovered and named in Eti-Turks and a group of Native Americans


\textsuperscript{714} Hubert Walter et al., “Genetic Serum Protein Markers (HP, GC, TF, PI) in Four Turkish Population Samples,” \textit{International Journal of Anthropology} 7, no. 4 (1992): 27–32.

was in fact the same protein, therefore suggesting a genetic relationship between the two geographically distant populations.\textsuperscript{716} The truly remarkable aspect of the study is its complete collapsing of the term “Eti-Turk,” which is used consistently throughout the article, into the migratory history of the “Turks” \textit{sensu lato}. Although the authors seem to be vaguely aware of a distinction between “the Eti Turks of southeastern Turkey” and “the general Turkish population,” there is not a single mention of ethnic or linguistic difference. Rather, a detailed historical hypothesis is elaborated which effectively suggests that Native Americans and Eti-Turks might have shared ancestry in north-central Asia.\textsuperscript{717} Put simply, the authors ascribed the established historical narrative of the \textit{Turks}, regarding their Central Asian origins and migrations to Anatolia, to the \textit{Eti-Turks}, in order to explain a molecular phenomenon that (at that point) was known to occur only in the latter group. The assumption that Eti-Turks share their biological history, either completely or substantially, with normative Turks ultimately presented a narrative of Alawite identity much more consonant with that of the Kemalist nationalists than any that appeared in studies authored by Turks alone.

Conversely, a 1986 study on the genetic origin of sickle-cell anemia in Eti-Turks by Dutch and Turkish scientists, including Aksoy, considered the ethnic, linguistic, and religious distinction between Turks and Eti-Turks in great detail:

This ethnic group speaks an Arabic dialect and their social patterns and religious sects suggest an entirely different origin. The origin of this small Arabic speaking genetic isolate […] is still a matter of speculation. Possibly they migrated to Çukurova from Syria and Egypt some centuries ago. Allwits living in Lazakia (Syria) and Tripoli (Lebanon) are considered to have the same racial background as the Eti-Turks. [paradoxically, cited here is Aksoy’s 1961 paper arguing otherwise!] On the other hand, it is possible that Eti-Turks came to Çukurova


\textsuperscript{717} Ibid., 5482.
from Khorasan (northwest Iran) during the ninth century. They were Allewits, a branch of the Shi’a Moslem sect, who first found refuge in Syria (acquiring the Arabic dialect) and moved from there to Çukurova. During the nineteenth century admixture occurred with immigrants from Egypt. […] Our conclusion that the beta-S-chromosome is of African origin would indicate that the North African admixture to the Eti-Turk population during the nineteenth century may have played a most important role. […] The origin of other genetic markers, such as blood groups, haptoglobins, transferrins, G6PD variants, appears to be Arabic.718

Here, the Eti-Turks are directly identified as Alawites, and the abundant complexities of their history and identity are acknowledged as a matter of great importance to understanding and interpreting their genetic characteristics. And while the authors argued that the particular mutation under study originated in Africa rather than Arabia, this is the first study involving Turkish scientists to use the label of Eti-Turk for this population, and yet definitively label a majority of its blood-related genetic markers as “Arabic.” This perhaps presaged the dissolving consensus around the meaning of the term in the Turkish context, as well as the confusion evident in the term’s use in international collaborations. In 1995, a group of Turkish public health researchers from Çukurova University examined rates of anemia, beta-thalassemia, and hemoglobin S in target populations defined, both by “origin” and spoken language, as Kurdish, Turkish, or Arabic. In their write-up, they expressed some skepticism toward Aksoy’s terminology in addressing the overlap of their Arabic-speaking subjects with his “so-called Eti-Turks (who are actually Arabic speaking people).”719 Nevertheless, the term “Eti-Turk” continues to appear occasionally in Anglophone scientific literature, not only in reviews of the old hemoglobin studies, but also in new DNA-based research.720 Chapter 5 will examine how


DNA phylogeny methods and increasing international collaborations led Turkish molecular biologists to reassess the Turkish relationships to Asia and Europe.

**National belonging and political violence**

In a 2014 interview, Habib Fakhrai recounted the fate of the Arab tribespeople of southwestern Iran whose blood frequencies he had studied during the 1970s: “Unfortunately, during the Iran-Iraq War [1980-88], that city was conquered by Iraqis, and they raped a bunch of women. And there goes the gene pool.” Alongside the immense human tragedy, he lamented, the unique genetic qualities of this population were now lost, having been “contaminated” by the violence of war. Fakhrai’s comments accentuate a recurring feature in the practice of human genetics research: the exploitation of study populations who are socially, economically, and politically marginalized by the states in which they reside. The living conditions and/or legal status of these research subjects leave them particularly vulnerable to violence, both in the sense of direct military threat as described by Fakhrai, and in the sense of “slow violence” wrought by the discriminatory domestic policies of nationalist regimes. This is not to say that Middle Eastern geneticists, as representatives of a politically and socially privileged professional class, were completely insulated from the effects of violence. Sarah Nevo lost her son, an IDF soldier, on the Egyptian front of the 1973 October War. Had he not escaped Iran, Fereydoun Ala faced near-certain death from the notorious Revolutionary Tribunals. Muzaffer Aksoy’s own brother Muammer, a politically active Kemalist and law professor at Ankara University, was assassinated in 1990 by a minor Islamist militant group. However, these traumatic incidents were aberrations in their lives and careers. The same cannot be said of the long-term pressures faced

---

\(^{721}\) Fakhrai interview, 2014.
by the ethnic and religious groups within Israel, Iran, and Turkey whose blood was subjected to scientific scrutiny. The geneticists’ framing and interpretation of ethnic diversity is thus inextricable from the broader questions of how nation-states attempt to control the implications of such diversity, or how social and political movements challenge state narratives about ethnicity. In this regard, the emergent genetic anthropology, despite its appeal to “the molecular point of view,” did not differ substantially from other forms of physical anthropology research.

The International Histocompatibility Workshops formally added an “anthropology” component for the eleventh workshop in 1991. For the twelfth workshop, hosted in France in 1996, Julia Bodmer’s lab at Oxford coordinated the HLA-typing of 111 ethnically defined populations in over 80 different labs around the world. As part of this process, each laboratory had to complete a set of forms requesting detailed information about each population and the procedures used to collect blood samples; investigators were asked if their samples came from “a single, well-defined population,” and if so, was this group “isolated from other populations?” In addition to each population’s ecological environment, living conditions, spoken language and known history, the forms requested references to persons with “detailed anthropological knowledge,” or at least to previous linguistic or anthropological studies, on the population concerned. The responses to these forms by the Israeli, Iranian, and Turkish researchers participating in the workshop offer an elegant summary of local developments in genetic anthropology since 1972.

The most readily apparent of these developments was the abandonment of HLA studies on non-Jewish Israeli citizens in the wake of Land Day and the Likud regimes of the 1980s, and the renewed focus on Jewish groups alone. Ephraim Gazit and Chaim Brautbar, the Israeli representatives, took a rather cavalier attitude toward the forms, leaving a majority of the queries
blank. Gazit wrote his study population’s name as “Jews, Iraqi” and clarified their geographical location as “Israel—immigrants from Iraq,” primarily from Baghdad. Remarkably, he checked the box indicating that Iraqi Jews were indeed isolated from other populations. Meanwhile, Brautbar registered four populations: “Israeli Ashkenazi Jews of Russian and Polish origin,” as well as three sets of “Israeli Non-Ashkenazi Jews” of Moroccan, Libyan, and Iranian origin, listing Batsheva Bonné-Tamir and the Bodmers themselves as “anthropological experts” on all of them. Unlike Gazit, Brautbar did not consider any of these populations to be either “well-defined” or isolates; however, under the section requesting any other relevant information on population history, demography, religion and social structure, he inscribed a single word for all four groups: “Jews.”723 Gazit and Brautbar’s emphasis on “Jew” as the operative population name demonstrates that, for Israeli geneticists, this was not simply a religious label but the lens through which the social and biological history of all of their study populations could be understood.

Behrouz Nikbin, the Iranian participant, reported data for two different populations, “Turkman” and “Iranian Caucasian,” and identified Dariush Daneshvar Farhud as his anthropological reference for both, confirming the latter’s dominance of Iranian genetic anthropology. In all other respects, Nikbin described the populations in completely different terms. The Turkmen samples came from a targeted field study, indicating both a well-defined and isolated population, and Nikbin attached four additional pages of information on the history, lifestyle, and geographical location of Turkmen tribes in Iran, as well as an abstract of previously

---

723 Forms faxed from Brautbar to Julia Bodmer, June 8 and October 5, 1994. MS Bodmer 1116, fol. 2, Bodleian Library.
724 Forms faxed from Nikbin to Julia Bodmer, February 27, 1995. MS Bodmer 1112, fol. 1, Bodleian Library.
obtained Turkmen HLA results. “Iranian Caucasians,” in contrast, were simply a random
selection of Persian-speaking blood donors to the Tehran University medical school, neither
well-defined nor isolated. Ethnic diversity in Iran had come to be acknowledged and studied, but
in a manner that continued to privilege Persians as the “default Iranian,” with other groups
treated as ethnographic curiosities.

Güher Saruhan, a Turkish immunogeneticist, found herself at a loss as to whether her
samples—blood donations from the Istanbul national blood bank and an Istanbul University
HLA disease association study—constituted a “single, well-defined population,” marking this
query “unknown.” Though she named the population and its language “Turkish,” she described
Istanbul as a “multicultural and multi-ethnic” city with an annual influx of hundreds of thousands
of migrants from the rest of Turkey.725 When Saruhan suggested adding more samples to her
study, Bodmer commented that this was only possible if the new samples came from “the same
geographic and ethnic group.” Saruhan replied, “as I have mentioned before, the population
cannot be defined very [precisely] in these terms. They originate from the same geographic area,
but the population is [only] so ‘pure’ as any population of a country can be in these days.”726 In
another fax a few months later, Saruhan confessed, “[u]nfortunately we do not know much about
our population.” On the attached forms, she could not provide a reference to any anthropologist
or anthropological literature, noting instead that “[f]or political reasons it is very difficult to
collect data about the ethnical differences in our country.”727 Her words still ring true for Turkish
geneticists of the 2010s. In fact, the fundamental patterns of conceptualizing and constraining
ethnic diversity within the national population established in the late 1970s continue to frame

725 Forms faxed from Saruhan to Julia Bodmer, November 30, 1993. MS Bodmer 1111, fol. 1, Bodleian Library.
726 Fax from Saruhan to Julia Bodmer, November 24, 1994. MS Bodmer 1111, fol. 1, Bodleian Library.
727 Fax from Saruhan to Julia Bodmer, March 2, 1995. MS Bodmer 1111, fol. 1, Bodleian Library.
Israeli and Iranian genetic research as well. As the next chapter will show, the vast technological
advances in DNA sequencing and computerized data analysis in use today have largely been
mobilized to address the same questions and serve the same basic narratives articulated 40 years
earlier.
Chapter 5: Accidents of Geography: Creating Genetic Cartographies of the Middle East, 1990s-2010s

The 1990s marked a methodological tipping point in human population genetics. Throughout the 1980s, biochemists and geneticists working across the United States developed increasingly efficient laboratory techniques to detect variations directly within DNA sequences (as opposed to indirectly through protein variations). Anticipating the widespread adoption of the DNA-based technologies, Italian geneticists Luigi Luca Cavalli-Sforza, Paolo Menozzi, and Alberto Piazza set out to inventory the geographical distribution of classical genetic markers—the protein polymorphisms and blood-type frequencies at the core of anthropological genetics since World War I. The resulting compilation, *The History and Geography of Human Genes*, debuted in 1994. Matching Mourant’s 1976 edition of *The Distribution of the Human Blood Groups* in size (over 1000 pages and weighing over six pounds), the book definitively concluded the era of classical markers even as it normalized and expanded a set of Cavalli-Sforza’s distinct interpretive practices into the emergent field of phylogeography, i.e. “genetic geography.” Even more so than in Mourant’s work, Cavalli-Sforza and his colleagues presented the book as not simply a synthetic curation of existing genetic data, but a reconstruction of “the history of human evolution,” relying on computational analyses to transform the geographical distribution of genes in living human populations into maps of “ancient human migrations.” They further offered the book as “a global picture of our species,” incorporating a “comprehensive treatment” of all archaeological, historical, and linguistic information “relevant for genetics.”

The text also provided the scientific basis for ideas that Cavalli-Sforza, already immensely influential among

---

The premise and scope of the volume required placing some arbitrary conditions onto the selection and modeling of the genetic data. After all, the “genetic geography” of any species can only be visualized in temporal snapshots, since migration and other demographic processes keep it in constant flux. As the starting point from which he reconstructed human evolutionary history, Cavalli-Sforza chose not the well-documented geographic snapshot of his contemporary world, but rather an imagined one of 500 years earlier. He decided to return to the human geography of the pre-colonial age, which he idealized as a time when the major races of the world were effectively confined to their regions of origin, with a few notable exceptions:

We restrict our interest to aboriginal populations, which we define as those already living in the area of study in AD 1492. After this time, geographic discoveries stimulated the expansion and migrations of the economically more advanced populations all over the planet. Some movement took place before AD 1492, but at a smaller scale. Ordinarily, populations that migrated after that date have mixed only partially with earlier residents and are easily recognizable on the basis of physical appearance and historical and social knowledge. They, and some populations that are highly isolated and/or have had a complex history—such as Samaritans, Jews, Gypsies, and several others—need special study and are not considered in this book.\(^{729}\)

Cavalli-Sforza’s exclusion of Jewish genetic data, so central to the compilations of Boyd and Mourant, on the basis of the Jews’ “highly isolated [and] complex history” amounts to a concession to the consensus of the Israeli geneticists with whom he worked: namely, that the distribution of major Jewish population centers across Europe and the Middle East in 1492 did not represent the “true” biogeographic origin of the Jews in the Levant. According to this view,

\(^{729}\) Ibid., 4.
the unique history of Jewish dispersal and endogamy made their migration patterns altogether
different from the rest of the human species.

Meanwhile, Cavalli-Sforza lumped together the Middle East, Afghanistan, and the
Caucasus under the geographic category of “West Asia,” whose peoples included “essentially all
extra-European Caucasoids living in Asia, other than South Asia.” Besides this racial
classification, the populations shared no uniform diagnostic criterion, be it language, religion,
birthplace, or citizenship. Attempting to wring an evolutionary history of the region out of data
gleaned from 18 populations identified by such wildly varying labels as “Bedouins,” “North
Caucasians,” “Druse,” “Armenians,” and “Hazara Tajiki,” Cavalli-Sforza doggedly assigned
mother tongues, geographical locations, and ethnic affiliations to each group. For example, while
Armenians, Assyrians, Druze, and Kurds constituted cultural-linguistic groupings dispersed
across international borders, Cavalli-Sforza noted that within the available data, Iraqis,
Jordanians, Lebanese, Iranians, and Turks could only be “defined by their country of origin”
(although Kurds and “Caspians” from Iran were considered separately from other Iranians).
Cavalli-Sforza did not clearly indicate how the boundaries of these nation-states, which had been
drawn less than a century earlier, fit into his purported geography of 1492; he inconsistently
drew on nationalist versions of ancient history, stating, for example, that “Lebanon was once the
country of the Phoenicians.” In part, his struggles stemmed from the fact that the peoples of the
Middle East seemed to be a major exception to his general argument (previously demonstrated
with European and African populations) that human genetic variations correlated with language
families, based on the principle that linguistic differences were “inherited” in a similar pattern to
genetic mutations. For example, although only the Turks out of all the 18 West Asian
populations speak an Altaic language, Cavalli-Sforza’s West Asian phylogenetic tree did not

730 Ibid., 242.
identify them as genetically distant from all the other populations, but rather as closely related to Indo-European-speaking Iranians (see Figure 1). In turn, Turks and Iranians shared more genes in common with Arabic-speaking Lebanese and Druze than with speakers of other Indo-European languages like Kurds or Armenians.

The mismatch between language families and genes in the Middle East demanded further investigation, for which Cavalli-Sforza referred to the region’s “complex history” and “great number of internal group migrations.” He devoted most of his attention to explaining the case of Turkey, arguing that the language had spread to Anatolia by an “elite dominance” process rather than via large-scale movements of Altaic speakers from Central Asia:

![Figure 1. Phylogenetic tree of “West Asian” populations, computed on the basis of classical genetic markers, created by Cavalli-Sforza, Menozzi, and Piazza, *The History and Geography of Human Genes* (1994, p. 242, figure 4.15.1). Reproduced with permission from Princeton University Press; permission conveyed through Copyright Clearance Center, Inc.](image-url)
The Turkish language was imposed on a predominantly Indo-European-speaking population (Greek being the official language of the Byzantine empire), and genetically there is very little difference between Turkey and the neighboring countries. The number of Turkish invaders was probably rather small and was genetically diluted by the large number of aborigines. Turks, a political definition, are certainly rather heterogeneous and would deserve a more detailed genetic analysis if the data were available.\textsuperscript{731}

His singling out of Turks as a “political definition” belies the fact that all of the “West Asian” populations he analyzes are the products of political, not merely physical, geography. This inconsistent treatment of Middle Eastern population categories can be attributed to Cavalli-Sforza’s long-standing research interests in the peopling of Europe, specifically the transmission of agricultural civilization and Indo-European languages to Europe through Anatolia. In the early 1970s, Cavalli-Sforza and archaeologist Albert Ammerman had proposed that the introduction of Neolithic agriculture to Europe involved not a simple transfer of technology from the Fertile Crescent (i.e. cultural diffusion), but a slow and gradual mass movement of Middle Eastern agriculturalists (i.e. demic diffusion). Most archaeologists rejected this new hypothesis, and Cavalli-Sforza turned to other sources of evidence for support, namely linguistics.\textsuperscript{732} Regarding “the origin of Indo-European languages [as] the center of the problem of the origin of Europeans,” Cavalli-Sforza presented his genetic maps of Europe in \textit{History and Geography of Human Genes} as supporting a provocative linguistic hypothesis, proposed by archaeologist Colin Renfrew in 1987, that the Indo-European language family originated in Anatolia about 9,000 years ago, spoken by Neolithic farmers who slowly migrated into Europe via the Balkans.\textsuperscript{733} Renfrew had formulated the so-called Anatolian hypothesis as a critical response to the academic

\textsuperscript{731} Ibid., 243.


\textsuperscript{733} Cavalli-Sforza, Menozzi, and Piazza, \textit{The History and Geography of Human Genes}, 264.
consensus at the time, the Kurgan or Steppe hypothesis, which held that the Pontic-Caspian steppe was the homeland of pastoral nomadic proto-Indo-European speakers (i.e., the Aryans) who invaded Europe from the northern side of the Black Sea, at a much later date and a much more rapid pace. The majority of linguists have rejected Renfrew’s hypothesis, regarding it as ideologically rather than empirically motivated, in favor of the Kurgan consensus. However, Cavalli-Sforza claimed that genetic data supported both hypotheses and argued that they were not mutually exclusive, suggesting that the Kurgan peoples were descendants of the Neolithic Anatolians. His interpretations, of course, depended on modern Turks as genetic stand-ins for these prehistoric, Indo-European speaking Anatolians.

By claiming a stake in the Indo-European linguistic debate and supporting Renfrew’s Anatolian hypothesis, Cavalli-Sforza was unwittingly mobilizing genetics against the geographical imaginaries of Turkish and Iranian nationalism. As described in previous chapters, Turkish nationalists were deeply invested in the notion that their ancestors, and the Turkish language, had migrated to Anatolia from a Central Asian homeland. Similarly, Iranian nationalists believed that their Aryan ancestors had invaded the Iranian plateau from the Caspian steppes, consonant with the Kurgan hypothesis. Although Cavalli-Sforza studied Middle Eastern genetics to address the history of Europe and broader questions about human evolution, rather than as an end in itself, his methods and hypotheses have profoundly shaped all subsequent phylogeography research on Middle Eastern populations. The basic trends of DNA-based research foreshadowed in *History and Geography*, such as the treatment of Jewish populations as outside of general human history, and the attempt to reconcile Turkish and Iranian genetic

---


history with linguistics in contradiction to local migration narratives, continue to characterize human phylogeography as of 2016.

Trees onto maps: creating genetic migration narratives

The American evolutionary geneticist John Avise coined the term “phylogeography” in 1987 to describe a rapidly growing field of evolutionary biogeography enabled by new techniques to identify variations in mitochondrial DNA (mtDNA). Put simply, the term is a fusion of “phylogeny” and “geography,” wherein phylogeny refers to the construction of evolutionary hypotheses about how individual organisms, populations, or species are ancestrally related. These hypotheses are often portrayed as tree diagrams, which visually recall family trees, generated by computer programs that assess DNA sequence variations according to assumptions about mutation rates and evolutionary processes at the molecular level. However, depending on the gene sequences used to generate the tree and the mathematical model used by different computer programs, geneticists could produce many different “family trees” for the very same individuals and populations. For example, because mtDNA is inherited solely through the mother in humans (and most other animals), phylogenetic trees based on mtDNA can only reveal maternal ancestors. The resulting tree may not match trees based on gene sequences from the Y chromosome (inherited solely by males) or other chromosomes that are subject to genetic recombination (see Figure 2). Over the course of the past two decades, in order to reconstruct the most reliable evolutionary history, geneticists have tested and re-tested their hypotheses about the same populations, making use of constant improvements in laboratory equipment and modeling software to sequence more and more genes, and now the entire genome. By aggregating these trees and projecting them onto maps of physical geography, geneticists create
historical narratives—about migration, environmental change, and other evolutionary processes—to account for the present-day distribution of genetic lineages.\textsuperscript{736}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure2.png}
\caption{Possible phylogenetic trees generated from the same group of individuals (upper tips of the diagram) may show different patterns of relationships according to the genes used to generate the tree. For example, genes passed down only by females (F), like mitochondrial DNA, may vary dramatically from those passed down only by males (M), like Y-chromosome DNA. The bottom row shows the possible genealogies of different autosomal genes, i.e. those passed down and inherited independently of sex. Image created by John C. Avise, “The History and Purview of Phylogeography” \textit{(Molecular Ecology 7, 1998, p. 373, figure 4)}. Reproduced with permission from John Wiley and Sons.}
\end{figure}

Cavalli-Sforza had long pioneered the use of computer-generated tree diagrams in population genetics, since well before he could access the necessary technology to determine DNA sequences. His early trees relied on “genetic distance” calculations based on frequencies of classical markers, that is, they measured the relative genetic similarity of different populations rather than actually tracing genealogies. Despite these methodological limitations, Cavalli-Sforza’s ambition to create an evolutionary tree that encompassed all human populations foreshadowed phylogeographic analysis in 1964 when his colleague, Anthony Edwards, projected the tree onto a world map (Figure 3). The mapped tree has no clear “root” or origin point, nor do the branches indicate movement; each human population from which the tree was created is simply linked to others according to measures of genetic, not geographic, distance.\(^\text{737}\)

Regardless, this early map is a prototype for many subsequent DNA-based maps attempting to trace the migratory history of ancient human populations, showing the geographical pathways they took to colonize the world after departing from the region of their evolutionary origins over 100,000 years ago.


However, while Cavalli-Sforza believed Asia might be the site of these evolutionary origins, in 1987 American geneticists Rebecca Cann, Mark Stoneking, and Allan Wilson published a watershed study arguing that the maternal ancestor of all living humans had lived in Africa. Using mtDNA sequences from 147 individuals categorized by five geographic regions, they built a phylogenetic tree on the principle of maximum parsimony, that is, they constructed the genealogy of all of the individuals that entailed the lowest number of mutations in the gene sequence. The resulting tree showed that all of the variations in the sequence present in Europeans, Asians, Australians, and New Guineans were a subset of the variations present in Africans. This supported the “Out of Africa” anthropological hypothesis (also known as the “recent African origin” model) that modern Homo sapiens evolved in Africa about 200,000 years ago, migrated across the world, and replaced all other archaic humans (i.e. Neanderthals and
While Cann and her colleagues faced plenty of criticism, much of it expressed in scientific terms with sexist and racist undertones, the story of an African “Mitochondrial Eve” captured the imagination of the popular press and prompted a surge of interest in genetic anthropology and human evolution.

Over the next decade, Cavalli-Sforza’s laboratory at Stanford searched for polymorphisms in Y-chromosome DNA, eventually obtaining a complementary set of patrilineal data that also supported the Out of Africa hypothesis. With African origins established to his satisfaction, Cavalli-Sforza and his fellow geneticists began constructing migration maps to trace when and how groups of modern humans had left Africa and populated the rest of the world. This work relied on the analysis of haplotypes, or sets of genes inherited together from a single parent (the mother in mtDNA, the father in Y-DNA). Sets of haplotypes sharing a common ancestral sequence were labeled as haplogroups, which—like blood types—occur at different frequencies in different populations, and haplogroups thus become associated with the geographical locations where they occur at high frequencies. Unlike blood types, however, haplotype sequences can be ordered genealogically, and allow the estimation of population divergence dates. These features give geneticists a stronger sense of the directionality and timing of human migrations, which are represented on maps with directional arrows, some accompanied by dates in terms of thousands of years before present (see Figure 4).

---


Meanwhile, to ensure that these migration maps could be refined with ever-greater precision as technologies improved, in the early 1990s Cavalli-Sforza called for a Human Genome Diversity Project (HGDP), effectively a “salvage genetics” program to collect and preserve blood and cell samples from the “aboriginal” populations he believed to be endangered. As we have seen in all of the preceding chapters, Cavalli-Sforza, like many anthropologists and geneticists dating back to the 1920s, considered isolated and “primitive” groups to be the best representatives of ancestral humans, but these same groups would imminently lose their biological distinctiveness—and the secrets of human history encoded within them—due to their adoption of modern lifestyles and integration into majority populations. The indigenous communities whose blood the HGDP sought to collect did not respond well to either this discourse about their pending extinction or the ensuing expectation that they should provide their

biological material for the sole benefit of Western scientists’ quest for the evolutionary history of “the human species”—especially when they were rhetorically excluded from the future of that species. Organized opposition from indigenous groups accordingly stymied the HGDP’s progress.\(^{741}\) In contrast, the Genographic Project (GP), launched in 2005 and in many ways the privately funded successor to the HGDP, has become much more popular. With the support of the National Geographic Society, IBM, and the Waitt Family Foundation, and the leadership of Cavalli-Sforza’s former postdoctoral fellow Spencer Wells, the GP not only samples coveted indigenous populations but also offers its DNA-sequencing services to the public. Capitalizing on the emerging genetic ancestry industry in North America and Europe through a partnership with Family Tree DNA, the GP markets sampling kits to consumers to provide them with information about their individual ancestry. The GP’s media-savvy website also casts consumers as volunteers contributing their genetic data to a “historic endeavor” to find out “where we originated and how we came to populate the earth.” Like Cavalli-Sforza, the GP claims to use DNA as a “history book” to map “the human journey” across the Earth (see the interactive map depicting “The Human Journey: Migration Routes,” featured on the Genographic Project website [http://genographic.nationalgeographic.com/human-journey, accessed April 7, 2017]).

One of the most obvious features of these maps is the total absence of political boundaries, which supports the narrative of a universally shared human history imagined to predate not only contemporary nation-states, but indeed most forms of human political activity. As Marianne Sommer notes, this notion of common human heritage and a shared “history and identity already fixed in DNA” belies the fact that DNA, like any other object, has no inherent historical or cultural meaning; rather, such meanings are always ascribed through the negotiation

and performance of identities.\textsuperscript{742} The performance of scientific professionalism and a kind of universalist humanism imparts meaning to the arrows of the “human journey,” which do not represent actual historical events wherein discrete groups of people traversed the real physical territory implied by the map. The genetic cartographies of human migration produced by Cavalli-Sforza and his Western colleagues are abstractions which recreate populations “as they were in the past,” embodying “a technology that is unconcerned by actual living people,” e.g. the people whose contribution of biological material permits the creation of these very maps.\textsuperscript{743} Those living people, by virtue of being born in specific physical location on the earth, are subject to rule by states that have shaped the possibilities for migration and marriage for several dozen generations. In their efforts to access the past of all humanity through the bodies of living peoples, scientists must overlook or ignore the more recent, state-driven processes that have shaped the biological histories of those bodies.

Inspired by the recent work of geographer David N. Livingstone and historian Marianne Sommer, I turn here to a visual analysis of genetic distribution and migration maps and phylogenetic trees, noting that these images are crucial to communicating narratives of human origins not only for the circulation of knowledge within the scientific community, but also between scientists and the public. As tools to render complex genetic information into an easily accessible form, these images “conduct ideological power;” maps, for example, “steer geographical imaginings into predetermined channels” drawn from centuries-old iconographies that associate racial difference with postdiluvian dispersals and/or the transformative effects of

\textsuperscript{742} Sommer, \textit{History within}, 305.

\textsuperscript{743} Ibid., 308.
continental climates. Meanwhile, the visual resonance of phylogenetic trees with genealogical charts has facilitated the conceptual slippage by which individual gene sequences come to stand for entire populations. Furthermore, the tree structure, with its separate and isolated branches, configures these populations—defined by geographic, racial, or ethnic labels—as discrete and cohesive entities, emphasizing their difference and historical divergence over their points of common ancestry and historical intermingling. To use Livingstone’s terms, genetic maps and trees are understood by laymen to be simple representations of “natural realities,” but in fact they “conspire in the constitution of the very entities they purport to chart” through their evocations of kinship relations, racial hierarchies, and “ethnogeographical coordinates.” Livingstone and Sommer focused their arguments on the association of the three “major races” with continental origins (African, Asian, and European/Caucasian). My concerns, of course, lie with a highly contingent geographical entity straddling all three racial and continental boundaries.

This chapter examines how the methods and imagery of DNA-based phylogeography and the Out of Africa hypothesis have reinforced or refashioned nationalist practices of geography in the Middle East, conceptualizing the region’s physical space as both a historical “crossroads” of human migration and the birthplace of distinct gene sequences and civilizations, alternately blurring and sharpening the boundaries between Europe and Asia. I observe how Middle Eastern and Western scientists draw and interpret genetic geographies, alternately representing individual research subjects’ birthplaces, the genetic similarities of populations in different locations, and speculative migration pathways of DNA haplotypes, all while selectively erasing or highlighting


state borders. Since the 1990s, nearly 60% of human genetics publications on Turkish or Iranian populations included a geographical map. These images negotiate between the idealized aims of international genetics, like the Genographic Project’s recuperation of human evolutionary history, and the reality of practicing science under the constraints of nation-state politics. For example, Cavalli-Sforza erased the state borders from his migration maps, but he chose to retain many national “political definitions” to label his phylogenetic trees and principal component plots to acknowledge his reliance on the data generated by and from modern citizens of Turkey and Iran to stand in for the biological profile of Neolithic farmers or the first human migrants out of Africa. Meanwhile, Turkish and Iranian geneticists—most of whom worked in collaboration with European and American scientists—produced genetic maps influenced both by their own nationalist traditions of cartography dating to the early 20th century and by contemporary anxieties about post-Cold War geopolitics, foregrounding the modern political borders of their respective states and emphasizing migration pathways to, not merely through, their territories.

In contrast, only about 20% of studies on Israeli Jewish populations during the same period have made use of geographical maps, with the majority of results depicted instead by phylogenetic trees or plots of principal component or coordinate analysis. Such imagery highlights the shared origins of most Jewish communities across the world, mimicking a family tree that unites Ashkenazi, Sephardi and Mizrahi Jews, while noticeably distancing certain populations believed to descend primarily from converts to Judaism, like Ethiopian and Indian Jews, from full membership. This pattern is reinforced when geneticists do use maps to illustrate Jewish migration routes or genetic frequencies, with such maps often centered tightly around the Mediterranean and portraying Jewish history as a circular pathway beginning and ending in Israeli territory. The overwhelming correspondence of these genetic maps to Zionist bio-
historical narratives has prompted criticism from a pair of dissident Israeli scientists who have challenged, amid much hostility from their colleagues, the assignation of specific genetic haplotypes to Jewish ancestry and reasserted proselytic origins for Ashkenazi Jewry.

Reimagining pan-Turkism between Central Asia and the Balkans

Pan-Turkism, the ideology that all peoples speaking a Turkic language should form a cultural and political union, first emerged during the late 19th century not in the Ottoman Empire but the Russian Empire, where the Turkic-speakers of Central Asia and the Caucasus found themselves marginalized by pan-Slavist policies and propaganda. In response, Tatar and Azerbaijani intellectuals conceived of a “Turkish race,” united by linguistic and biological origins in “Turan,” a mythical homeland in the Altay Mountain region of Central Asia. These intellectuals significantly influenced the development of Turkish nationalism in the Ottoman Empire, especially after 1912, when Ottoman geography textbooks began to include maps portraying the migration of Turkic tribes from the Altay Mountains to Anatolia.747 Although the Kemalist nationalism of the Turkish Republic discarded pan-Turkism as a political ambition to focus on consolidating a state in Anatolia, the notion of the Turkish race as a biological entity occupying much of Western and Central Asia remained a powerful and persistent image in the Turkish geographical imagination (see Figure 5).

The collapse of the Soviet Union at the beginning of the 1990s prompted speculations among Western pundits that pan-Turkic idealists might soon have their moment. Turkey now had the opportunity to strengthen political and economic ties with the diş Türkler, or “outside Turks,” in their newly independent republics in Azerbaijan and Central Asia. Indeed, a revival of pan-Turkist rhetoric did occur in the context of Turkish diplomacy. Upon visiting Kyrgyzstan in 1992, Turkish Prime Minister Süleyman Demirel announced that Turks are “a great big family;” in Kazakhstan, he reiterated the belief of Anatolian Turks that “Central Asia was the land of their forefathers.” In 1993, the Turkish Ministry of Education mandated that school textbooks must include maps of the “Turkic world” to show the distribution of Turkic-language speakers across

---

Eurasia. These full-color maps foreground the “independent Turkic states” (Turkey, Azerbaijan, Turkmenistan, Uzbekistan, Kazakhstan and Kyrgyzstan), highlighted in red. Autonomous Turkic-speaking provinces in China and the Russian Federation (e.g. Xinjiang or “East Turkistan” and Tatarstan) appear in yellow, and “non-autonomous Turkic regions” (_muhtar olmayan Türk bölgeleri_), like northern Iran and the western shores of the Black Sea, are filled in with red hatch marks.\(^749\) The 1930s Turkish racial geography was thus transmuted into a map of 1990s Turkish geopolitical ambitions.

In the same period, the question of Turkey’s accession to the European Economic Community (EEC; after 1993, the European Union) lent a new urgency to long-standing anxieties about the identification of Turks as Europeans. Turkey first applied for full membership in the EEC in 1987, and the ensuing two decades of negotiations triggered identity crises not only within Turkey, but also among European politicians and journalists. Demirel repeatedly insisted throughout the 1990s on behalf of the Turks, “we are Europeans.” Meanwhile, British journalist Peter Millar suggested that Turkey instead “look to its Mongol heritage,” echoing the shared assumptions of pan-Turkists and Western orientalists that Turks were essentially Asian. British Parliament member Lord Owen tried to couch his objections to Turkish EEC membership in less overtly racist terms, instead invoking geography: “You have to have clarity about where the boundaries of Europe are, and the boundaries of Europe are not on the Turkish-Iran border.”\(^750\)

These conflicting discourses on Turkish cultural and geographical identity prompted

\(^{749}\) See Figure 3 in Bülent Batuman, “The Shape of the Nation: Visual Production of Nationalism through Maps in Turkey,” _Political Geography_ 29, no. 4 (May 2010): 225, doi:10.1016/j.polgeo.2010.05.002.

renewed scrutiny of possible biological links between the inhabitants of Turkey, its European neighbors, and the newly independent republics of Central Asia. For Cavalli-Sforza, classical genetic markers offered a clear answer: just as the Kemalist nationalists had claimed decades earlier, the Turkish genetic profile more closely resembled that of Europe than of Asia. Furthermore, agricultural civilization and Indo-European language were indeed brought to Europe via Anatolia—although their bearers originated in East Africa, not Central Asia. In fact, Cavalli-Sforza argued, there was hardly any biological trace linking Anatolia to the rest of the “Turkic World.” Rather, the mother tongue of Anatolian Turks—the core feature of Republican Turkish national identity—had been inherited through sociocultural, rather than biological, processes: “[Turks] differ very little from all their nearest geographic neighbors […] There has been considerable dilution of Mongoloid genes in the peoples of Central Asia (Turkmen and Uzbek), and a practically complete dilution in Turkey, as far as these data show […] language replacement has occurred essentially without, or with very little, gene replacement.”

Cavalli-Sforza’s suggestion that relatively few Turkic-speakers had reached Anatolia from Central Asia demanded a dramatic revision of the geography of Turkish history long conceptualized by both Kemalist nationalism and Western orientalism. Thus unmoored from an “overemphasis on Central Asian roots,” geneticists in Turkey and abroad have spent the past two decades struggling to recharacterize Anatolia’s historical relationships to Europe and Asia.

Some population geneticists who continued to work with protein polymorphisms, including an Italian-Turkish research team, greeted Cavalli-Sforza’s hypothesis with ambivalence, emphasizing the need for more data and the possibility that “the invading Turks’

---


genetic structure resembled that of the ancient Anatolians,” in which case “whatever the number of the newcomer Turks, it would be impossible to identify the genetic traces of their admixture with the autochthonous inhabitants of Anatolia.” In contrast, a group of Catalan researchers relying on the new DNA techniques, which had closer working relationships with Cavalli-Sforza’s lab at Stanford, took his hypothesis for granted in their own work on Turkish populations. Like Cavalli-Sforza himself, these researchers investigated Anatolia to effectively search for a clear ethnolinguistic (if not civilizational) boundary to Europe, a genetic signal that could be correlated with the origins and dispersal of Europeans. In other words, their professed interest in “the genesis of the Turkish population” did not actually concern the identity of modern Turkish citizens, but rather “the possible role of Asian Turkey (Anatolia) as a genetic bridge in the expansion from western Asia toward Europe of the populations that may have been the ancestors of present-day Europeans.” With assistance from Cavalli-Sforza’s lab and hair and blood samples collected by Turkish anthropologists and physicians, the Barcelona-based geneticists compared mtDNA from Turks, “located at the south-eastern gate to Europe, [at] the [interface] between the Old Continent and Asia,” to other samples collected from Europe, India, and the Middle East. Their map of the birthplaces of Turkish and Bulgarian individuals sampled for the study reinforces this Western geographic emphasis, mainly showing the two

---


countries floating in isolation, with an inset foregrounding Turkey’s position vis-à-vis Mediterranean and Central Europe (see Figure 6). Based on simple comparisons of the frequencies of specific mtDNA alleles, or haplotypes, they characterized Turks as genetically “intermediate” between Europe and the Middle East, and supported their hypothesis that Anatolia was a “stepping-stone” during the Upper Paleolithic period “in the pathway of the colonization of Europe from the Middle East.”756 Meanwhile, their mtDNA studies on Central Asian populations similarly assumed the decoupling of the family trees of Turkic language and biology. When they did acknowledge “evidence for a small influx of female lineages from central Asia to Turkey,” they cautiously hedged its significance on the basis of gendered assumptions about the arrival of Turkic invaders to Anatolia: “it should be stressed that, in the study of mtDNA sequences, only the female lineages are taken into account, whereas processes such as invasions by nomadic peoples might have been carried out basically by male warriors.”757

756 Comas et al., “Geographic Variation in Human Mitochondrial DNA Control Region Sequence,” 1075.

Accordingly, a German research team tried to clarify the relationship between Turks and Asians “known from historical sources” by turning to DNA from the patriline—i.e., the Y chromosome—as well as expanding the mtDNA analyses, to compare Turks to Japanese, Chinese, Tibetan and Mongolian populations. They found East Asian-designated mtDNA and Y-DNA markers in about 10% of the Turks sampled from Adana, which, they argued, supported Cavalli-Sforza’s interpretation that Central Asian migrations had left little genetic trace upon a basically “European” population. Subsequent studies involving Cavalli-Sforza and his close

---

colleagues refined the precision of these results, incorporating an ever-greater number of Y-chromosome and mitochondrial loci sequenced from more individual blood samples identified with more different populations across Asia; all affirmed the “elite dominance” language-replacement hypothesis.\footnote{R. S. Wells et al., “The Eurasian Heartland: A Continental Perspective on Y-Chromosome Diversity,” \textit{Proceedings of the National Academy of Sciences} 98, no. 18 (August 28, 2001): 10244–49, doi:10.1073/pnas.171305098; Lluis Quintana-Murci et al., “Where West Meets East: The Complex mtDNA Landscape of the Southwest and Central Asian Corridor,” \textit{The American Journal of Human Genetics} 74, no. 5 (May 2004): 827–45, doi:10.1086/383236.} Above all, this research aimed to unravel the near-continuous distribution of Altaic language speakers along “the Southwest Asian corridor” between Anatolia and western China, that “Eurasian heartland” which had previously subverted scientific efforts to trace the ancestral migrations of Indo-European speakers. By assigning broad geographical categories to mtDNA and Y-DNA haplogroups, then creating maps of the distribution of these haplogroups, Cavalli-Sforza’s colleagues visualized a much lower proportion of “East Eurasian”-designated haplotypes present in the Turks of Anatolia and northwestern Iran than in the Turkic-speakers of Central Asia (see Figure 7). Having uncovered the “true” biological identity of the Anatolian Turks, by 2003, Cavalli-Sforza’s maps of world language family distribution shifted Anatolia from the Altaic to the Indo-European linguistic sphere (Figure 8).
Figure 7. Map showing a population’s proportion of mitochondrial DNA haplotypes designated as West or East Eurasian, South Asian, or African, produced by Quintana-Murci et al. (2004, p. 829, figure 1). The code letters “AN” refer to Anatolian Turks and “TI” to Turkish-speaking Iranians; both groups have a much lower proportion of “Eastern Eurasian” haplotypes than Turkic-speakers in Turkmenistan (TK) and Uzbekistan (UZ). Reprinted from The American Journal of Human Genetics 74, no. 5, Quintana-Murci et al., “Where West Meets East,” p. 827-845 copyright 2004, with permission from Elsevier.
As mentioned, the participation of Turkish scientists in these initial studies was essentially limited to the collection and shipping of hair and blood samples to Western laboratories. Once Turkish researchers took on a more defining role in analyzing and interpreting the genetic data, no clear ideological rift distinguished Turkish from non-Turkish geneticists. Some Turkish biologists chafed against the Cavalli-Sforza model of Central Asian immigration and language replacement as a one-time invasion of male Turkic warriors, arguing instead that this immigration had been gradual and consistent over centuries and involved the movement of

entire family groups. For example, Turkish researchers at the Middle East Technical University (METU) in Ankara, working with a team of Italian scientists, used an admixture algorithm to calculate the Central Asian genetic contribution to modern Turks to be about 30% for both mtDNA and Y-DNA.\textsuperscript{760} In sharp contrast to the Barcelona team, their map of sampled populations places Anatolia nearly at the center, between Central Asia and Mediterranean, rather than relegating it to a corner of the European continent (Figure 9). Another Turkish lab at Hacettepe University also emphasized the similarities between Turkish and Central Asian mitochondrial genes.\textsuperscript{761}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{map.png}
\caption{Map of populations sampled by di Benedetto et al. (2001, p. 146, figure 2) in Turkey, surrounding the cities of Izmir (IZM), Ankara (ANK), Antalya (ANT), and Van (VAN) as well as comparative samples from Europe and Central Asia (unlabeled black squares). Reproduced with permission from John Wiley and Sons.}
\end{figure}

On the other hand, some Turkish collaborators actively contributed to projects supporting the Cavalli-Sforza hypothesis and helped to reconcile the conflicting admixture estimates and historical accounts. Cengiz Cinnioglu, a doctoral student of Istanbul University’s Institute for Forensic Science, collaborated on his dissertation research with Stanford’s Human Population


Genetics Laboratory, where he then took up a postdoctoral position. Cinnioğlu became the lead author on a study of Y-chromosome haplotypes in Anatolia, which acknowledged the continuous migration but still insisted upon the “minor genetic influence of Turkic speakers” on the modern Turkish population, which they estimated at nine percent or less based on haplotype frequencies. Cinnioğlu and his colleagues suggested that Anatolia’s population at the time of the first Turkic invasions was so large (about 12 million) that the infusion of Central Asian genes was thoroughly diluted within Indo-European-speaking gene pool, again emphasizing “Anatolia’s role as a buffer between culturally and genetically distinct populations.”

Improved techniques for sequencing autosomal DNA and analyzing population admixture promised to resolve the dispute between the METU and Cinnioğlu interpretations. Ceren Caner Berkman, a PhD student at METU, sampled another few hundred Turks and tried a new admixture algorithm to calculate the relative genetic contributions of Central Asian and Balkan populations to Anatolia. Using this algorithm and autosomal genes alone, she found that her Turkish samples were essentially Balkan, with 13% of genetic variation provided by Central Asian ancestors—much more in line with Cinnioğlu’s estimate than she and her METU colleagues had expected. Unlike Cinnioğlu, however, Berkman invoked multiple factors to account for this apparent homogeneity of Anatolia and the Balkans: the ancient colonization of Anatolia from the Balkan Peninsula by Phrygians, Greeks, and Romans; the medieval janissary

---


system that brought Balkan boys to Anatolia; and perhaps most importantly, the 19th- and 20th-century nationalist movements that drove Balkan Muslims into Anatolia and sent Anatolian Christians the other way (such as the Greek-Turkish population exchanges; see Chapter 2). She and her METU coworkers thus conceded the low genetic contribution of Central Asian Turkic-speakers to the Anatolian population, but they critiqued the supporters of the Cavalli-Sforza hypothesis for their recurrent characterization of Anatolia as a one-way bridge for human migration into Europe, which in turn limited all their interpretations of Turkish genetics to a scenario of elite-dominance Altaic language replacement over an original Indo-European speaking population. By reorienting the timescale from human evolution to national history, Berkman highlighted the need for genetic anthropology to account for migrations within living memory—i.e., for the creation of “Turkey” as a biological and geographical reality—before taking its citizens as representatives of the geographical abstraction of an “Anatolia” serving as the gate, stepping-stone, pathway, interface, and buffer between Asia and Europe.

Berkman was not alone in implicating the biological effects of Turkish nationalist policies. Genetic anthropologist Ömer Gökçümen has more explicitly attacked the racist legacy of Turkish nationalism in his work as a leading investigator in the Anatolian Genetic History Project (AGHP; rendered in Turkish as Anadolu Popülasyon Tarihi Projesi). The project, an outgrowth of Gökçümen’s doctoral research in anthropology at the University of Pennsylvania, involves collaboration between physical anthropologists and geneticists at Penn and Ankara University in Turkey. In the aftermath of his fieldwork among Central Anatolian villagers between 2005 and 2008, Gökçümen and his Ankara colleague Timur Gültekin made a number of efforts at public outreach to debunk essentialist beliefs about Turkish racial identity. For example, in a 2009 article for the Turkish popular science magazine Bilim ve Teknik, they insist
that there is no biological basis for racial classification and caution against the distortion of genetic findings for racist and discriminatory rhetoric. Specifically, they argue that the DNA-based research of genetic anthropologists disproves the morphology-based racial classifications of earlier physical anthropologists, and that there are no diagnostic genes for racial or ethnic origins. At the end of the article, they present their own AGHP as fulfilling the need for “objective” (nesnel) and “non-ideological” studies of Anatolian genetic history. In a similar article aimed at Turkish academics, they expand on these themes to decry the misunderstanding of genetic research in the Turkish public sphere, namely the tendency of the Turkish media to misinterpret complex genetic findings in terms of ethnic politics and apply modern ethnic labels like “Kurdish, Turkish, and Armenian” to populations living thousands of years ago. They exhort Turkish academics, particularly anthropologists and geneticists, to take greater responsibility for helping the public to “properly understand” genetic diversity in the country and counter the “racist paradigm” (ırkçı bir paradigm) of sensationalist media coverage by contributing articles to newspapers, magazines and websites.

The peer-reviewed publications of the AGHP contain further pointed critiques of Turkish ethnic politics and its influence on academic research, including their own. For instance, out of an ethical concern for the security of their research subjects, the project chose pseudonyms not only for individuals but for whole villages: “Because of the current political sensitivities concerning ethnic–religious identity in Turkey, especially those relating to the Alevi and Kurds,

---

766 Ibid., 27–28.
the names of the specific settlements we visited are not identified.” In a careful, ethnographically- and historically-informed analysis of mitochondrial, Y-chromosome and autosomal DNA data obtained from the villagers, Gökçümen and his colleagues argued forcefully that the genetic relationships they observed could best be explained by highly regionalized and localized factors. They charged that the established methods and assumptions of Turkish genetic research, focused on characterizing Turks at the national level and linking genetic data to large-scale historical migrations, did not reflect actual citizens’ experiences of migration and family formation:

nationwide studies of Turkish genetic diversity have failed to sample in ways adequate to address specific population history questions, such as the Neolithic expansion and the Turkic invasions. […] This study has introduced a new path to look beyond simplistic geographical or linguistic groupings and view human communities in a more holistic manner to better understand their population histories. By doing so, we also hope to demonstrate a way in which researchers can reflexively present the local voices of those whose identities might be at stake, especially when the echoes of ethnocentrism are louder than any other voices in the nationalistic narrative.

The call of Gökçümen and his colleagues to “culturally contextualize” genetic research by reducing the use of sweeping national and ethnic labels indicates an interest in transforming research practices outside of Turkey, alongside their efforts to de-racialize Turkish anthropology. Their commitment to “local voices” is highlighted in their map of the sampled villages; only villages, cities, and regions are labeled, at the expense of national labels (Figure 10). On the other hand, while claiming to take up the cause of marginalized local identities against dominant ethnonational narratives, the AGHP’s initial hypothesis disputed the “self-described origins” of

---


768 Ibid., 128.
the non-Kurdish villagers they studied, who all “claimed an ancestral homeland somewhere outside of the Anatolian peninsula” from which they had emigrated relatively recently. Attributing these claims to a “rapid nationalization of identity in the last century,” the AGHP researchers expected to find genetic evidence that at least some of these villages “have been living in Anatolia for centuries and have constructed origin stories to better suit the many changes in regional and national ideological climates.” At the conclusion of the study, upon discovering that their genetic data indeed linked these villagers to self-identified homelands, the AGHP downplayed their own argument about the role of contemporary nationalism in the villagers’ origin myths.

In 2010, two geneticists at Boğaziçi University in Istanbul, Nesrin Özören and Cemalettin Bekpen, launched the Turkey Genome Project (TGP, Türkiye Genom Projesi). Over the next two years, they conducted a pilot study with the help of Turkish scientists employed in universities throughout Turkey and North America. They recruited 16 volunteers from across Turkey to

---

Figure 10. Map of the pseudonymous region (Yüksekyer) and villages (Eskiköy, Merkez, Göçmenköy and Doğuköy) in Central Anatolia studied by Gökçümen et al. (2011, p. 117, figure 1). Reproduced with permission from Ömer Gökçümen.

---

donate blood, ensuring that each individual originated from a different province and claimed at least four generations of residence in a given city. In the English-language publication of their data, the authors explicitly acknowledge what decades of earlier researchers had only implied: “individuals were included in the study irrespective of their mother-tongue/ethnicity; we refer to them collectively as ‘Turkish.’” Within their 16 samples, they found no evidence of population structure; that is, the genetic data alone did not identify any distinct subpopulations within the group (which might potentially correlate with ethnic, religious, or other social divides). The researchers attribute this phenomenon to “the well-documented high-levels of recent population mobility within this geographic region,” in line with the hypotheses of previous workers. In fact, none of the results of the whole-genome sequencing process contradicted those of earlier Turkish geneticists working with classical markers or mtDNA. The TGP team’s expressed commitment to preventing a racial interpretation of their work appears only in relatively subtle forms within their scientific publications. For example, the TGP found that patterns of Turkish genetic variation aligned most closely with European populations, along with traces of admixture with African and Asian groups (see Figure 11). However, TGP researchers are far more cautious than earlier counterparts about the historical interpretation of this data, because “the original contributing populations to the ancestral population in Turkey are not known. For instance, we do not know the exact genetic relationship between current-day East Asian populations and the Turkic speakers from Central Asia who migrated into Anatolia about 1,000 years before present.” Their political sensibilities are also evident in the Turkish title of


771 Ibid., 966.

772 Ibid., 965–66.
the project, which identifies the genome under study with the nation-state “Turkey” (Türkiye) rather than the ethnolinguistic designation “Turkish” (Türk), although this distinction is not made within their Anglophone publications.
In January 2012, the members of the TGP research team convened in Istanbul to discuss the first sequencing results; the Turkish media covered the event in live broadcasts as well as print articles. The news coverage revealed the TGP’s uphill battle to explain their work outside of the reductive terms of Turkish nationalism. Ömer Gökçümen, a collaborator on the TGP

Figure 11. Above: Map showing province-level birthplaces of individuals sampled for the Turkish Genome Project. Left: a type of phylogenetic tree predicting migration events, including a major migration from East Asia to present-day Turkey, shown as a dark orange line connecting the upper “Asian” branch (i.e. Japanese and Chinese populations) to the code letters TUR (Turkey). Alkan et al. (2014, p. 966–67, figure 1a and 2b), reproduced from *BioMed Central* under an open access Creative Commons license.
study, emphasized the deep timescale of the project, repeatedly mentioning the Out of Africa hypothesis and the Cavalli-Sforza hypothesis of Europeans’ Anatolian origins: “Actually we all come from Africa […] With this project, for the first time genomes in Turkey and the Middle East are beginning to emerge. Probably we are connected to the first branch coming out of Africa. In fact, perhaps the Europeans are migrants from the agriculturalists who lived in the territories of Turkey ten to fifteen thousand years ago.” Meanwhile Cemalettin Bekpen, when interviewed on the NTV talk-show program Bugün Yarın, attempted to avoid casting the genomic data as evidence for Turkish racial or national distinctiveness, instead describing modern Turks as the products of “cyclic” admixture between ancestral European and Anatolian populations. When pressed by the host Öğuz Haksever, “Are we Europeans, or are we Orientals?” (Avrupali mıyz, doğulu muyuz?), Bekpen replied, “It is not correct to say [such a thing]” (onu söylemek doğru değil). Trying to redirect the conversation, he referred back to Gökçümen’s presentation of the “Out of Africa” theory and further emphasized the complicated nature of genetic admixture, ultimately arguing that a reductive assignment of Turks as Europeans or Asians is impossible.

Despite the best efforts of the TGP and AGHP teams to inject some nuance into Turkish discourses of genetic identity, nationalist interpretations of such research proved stubbornly entrenched. This problem is not merely a case of “misunderstanding” on the part of the public or the mass media, but also of other Turkish biologists taking a nationalist line and thus opposing the approaches of the TGP and AGHP. For example, an assistant professor of molecular biology

---

at Bahkisir University, Osman Çataloluk, published a trade book titled *The Turk’s Genetic History (Türk’ün genetik tarihi)* at the end of 2012. Over the course of 486 pages, Çataloluk linked dozens of mtDNA and Y-DNA haplogroups to Turkish migratory history from Central Asia. He insisted that his book was a rebuttal to Turkish and foreign geneticists who had claimed that Turkey’s population was only “ten percent Turkish.” This is his own distortion of the aforementioned series of findings by Cavalli-Sforza and his colleagues, which actually suggested that the *Asian* contribution of genetic material to Turkey’s contemporary population ranges from 9% to 13%. Yet while Çataloluk openly repudiates the conclusions of their work, he bases his own claims on their data. He specifically identified the Y-chromosome haplogroup R1b as “Turkish” since it is believed to have originated in Central Asia and spread westward from there, akin to the migration pattern of Turkic-speakers from the Altay region to Anatolia. Superficially, Çataloluk’s conflation of Turkish identity with genetic sequences linked to Central Asia, as well as his frequent references to “the Turkish world,” evokes a post-Soviet pan-Turkism. However, his selection of the R1b haplogroup—which appears at its highest frequencies in Western Europe, as well as pockets of central Africa—ultimately relies on the logic of the Kemalist Turkish History Thesis.

To reconcile the present-day geographic distribution of R1b with the distribution of Turkic-speakers, Çataloluk argues, “the world’s fundamental roots come from proto-Turkish ancestors […] There is no tribe or nation in the world without Turkish blood. That is why the Turkish World (in fact we can easily call it the R[-haplogroup] world) is extremely wide and

---

diverse.”775 Through this emphasis on the R1b Y-DNA haplogroup, he circumvents the Out of Africa hypothesis and its marginalization of the Turkish role in human history. In short, the AGHP and TGP’s attempts to defeat racism and ethnocentrism in Turkey by increasing genetic literacy clashed with the contemporary foreign and cultural policy discourses demanding that Turks commit their geographical allegiance to either Europe or Asia. In this context, the Turkish media framed their coverage of genetic research as offering a resolution to this quandary through reference to a Turkish biological essence. While TGP and AGHP leaders like Bekpen and Gökçümen rejected this premise, effectively arguing that Turks were neither European nor Asian but the inhabitants of a liminal space along the evolutionary route out of Africa, Çataloluk made the more appealing claim that both Asians and Europeans were actually Turks, placing Turkey back at the center of the history of human civilization.

Iran as an “accident of geography”

In 2013, Dariush Farhud, the self-proclaimed founder of anthropological genetics in Iran, published a book he called Cultural Iran (īrān-i farhangī) for general Persian-speaking audiences. The tome is essentially a color-illustrated, chronological encyclopedia of Iranian history, archaeology, and ethnography recapitulated from the early-20th century Iranian scholarly tradition of Hassan Pirniya and Ali Akbar Dehkhoda. Although Farhud makes few references to his own work in genetics, he claims that “the divine light” (farr-i īzadī) has protected him from moral lapses throughout his career, and specifically guided him while serving on international committees for medical ethics convened by the WHO and UNESCO in the 1990s. In 2004, while working on a project regarding the cultural dimensions of applying ethics to various scientific

---

fields, he discovered the richness of ethical principles to be found within the layers of culture, history, and literature of ancient Iran, inspiring him to write on Iran’s cultural heritage.\textsuperscript{776}

Farhud’s book is distinguished by its preoccupation with maps, namely, 65 color maps of Iran illustrating the territorial domains of all those ancient civilizations, past ruling dynasties, and extant religious and ethnic groups which happen to overlap the present-day borders of Iran. The maps, all derived from the same template drawn specifically for his book, do not represent genetic maps per se, but nevertheless match the same two genres that now define Iranian genetic cartography: maps of migration routes into and out of Iran, and maps portraying static distributions of ethnic and religious groups across Iran and its neighbors.

As I am unable to secure copyright permissions from the Iranian publisher, rather than reproducing the maps here, I describe in detail the first of many examples that Farhud presents of the “Rulers of Greater Iran,” and the “Contemporary Inhabitants of Iran,” respectively: the vast empire ruled by Achaemenid king Darius I during the fifth century BCE, and the geographic distribution of Iran’s predominant ethnolinguistic group, the Persians. Farhud’s map of “The Territory of the Achaemenid Government of Darius the Great,” who ruled between 522-486 BCE, shades the named territory in purple over a template map of the Middle East and North Africa, which shows contemporary political boundaries from Morocco to Pakistan and Russia to Eritrea. Within the shaded zone, which encompasses all of present-day Iran, Mesopotamia and the Levant, Turkey and the Balkans, most of the Caucasus region, coastal Arabia and North Africa, and Central Asia up to Kyrgyzstan and Pakistan, Farhud draws arrow-tipped “paths of movement” (\textit{mūsīr-i harakat}) radiating from a point of “origin” (\textit{khwāstgāh}) at Persepolis.\textsuperscript{777}

These “paths” represent military movements (and perhaps subsequent trade), but overall the map


\textsuperscript{777} Ibid., p. 199.
generally resembles the genre of “human migration” pathways shown in Figures 4 and 5. Meanwhile, Farhud’s “ethnic distribution” map of the Persians within Iran uses the same basic template map, zoomed in for a tighter focus on Iran’s modern borders, and shades in pale blue a branching, tentacular shape that connects most of Iran’s major cities and provincial capitals, snaking around the Dasht-i Lut and Dasht-i Kavir, with the provinces making up Azerbaijan and Sistan-Balochistan left noticeably white.  

Paradoxically, while Farhud’s maps are intended to demonstrate Iran’s endurance as a civilizational entity over time, they actually highlight the arbitrariness of its current nation-state borders, featured in bold lines. No civilization or dynasty before the Pahlavi period occupied a geographic space matching that of present-day Iran, and the distributions of all the religious and ethnic communities either reside in small and apparently well-defined pockets within the country, or spill over Iran’s borders into neighboring territory. Since the 19th century, the central authorities of Iranian governments struggled to naturalize the country’s shrinking borders imposed by war or treaty, reaching for a historical narrative to unite a diverse population to rally against further territorial losses in patriotic defense of the nation. As historians Firoozeh Kashani-Sabet and Reza Zia-Ebrahimi have demonstrated, Aryan race theory played a crucial role in transforming Iran’s ethnographical and geographical identity as a cohesive unit. Aryanist nationalism lies at the root of what Zia-Ebrahimi calls an ideology of “dislocation” which aligns Iran with Europe, in vehement opposition to the Islamic, Middle Eastern or Asian identities of its immediate neighbors. As an arresting example, he offers the words of Muhammad Reza Shah, who in 1967 had granted himself the unprecedented title Aryamehr (light of the Aryans). In the 1970s, the Shah privately “confided to then British ambassador Sir Anthony Parsons that as ‘Aryans,’ Iranians were in fact members of the European family and that it was a mere “accident

778 Ibid., p. 446.
of geography” that Iran found itself in the Middle East rather than among its fellow European nations.”

In terms of consolidating Iran’s political structure as a nation-state, the “accident” of its geography went well beyond its distance from Europe. Treaties drawn with Russia, Britain, and the Ottoman Empire had divided Kurdish, Azeri, Arab, Turkmen, and Baloch ethnolinguistic communities on either side of Iran’s borders, and from the Qajar period to the present, any agitation for cultural or administrative autonomy by these groups has been treated as a threat to Iran’s “territorial integrity.” But how could this territory, with its artificial and relatively new boundaries, be defined—i.e., on what basis should it have any “integrity”? Aryanism, again, provided an answer, through the argument that the term “Iran” meant “the land of the Aryans,” a trope introduced to all Iranian schoolchildren through their textbooks since the 1920s. The arrival and settlement of the Aryans across the Iranian Plateau was the foundational event defining Iran’s current shape. Additionally, elementary students learned that all Iranians belonged to the same race—the white race—in contradistinction to the “yellow,” black, and hybrid races living in the rest of Asia. These discourses formed a basis for domesticating Iran’s human diversity, providing a historical and geographical logic to demand loyalty to the central state. To this day, school textbooks produced by the Islamic Republic of Iran include maps of human racial distribution and the pathways of Aryan migration. The remarkable persistence of Aryanism in


781 For copyright reasons I do not reproduce the maps here, but they may be viewed in the freely available textbook pdfs provided by the Iranian Ministry of Education at http://chap.sch.ir/. See, for example, the “Map of the Distribution of Races and Languages in Asia” featured in the middle school social studies textbook, Nāhid Fallāhiyān and ‘Abbās Partavī Muqaddam, Muʃāla‘āt-i ğītima’āt ī pīyāh-ī hashtum dawrah-ī avval-i mutavvasitah (Tehran: Vizārat-i āmūzish va parvarish, 2014), 115; and a map depicting “Iran in the 2nd and 3rd millenium BC”
Iranian public life and academic scholarship also manifests in Iranian geneticists’ embrace of DNA technologies and phylogeography, most prominently in the form of a localized “unity in diversity” style of discourse sharing many elements in common with that espoused by the Genographic Project’s reconstruction of the “human family.”

Since the late 1990s, Mohammad Hossein Sanati, a director at the Tehran-based National Institute for Genetic Engineering and Biotechnology, has supervised a major national undertaking variously called the “Iranian Human Genome Project” (IHGP) or “Human Genome Diversity Project of Iran” (HGDPI). A scientific council composed of consulting biologists, including Farhud, assisted with organizing and coordinating the work of individual research centers around the country. Aiming to study the numerous ethnolinguistic and recognized religious minorities of Iran, the project sampled blood from over 1,900 individuals belonging to 18 different groups during the summer of 2001. Portions of each sample were immediately tested for a range of mitochondrial, autosomal and Y-chromosomal markers; cell lines were cultivated from the remaining blood for indefinite preservation.

A summary of the project published in the Indian Journal of Human Genetics emphasized the organizers’ attention to and care for the anthropological issues inherent in the research: “Accurate identification of population units for sampling purposes requires extensive knowledge of the social, political and linguistic

---

782 For critiques of this scholarship, see Mostafa Vaziri’s watershed Iran as Imagined Nation: The Construction of National Identity (New York: Paragon House, 1993); more recently, by Zia-Ebrahimi, The Emergence of Iranian Nationalism.

783 See Chapter 15 in Sommer, History within.

composition of the region to be sampled and this stage of the study took a long time, as many as 2 years of collection of all preliminary necessary data."\(^{785}\) This emphasis demonstrates an awareness of the methodological and ethical disputes between anthropologists and geneticists that had stalled the progress of the Human Genome Diversity Project.\(^{786}\)

The description of the Iranian project’s goals and achievements opens with a statement on the diversity of “Iranian ethnicities,” which “are very different not only in their origins and languages but also in their cultures, life style and, obviously, their geographical distribution over the country.” Identifying and classifying these differences, the author Kambiz Banihashemi explains, is an important matter for national healthcare in terms of identifying genetic predispositions or resistance to disease. However, the majority of his points expound on the project’s national value in ethnohistorical terms. The genome survey had opened “enormous potentials for illuminating our understanding of Iranian ethnicities’ history and identity,” in addition to linking the work of geneticists “in an unprecedented way with that of anthropologists, archaeologists, biologists, linguists and historians, creating a unique bridge between science and the humanities in Iran for the first time.”\(^{787}\) Furthermore, he declares, the project had contributed a deeper understanding of the specific traits of “Iranian ethnicities” (he never designates any of the groups as “minorities”). In this light, the project may appear to be breaking away from a major tenet of Persian-centric Aryanist nationalism in its conceptualization of the Persian or “Fars” majority ethnicity as just one of many groups within Iran, and of the scientific value of the Iranian population stemming from the “diversity” contributed by these many non-Persian

\(^{785}\) Banihashemi, “Iranian Human Genome Project.”

\(^{786}\) See Reardon, Race to the Finish.

\(^{787}\) Banihashemi, “Iranian Human Genome Project.”
groups. However, such an interpretation overlooks the intrinsic nature of the diversity-cataloging project that makes these groups legible exclusively as “Iranian ethnicities” bound to the territory and healthcare structure of the nation-state.

Banihashemi did not directly reference Aryanism in his description of the IHGP, but there is no question that it played a major role in how Sanati and his colleagues at NIGEB understood the structure of ethnic diversity in Iran. Other NIGEB publications described the Iranian population as consisting “of several ethnic groups most of whom are of ‘Aryan origin,’” defining Aryans as “the largest ethnicity in Iran,” comprising the ethnic Persian (“Pars”) majority and “non-Persian Aryan groups such as the Gilak and the Kurds.” The other major Iranian research team working on the genetic relationships of minority groups, led by geneticist Shirin Farjadian at the Shiraz University of Medical Sciences, also relies on this pattern of relating various ethnically-defined populations to the Iranian national population through an Aryan narrative. In a series of publications surveying HLA polymorphisms in Persians and ten other Iranian minorities, Farjadian employed an introductory paragraph template which first acknowledged Iran’s ethno-linguistic and religious diversity, yet then emphasized that “most Iranians are Aryans” or the descendants of the Aryan migrants. These references to


Aryanism, gesturing to Iran as “the land of the Aryans,” create a biological and geographical linchpin that supersedes the existence of the modern state.

The case of the Azeris illuminates the functionality of this Aryan discourse for Iranian geneticists. Dariush Farhud’s map of the “Turkish peoples” (aqvām-i turk), subdivided and labeled in different colors as Khorasani, Azeri, Gagauz, Anatolian, and Crimean, show the Azeris dwelling beyond as well as inside Iran’s state borders, implying their affinity with not only the Qashqai tribes of southern Iran but also Turkic-speakers in the Caucasus, Anatolia, Iraq and even Palestine. On the other hand, Farhud does not highlight a single group in Central Asia, that vaunted homeland of the Turks, and this is no accident. In the 1920s, on the basis of dubious linguistic evidence, the Iranian Azeri historian Ahmad Kasravi argued that Azeris, despite their Turkic language, were not ethnic Turks, but actually Aryans like other Persian-speaking Iranians, who had simply adopted a Turkic dialect after the period of the Mongol invasions. Since then, other Iranian nationalist intellectuals, who feared pan-Turkist and Soviet irredentism that might dislodge the Azerbaijani provinces from Iran, readily adopted this argument and attempted to document other Azeri linguistic features to support Kasravi’s case. Farhud updates this discourse for the DNA era, mentioning that genetic studies in Turkey support the hypothesis that Azeris and Anatolian Turks are not really “racially” Turkish—that is, they have very little “Oriental” or Mongol” (zardpustān-i mughūlistān) ancestry and are mostly

---

**Footnotes:**

791 Farhud, Īrān-i farhangī, 447.


people of mixed Iranian, Caucasian, and Greek “racial” origins who experienced language replacement. The Cavalli-Sforza discourse on Turkish language replacement here dovetails with the Aryanist discourse intended to promote Iranian national identity among Azeri citizens of Iran. Farhud’s compatriots at NIGEB and Shiraz complemented his assertions with their research on autosomal DNA polymorphisms among Iranian Azeris. The NIGEB geneticists first explicitly broached the question of “Oghuz” or Aryan origins for the Azeris, favoring the latter based on polymorphism frequency similarities between Azeris, Kurds, and Gilakis. Farjadian, finding a similar Kurdish-Azeri affinity, reinforced the argument that the two groups “belong to a common genetic pool” with a map of “the geographic location of Turks and Kurds” (Figure 12). Unlike Farhud’s map, hers ignored the existence of Azeris and Kurds outside of Iran, showing only their presence within specific Iranian provinces to emphasize their purported indigeneity to Iranian territory. Subsequent studies of mtDNA and Y-DNA by Iranian geneticists have followed the lead of NIGEB and Farjadian, arguing that close genetic similarities between Azeris and other Iranian ethnicities is evidence of shared Aryan ancestry.

794 Farhud, Īrān-i farhangī, 357.


796 Farjadian and Ghaderi, “HLA Class II Similarities in Iranian Kurds and Azeris,” 457–58.

Meanwhile, in terms of challenging nationalist dogma with hypotheses on language replacement, Cavalli-Sforza’s disciples cast Iran into nearly the same position as Turkey. On the basis of Y-DNA haplotypes, Stephen Wells questioned the relationship between the Persian language and “Indo-Iranian” (i.e. Aryan) ancestry so fundamental to Iranian nationalism, going so far as to suggest that Iran, like Turkey, experienced elite-dominance language replacement wherein “the pre-Indo-European population of Iran—effectively an eastern extension of the great civilizations of Mesopotamia—may have reached sufficient population densities to have
swamped any genetic contribution from a small number of immigrating Indo-Iranians.” On the other hand, mitochondrial DNA indicated a “striking degree of homogeneity” between Iranian samples collected from Persians, Kurds, Lurs, Mazandaranis and Gilakis, suggesting “either a common origin of modern Iranian populations and/or extensive levels of gene flow amongst them,” a suggestion that well suits Iranian nationalists’ claims for an essential unity underlying the linguistic and cultural diversity of Iran.

Iran and Turkey were also pushed into similar roles within the emerging Out of Africa migratory discourse, namely, as rest stops between continents rather than major centers of gravity for human civilization. While Anatolia/Turkey served as the “gateway to Europe,” American geneticists described Iran as a “tricontinental nexus,” a “bidirectional gateway” whose living inhabitants carry “signature lineages with origins in Asia, Africa, and Europe.” Figure 13 shows the maps of Y-chromosome haplotypes used to visualize this “nexus,” which lacked state borders and geographical features. Yet at the same time that they portrayed Iran as a crossroads for far-flung DNA sequences, and in contrast to earlier studies, they noted haplotype frequency variations between Iranian mtDNA and Y-DNA samples collected from the northern and the southern regions of the country (defined only with reference to the Dasht-e Kavir desert), and suggested that Iran’s deserts and mountains had acted as geographic barriers hindering gene flow between Iranian populations. Rather than showing the location of these crucial geographic features on the maps, they allowed the pie charts of haplotype frequencies, and the genetic

---


differences they revealed, to stand in for their argument.  

**Figure 13.** Distribution of Y-DNA haplogroup frequencies across the “tricontinental nexus,” by Regueiro et al., “Iran” (2006, p. 136, figure 2). NI = Northern Iranians; SI = Southern Iranians. Copyright © 2006 Karger Publishers, Basel, Switzerland; reproduced with permission from Karger Publishers (conveyed by Copyright Clearance Center, Inc.).

For their part, Iranian geneticists working on autosomal DNA collaboration with Western scientists embraced their colleagues’ rhetoric about Iran’s “geo-strategic location” for studies of human evolution, but consistently emphasized an ethnic breakdown of data (as opposed to “Northern and Southern Iranians”) and more recent and localized migrations into and out of Iranian territory, rather than simply through it. An ideal image of these shifted interpretive priorities appears in a collaborative publication by Shirin Farjadian with European researchers,

---


which juxtaposes a map of Iran on the migratory pathway from Africa to Asia, next to a map partitioning Iran by ethnic group and displaying haplotype frequencies of the tested autosomal gene accordingly (Figure 14). In this study, the authors explained the genetic heterogeneity among Iranian populations as arising not only from geographic factors, but also from “ethnic and religio[us] barriers.”

---

Figure 14. Top: Model of “Out of Africa” migration showing Iran’s “key location” between Africa, Asia and Europe. Bottom: distribution of ethnic groups and TLR4 haplotypes in Iran. Ioana et al. (2012, p. 495, figure 1), reproduced with permission from Sage Publications.
The NIGEB biologists took a similar approach to analyzing the geographic distribution of different alleles responsible for the hereditary blood disease beta-thalassemia. They thoroughly adopted the Eurocentric discourse of phylogeography, opening with a discussion about Iran’s “strategical position” as “a crossroad between the west and the eastern civilizations,” and closing with a reference to Iran as “the gate of Asia.” However, as Figure 15 shows, their primary interests lay in tracking how specific mutations arrived in Iranian territory. Their map is tightly focused on Iran, showing its present-day administrative divisions, and every arrow traces a migration path that ends within Iran without passing through. The authors methodically analyze each region of the country, explaining the source of the most prevalent mutations in each area as a product of its ethnic makeup and migratory processes occurring no earlier than 1200 CE and mostly around 100-200 years ago—a breathtakingly recent timescale in contrast to the evolutionary one invoked by the American researchers working with Iranian mtDNA and Y-DNA, who were concerned with migrations occurring at least 3,000 years before present. The NIGEB geneticists concluded by commenting that all of the genetic variation “has been derived originally from a population with an ethnic Aryan background.”

804 Rezaee et al., “Beta-Thalassemia in Iran,” 1, 6.
805 Ibid., 6.
To address the evolutionary timescale, in collaboration with European geneticists, the Shiraz and NIGEB research teams produced a new dataset of mtDNA and Y-DNA sequences from a dozen Iranian ethnic and religious groups. Their new analyses emphasized the many haplotypes that had originated and spread from within Iranian territory, whose living populations—despite their great cultural and genetic diversity—retained “an autochthonous nonhomogeneous ancient Y-chromosome gene pool, […] further shaped and enriched by the

**Figure 15.** Distribution pattern of beta-thalassemia mutations in the Iranian provinces, with arrows showing hypothesized directions of human migration and gene flow, by Rezae et al. (2012, p. 4, figure 1). Reproduced from *The Scientific World* under an open access Creative Commons license.
arrival of different populations during and after the Neolithic period.” They further suggested that some mtDNA haplotypes should be reclassified as “Southwest Asian” rather than “South Asian” to reflect their prominence and diversification in the Iranian population. In short, their accounts cast Iran as a major source of, not merely a conduit for, new genetic material that expanded in both directions across Eurasia after the Out of Africa migrations. Furthermore, they took both mtDNA and Y-DNA evidence to reinforce the shared origins of Indo-European and Turkic-speaking ethnicities, with Farjadian and her Russian coworkers identifying “a common maternal ancestral gene pool” for Persians and Qashqais. The publication on Y-DNA by a NIGEB-Italian collaboration most clearly expresses the confluence between Iranian nationalist narratives and the Turkish language-replacement hypothesis in its description of the Azeris: “The Azari people likely derive from ancient Iranic tribes […] Azari was the dominant language […] spoken in most of Azerbaijan at least up to the 17th century, with the number of speakers decreasing since the 11th century due to the Turkification of the area. […] Today, the Azari language is completely replaced by Turkish or Azeri language.” Accordingly, within their analysis of genetic variance according to geographic, linguistic, ethnic, and religious factors, the authors categorized Azeri samples as linguistically “Iranian” instead of “Altaic.”

The application of the “unity in diversity” discourse to Iranian genetic research faces a particular challenge when it comes to religious minorities. Other than Zoroastrianism, all religions in Iran are associated with foreign invasions or migrations and therefore conflated with

---


807 Derenko et al., “Complete Mitochondrial DNA Diversity in Iranians,” 11.

808 Ibid.

809 Grugni et al., “Ancient Migratory Events in the Middle East,” 2.
ethnicity and language (e.g., the Arab invasions that brought Islam to Iran). Yet in contrast to the
dynamic map in Figure 16, which highlights localized migrations associated with ethnicity,
religious minorities tend to be represented as fixed and self-contained quantities whose arrival in
Iran did not contribute to the gene pool of the majoritarian population. For example, Farhud’s
map of Armenian Christians displays Armenians residing neatly within the boundaries of
present-day Armenia and in patches surrounding major Iranian urban centers.\textsuperscript{810} Although he
acknowledges that Armenians were forcibly brought to Iran by the Safavids and dispersed to
Iranian cities since that time, Farhud emphasizes a deeper and longer-term connection between
Persians and Armenians, calling them “Christians of Aryan ancestry” (\textit{āryāyī-tabār}), as opposed
to the “Semitic ancestry” of the Assyrians.\textsuperscript{811} Similarly, NIGEB geneticists comparing Y-
chromosome haplotype frequencies between Iranian Muslims and religious minorities explained,
“Since antiquity, there has always been much interaction between ancient Armenia and Persia
(Iran). […] They shared many religious and cultural characteristics and inter-marriage among
Iranian and Armenian nobility was common. Armenia’s conversion to Christianity in 301 and
Persian conversion to Islam in the 7th century alienated them from each other.”\textsuperscript{812} On the other
hand, they reiterated the long-standing view that “the Zoroastrians of Iran are not just a minority;
they are the indigenous people of the country.” These descriptions, like Farhud’s maps, echo the
major tropes of Iranian nationalism that appropriate Zoroastrianism while representing Christian
and Jewish denominations as foreign bodies within Iran, socially and biologically sealed off by
religious endogamy. Their projection of the haplotype frequency results onto an Iranian map
seems to reflect their expectations of where similarities would lie, namely, that Zoroastrians

\textsuperscript{810} Farhud, \textit{Irān-i farhangī}, 462.
\textsuperscript{811} Ibid., 426.
\textsuperscript{812} Zahra Lashgary et al., “Y Chromosome Diversity among the Iranian Religious Groups: A Reservoir of Genetic
would most resemble the Muslims of Shiraz and Kerman (Figure 16). Only when the Armenian Y-DNA profile turned out to resemble all the Iranian Muslim groups more than that of Zoroastrians did the geneticists suggest that, through conversions to Islam, gene flow between Armenians and Persian Muslims had actually continued throughout recent history whereas the more isolated Zoroastrians had undergone a greater degree of genetic drift.

**Figure 16.** Distribution of religious minorities and Y haplogroup frequencies, Lashgary et al. (2011, p. 366, figure 1). Reprinted by permission of Taylor & Francis Ltd. (http://www.tandfonline.com)
Of course, as the past chapters have shown, not only Iranians overestimated the strength and significance of particular religious barriers to gene flow. The entire premise of Jewish genetics relies on the notion that religious endogamy has preserved a distinct ancient gene pool. But whereas Iranian nationalists deployed Aryanism as a biological and geographical discourse to root a mosaic of ethno-linguistic diversity within a single territory, Zionism could not so easily accommodate the diversity of the Jewish people, which had been acquired outside of the idealized Israeli homeland. Furthermore, while Iran and Turkey had garnered much attention from Western geneticists as key locations on the Out of Africa migration pathway, the Diasporic history of the Jews made them the subjects of a wholly different phylogeographic narrative, set firmly apart from the migratory pathways and processes of admixture established for the rest of humanity.

*Rerouting Jewish roots and disputing Diaspora geography*

Throughout the twentieth century, the extraordinary interest in using Jewish populations as a model for human genetic research was predicated on an understanding that the Jews had avoided the degree of admixture that complicated efforts to reconstruct general human evolutionary history through classical markers. The empirical reality of Jewish ethnic diversity in Israel was glossed over by the assumptions of Israeli and other geneticists alike that all Jews were united by a biological continuity, enforced by religious endogamy and the difficulty of converting to Judaism, that rooted them to Levantine territory rather than to any of the numerous countries they had more recently called home. Cavalli-Sforza, for example, readily accepted that proselytism was not a significant problem for tracing Jewish genetic history: “Religions that do not proselytize […]”, like the Jewish religion, are more likely to be transmitted with genes. It is
therefore not surprising that Jews have maintained considerable genetic similarity among themselves and with people from the Middle East, with whom they have common origins.⁸¹³

Even in the era of genome sequencing and the emergence of algorithms to parse historical admixture at ever-finer levels, these core assumptions about Jewish history remain firm.

The visual representation of these assumptions, as with many other practices of Jewish genetics, has been strongly influenced by the work of Chaim Sheba. Well before it became common to present genetic data in the form of phylogenetic trees, he created a schematic of the dispersal of Jewish communities from the “shared gene pool” (ma’agar genim meshutaf) of ancient Israel, which he debuted in a 1968 article for the Israeli popular science magazine Mada.⁸¹⁴ In 1970, he translated an updated version of the tree-style diagram into English for publication in the British medical journal The Lancet (Figure 17).⁸¹⁵

---

⁸¹³ Cavalli-Sforza, Menozzi, and Piazza, The History and Geography of Human Genes, 381.


By rooting the tree in biblical Israel, Sheba canonized specific Diasporic pathways around the Mediterranean and Europe as the migration routes of ethnic Israelites, while Jewish populations who deviated from this geography were designated as admixed populations including various numbers of converts to Judaism, purportedly justified by genetic results. Yemenites are tainted by “Arab tribes,” the Cochin Jews of India are linked to the tree only by a dotted line indicating their dubious ancestral connection to the original Israelite “family,” and Ethiopian Jews are not included at all. Although Sheba’s schematic had neither the statistical rigor of a phylogenetic tree nor the spatial arrangement of a geographical map, it effectively stood in for both, and the partial or full exclusion of populations like the Indian and Ethiopian Jews was echoed in subsequent representations of Jewish populations in genetic trees and maps. For example, Batsheva Bonné-Tamir suggested reprinting Figure 17 in the 1978 HLA study of Israeli populations, but it was
never used. In 1997, Israeli medical geneticists used a simplified version of Sheba’s schematic, with an additional biblical reference to “the Patriarchs,” to illustrate a hypothesis about the origin times of particular genetic mutations (Figure 18). Notably, the new diagram includes Palestinian Arabs, representing the authors’ “specul[ation] that gene flow has been responsible for the transfer of type II mutation from Middle Eastern Jews to Palestinian Arabs after the settlement of Arabs in Israel in the Seventh century AD.”

Figure 18. Scheme showing hypothesized relative origin times of type II and type III DNA mutations for an inherited blood disorder among Ashkenazi Jews, positing shared Middle Eastern origins with other Jews. Peretz et al. (1997, p. 2658, figure 4). Reproduced with permission from the American Society of Hematology.

---

816 Undated draft by Batsheva Bonné-Tamir [winter 1976-77?], MS Bodmer 1895, fol. 1, Bodleian Library.

This insistence that Palestinian Arabs are not autochthonous to the territory of present-day Israel, but are rather migrants from the Arabian Peninsula, invokes both a common Zionist trope to delegitimize the claims of Palestinian nationalism and the most tortured question of Jewish genetic geography: which living population best represents the indigenous genetic landscape of Israel/Palestine? In the era of classical markers, the initial efforts to reconstruct the gene pool of the ancient Israelites for the admixture studies described in Chapter 4 simply averaged together gene frequencies from all or a selection of Jewish populations, assuming that this amalgamation could approximate the range of genetic variation among the ancient Judeans. Subsequently, however, Israeli and European geneticists increasingly turned to Levantine Arabs, and particularly Palestinians, as the genetic model to “prove” the shared Middle Eastern ancestry of the Jews. In the 1980s and early 90s, Israeli mtDNA studies included Palestinians (glossed as “Israeli Arabs”) alongside Jews from various communities, but with very little explanation as to the significance of this choice or its relevance to the analysis.\(^{818}\) For example, the authors who created the phylogenetic tree in Figure 19 made no comment about the apparently closer relationship of the Iraqi and Turkish Jews to Palestinian Arabs as opposed to the other Jewish groups in their sample. Instead, they focused on the outgroup position of the Ethiopians and described the tree as evidence that the Ethiopian Jews were the descendants of African converts to Judaism rather than Jewish migrants from the Levant.\(^{819}\)


The breakthrough claim of incontrovertible proof for Jewish Middle Eastern ancestry arrived with studies of the Y chromosome. In the late 1990s, a group of Israeli, British, and American geneticists searched the Y-DNA of Jewish men claiming to belong to the priestly lineage of the Cohanim, a patrilineally inherited status, and announced their discovery of a single haplotype present in over 60% of both Ashkenazi and Sephardi Cohanim and about 13%-14% of other Jewish men.820 Dubbed the Cohen modal haplotype (CMH), this DNA sequence was trumpeted as a reference point to test “the relationship between specific contemporary

communities and the ancient Hebrew population." The Middle Eastern component emerged a few years later, when a similarly international team led by Michael Hammer at the University of Arizona produced an extremely influential map—though not a geographical one. With a method known as principal coordinate analysis or multidimensional scaling, Hammer plotted the genetic distance between Y-DNA haplotypes of 29 Jewish and non-Jewish populations (Figure 20). He and his colleagues concluded that “the extremely close affinity of Jewish and non-Jewish Middle Eastern populations observed here supports the hypothesis of a common Middle Eastern origin. Of the Middle Eastern populations included in this study, only the Syrian and Palestinian samples mapped within the central cluster of Jewish populations.” The measured statements of the peer-reviewed publication devolved in the ensuing media circus; headlines in major Anglophone newspapers trumpeted “Jews and Arabs united by genes,” “Mideast rivals have common ancestors,” “Brothers under the skin,” and “Jews, Arabs can’t fight genetics.” One of Hammer’s American co-authors, Harry Ostrer, fed the sensationalism by declaring “Jews and Arabs are all really children of Abraham and all have preserved their Middle Eastern genetic roots over 4,000 years.” Hammer’s genetic distance map was also reproduced in introductory

---

college textbooks, including one I used myself at UC Berkeley in 2006.\textsuperscript{824}

\textbf{Figure 20.} Multidimensional scaling (MDS) plot, also known as principal coordinate analysis, used to create a coordinate map of relative genetic distances between populations. Black triangles indicate Jewish populations (including Ashkenazi, Roman, Kurdish, North African, Yemenite, Near Eastern i.e Iraqi and Iranian, and Ethiopian), black squares non-Jewish Middle Eastern populations (including Palestinians, Lebanese, Syrians, Druze, and Saudi Arabians), and white circles all others. Hammer et al. (2000, p. 6772, figure 2), copyright (2000) National Academy of Sciences, USA. Reproduced with permission from the National Academy of Sciences.

Hammer’s findings were largely supported by an independent research team headed by Israeli geneticist Almut Nebel, who articulated more strongly than Hammer that Palestinian Arabs and Jews descended from a common ancestral population.\(^{825}\) However, when the team sought to situate Jewish Y-DNA haplotypes among the “genetic landscape” of the broader Middle East, they were surprised to find that Jews now appeared to lie closer to Muslim Kurds and Turks on a phylogenetic tree than they did to Arabs (Figure 21). Nebel and his colleagues explained their results as the product of an antique “Fertile Crescent” population, a “common genetic Middle Eastern background [which] predates the ethnogenesis in the region.”\(^{826}\) Alongside these findings, they added a geographical map to show the distribution of the most important haplogroups in their analysis (Figure 22). Although the authors do not explicitly narrate the map’s significance, the visual effect reinforces the appearance of similarity and relationship between Jews and Levantine Arabs, in direct contrast to the article’s actual evolutionary conclusions.


Figure 21. Unrooted phylogenetic tree (neighbor-joining method) of nine Y-chromosome polymorphisms, showing relationships between Jewish, European and Middle Eastern populations. Nebel et al. (2001, p. 1101, figure 4). Reproduced with permission from Elsevier.
Phylogenetic trees, as well as genetic distance plots like Hammer’s, have been the most prominent visual features of Jewish genetics publications, at the expense of the migration maps so fundamental to the era of Out of Africa phylogeography. The overwhelming majority of geographic imagery used by Israeli geneticists since the 1950s has consisted of sampling maps—i.e., maps showing the birthplaces of individuals sampled for a particular study—which often focused closely on a single country or region (e.g., Libya, Ethiopia, Kurdistan). When migration maps of Jewish populations do appear, they have not been reconstructed on the basis of genetic evidence, but rather from demographic statistics or, like Sheba’s family tree, impressionistically portray contemporary historical narratives. For example, after the authors of the Israeli-British

**Figure 22.** Geographical distribution of Y-chromosome haplogroups used in the tree above, Nebel et al. (2001, p. 1104, figure 6). Populations are identified as: 1 = Sardinians; 2 = central-northern Italians; 3 = Calabrians; 4 = Greeks; 5 = Macedonians; 6 = Ukrainians; 7 = Turks; 8 = Lebanese; 9 = Jews; 10 = Syrians; 11 = Palestinian Arabs; 12 = Georgians; and 13 = Muslim Kurds. Reproduced with permission from Elsevier.
HLA study discarded Sheba’s schematic for use in their 1978 publication, they adapted a map from the *Jewish History Atlas* to represent the migrations to Israel of the seven Jewish populations in the study (Figure 23). A few years later, Eugene Kobyliansky and his fellow Israeli genetic anthropologists used a very similar map in their assessment of the genetic relationships of “Jewish populations of the world,” which added percentages to indicate the relative demographic significance of each migratory pathway to the contemporary Israeli population (Figure 24). Although these maps only show one direction of migration, captions describing the movement as a “return to Israel” and the curvature of the lines allude to a closed circle of travel, reflecting the Zionist idealization of Israel as the origin point and final destination of the Jewish people.


Figure 23. “The return to Israel of Jewish migrant populations included in this study,” Bonné-Tamir et al. (1978, p. 236, figure 1). Note that while Armenia is labeled on the map, there is no distinct arrow to trace Armenian migration to the Levant. Reproduced with permission from John Wiley and Sons.
This idealism is somewhat obscured in the map of “Jewish population history” that Harry Ostrer created for a review of Jewish genetics research published in 2001. As seen in Figure 25, Ostrer juxtaposed an inset map showing Jewish dispersal from Israel across the Mediterranean with a larger map of 19th and 20th century Jewish migration, which highlights not only the “return” of several of these populations to Israel, but also their relocation to the Americas, Western Europe, Australia and South Africa. Most striking is his inclusion of the Lemba, the “Black Jews” of South Africa, in the dispersal map inset. The Lemba tribe claims descent from Jews who migrated south from the Mediterranean and maintains certain cultural practices, such as circumcision and food taboos, which resemble facets of Judaism. Unlike Ethiopian or Indian Jews, the Lemba are not recognized as Jewish either by most rabbinical Jewish authorities, or by Israeli immigration and citizenship law. However, a small proportion of males in the Lemba
community carry the Cohen model haplotype, which, Ostrer argues, validates the Lemba’s oral tradition of Jewish ancestry.\(^{829}\) Meanwhile, he drew no lines of migration between Israel and the Jewish communities of Ethiopia or India, because their Y-DNA and classical markers revealed “that these groups might have had significant admixture or that the presence of Jewish groups in these regions resulted from the religious conversion of local people.”\(^{830}\) Although Ostrer claims “Jewishness is not determined by genetics,”\(^{831}\) his privileging of the Lemba’s CMH frequency in the dispersal map over the Ethiopian and Indian Jews—which have equally compelling oral traditions or historical documentation of their Jewish origins—seems to indicate otherwise.

---


\(^{831}\) Ibid., 897.
Avshalom Zoossmann-Diskin, an Israeli geneticist who earned his PhD under the supervision of Batsheva Bonné-Tamir, has frequently expressed his concern (within his dissertation and publications in biology journals) about this apparent fetishization of Jewish genetic ancestry and its implicit devaluation of historical and present-day converts to Judaism.\(^{832}\)

---

\(^{832}\) Avshalom Zoossmann-Diskin, “Tracing the Roots and Unfolding the Ethno-Historical Relationships of Jewish Communities by Means of DNA and Protein Electrophoretic Markers” (PhD dissertation, Tel-Aviv University, 1997).
For example, he harshly critiqued the concept of the CMH as the “signature haplotype for the ancient Hebrew population” or as a marker of Jewish ancestry, accusing the authors of poor scientific practice in defining the populations, manipulating samples, and committing an array of computational errors. However, this and subsequent critiques gained little traction. As Nadia Abu El-Haj has documented, the CMH and subsequent Jewish Y-DNA research produced by the same circle of American and Israeli geneticists were met with nearly “unconditional acceptance” by the public, despite the significant limitations of the original CMH studies. To circumvent a growing body of evidence that the Y-DNA sequence originally identified as the CMH was actually a haplotype widely shared by non-Jews and hardly the vaunted proof of ancient Hebrew ancestry that supported the Lemba tribe’s oral history, Hammer and his colleagues performed a new study in 2009 defining an “extended CMH” limited more exclusively to Cohanim. Furthermore, whereas a decade earlier “the few binary markers known at the time did not provide the phylogenetic resolution needed to infer the geographic origin of the CMH lineage,” the new study confirmed “a common origin of the CMH in the Near East well before the dispersion of the Jewish people into separate communities.”


the evidence for this geographic origin in a map of the distribution of haplotypes closely related to the CMH, which appear at high frequencies in the Levant and Arabian Peninsula (Figure 26).

![Figure 26. Map showing the distribution of frequencies of the Y-DNA haplogroup J-P58, i.e. the group of related haplotypes including the “Cohen model haplotype” (CMH), as the black fraction of the circles. Hammer et al., “Extended Y Chromosome Haplotypes Resolve Multiple and Unique Lineages of the Jewish Priesthood,” Human Genetics 126, no. 5 (2009, p. 716, figure 4). Reproduced with permission of Springer.](image)

Mitochondrial DNA did not provide such an easy geographical consensus. Mark Thomas, one of the British geneticists who had participated in the original CMH research, led a team of
researchers who suggested that most of the “founding mothers” of Jewish communities in the Diaspora had actually been local converts to Judaism rather than dispersed women from Judaea.\(^{837}\) These results were quickly disputed by Haifa-based geneticists Karl Skorecki and Doron Behar, who produced a series of studies to re-affirm the origin of the Jewish matriline, especially that of the Ashkenazim, in the Middle East.\(^{838}\) As shown in Chapter 4, the special anxiety over Ashkenazi origins dates back to the furor over the Khazar hypothesis in the 1970s, and the evident political motivations of the Ashkenazi autosomal and mtDNA research drove both Avshalom Zoossmann-Diskin and another Israeli geneticist, Eran Elhaik, to reinterpret the data collected by Behar, Skorecki, Hammer, Ostrer, and the rest of the “clique” of established researchers in Jewish genetics.\(^{839}\) Zoossmann-Diskin first reanalyzed data on European and Middle Eastern Jewish and non-Jewish populations to claim that Ashkenazim were more closely related to non-Jewish Europeans, especially Italians, rather than others, and therefore likely descended from Roman converts to Judaism in the first millennium CE.\(^{840}\) Like Zoossmann-Diskin’s past critiques, this study was largely ignored. In contrast, Eran Elhaik’s comparison of the Rhineland and Khazar hypotheses of Ashkenazi origins, which argued in favor of the latter due to “results [which] portray the European Jewish genome as a mosaic of Near Eastern-


Caucasus, Western European, Middle Eastern, and Eastern European ancestries," drew a massive backlash in both peer-reviewed and mass-media venues.

Elhaik was not actually the first to revive and reconsider the Khazars’ contribution to Jewish DNA; just months before the publication of Elhaik’s paper, Ostrer and Skorecki’s review of Jewish genetics acknowledged a 2005 paper by Almut Nebel and his Israeli colleagues which had suggested that the Khazars were the source of a specific Y-DNA haplotype common among Ashkenazi men. Behar, too, had made a similar suggestion in 2003. While Ostrer and his colleagues had conducted a genome-wide study which purported to debunk the suggestion and confirm the Middle Eastern origins of Ashkenazim, no animosity against Nebel or his co-authors reached the press as it did for Elhaik. Meanwhile, Behar spearheaded the assembly of “the largest data set available to date for assessment of Ashkenazi Jewish genetic origins” for the sole purpose of refuting Elhaik; despite having suggested the possibility of at least some Khazar contribution to the Jewish patriline ten years earlier, he now insisted that all genetic tests “confirm the notion that the Ashkenazi, North African, and Sephardi Jews share substantial genetic ancestry and that they derive it from Middle Eastern and European populations, with no

---


844 Behar et al., “Multiple Origins of Ashkenazi Levites.”

indication of a detectable Khazar contribution to their genetic origins.”

The hostility directed at Elhaik is difficult to understand based on the framing of his paper, which mentions that “both the Rhineland and Khazarian hypotheses depict a Judean ancestry and are not mutually exclusive,” and includes a map showing the multiple possible migration pathways contributing to the Ashkenazi population (Figure 27). Like previous migration maps of the Jewish Diaspora, Elhaik’s includes an original dispersal from the kingdom of Judah for both hypotheses. Yet Elhaik’s seemingly innocuous revision of Diaspora geography drew the ire of the “clique” less because of his peer-reviewed study and more because of the opinions he expressed in interviews with the press, particularly his accusations of Ostrer, Behar, and other geneticists of manipulating their data to suit the Zionist narrative, as well as his sympathy for the work of Arthur Koestler and Shlomo Sand. Far from shying away from confrontation, Elhaik argued that those who believed that Jewish genetics proved a Middle Eastern common origin for all Jews “shared ‘common ground with [Nazi] ideology.’” Meanwhile, Elhaik faced the same accusation of his own work by journalists and scholars conflating anti-Zionism with antisemitism, along with Hammer’s condescending dismissal of his research as “an unrealistic premise” with “pretty weak” arguments.


Elhaik was not at all deterred by this experience or by the scientific objections to his research. Indeed, he soon conducted another study in which he claimed to identify the precise geographical origins of the Yiddish language and, as a corollary, the ethnic ancestry of Ashkenazi Yiddish speakers. Elhaik collaborated with an American-Israeli linguist, Paul Wexler, whose unorthodox hypothesis about the history of Yiddish—namely that it is originally a Slavic, not a Germanic, language that later acquired a German vocabulary—is widely rejected by other linguists. Nevertheless, Elhaik treated Wexler’s “Irano-Turko-Slavic” hypothesis to the mainstream view of Yiddish origins as though both had equal support from traditional linguistic
methods, since Wexler’s work better accommodated Elhaik’s own expectations that Jewish proselytes had significantly contributed to the Ashkenazi gene pool. Indeed, Elhaik’s assessment of the genetic geography of Ashkenazi Jews who had donated their DNA to the Genographic Project presented an even more provocative speculation: not only did the ancestry of most Ashkenazim trace back to northeastern Anatolia, but even the name “Ashkenaz” did not originally refer to Germany at all. Rather, Elhaik argued, the name had been taken from any one of four possible towns in the region whose names conspicuously resemble “Ashkenaz” (such as İşkenaz and Aşhanas). Moreover, the prevailing theory that Yiddish is simply a Ger
canic dialect spoken by Judaean migrants to Western, then Eastern, Europe could not account for the clearly hybrid roots of Yiddish and Ashkenazi Jewry. Yiddish, he and Wexler concluded, was the invented language of a conglomerate of Jewish merchants living along the Silk Road during the 10th century, composed both of Judaean migrants to Anatolia and Iranian, Turkic, and Slavic converts. Like the 2013 Khazar paper, scholars from multiple disciplines heaped criticism on both the genetic and linguistic components of the Elhaik-Wexler study, with a writer for the Yiddish press denouncing the work as “junk science.” In principle, however, the “junk science” of Elhaik and Wexler is not much different from that of the venerated Cavalli-Sforza and his support for Renfrew’s contested Anatolian hypothesis. But because the former is perceived to bear directly on the legitimacy of Zionism, it garners much harsher rebuttals from both the lay media and the established “clique” of geneticists working on Jewish origins.


The prospect of competing commercial interests possibly also contributed to the rivalry. Michael Hammer and Doron Behar serve as “Chief Scientists” for Family Tree DNA, one of the most prominent genetic ancestry testing companies and a partner to the Genographic Project. Meanwhile, Elhaik’s methodology relied on a computational tool he helped to develop called Geographic Population Structure (GPS). In *Nature Communications*, he and his co-authors claimed that the GPS algorithm was capable of parsing an individual’s geographical ancestry at an unprecedented level of precision, to the point of identifying their “home village.”

Unsurprisingly, the algorithm was quickly marshaled into the business of ancestry testing, first under a company named Prosapia Genetics and now under the title GPS Origins. Despite critiques both from other geneticists about the false premise of locating a single specific village where one’s ancestors lived a thousand years ago, and from customers whose test results located their DNA as originating, e.g., in the middle of the Atlantic Ocean, Elhaik has defended the algorithm’s utility for individuals of “unmixed” backgrounds. This claim is emblematic of a “post-genomic moment” that has witnessed the corporatization of individual and collective ancestries. While the GPS algorithm represents a sophisticated layer of statistical calculation, dependent on a vast accumulation of genetic data from across the world, its consumer marketing appeals to a nostalgic, romantic-nationalist sense of place—the imagined “home village”—which evokes visions of a world before globalization. In other words, despite the massive advances in data collection and computational biology achieved since Cavalli-Sforza’s 1994 *History and Geography*, genetic cartography must still rely on the premise of a “pre-admixture” history of humanity, in which everyone inhabited one’s proper “ancestral” geographical space.

---


Eternalizing the nation: genetics as revisionist geography

Twenty years after its publication, no monograph on the scale of History and Geography of Human Genes has emerged to challenge it; nowadays, even greater quantities of genetic data, in the form of DNA sequences, are amassed in online databases, such as those of the Genographic Project. The digital preservation of sequences significantly reduces the amount of fieldwork to collect DNA samples, which further distances scientists from their research subjects—the real bodies of people who provide tissues and fluids, and the geographical space they inhabit. Eran Elhaik, for example, did not collect any new samples for his research on Ashkenazi Jews, nor did he or his co-authors sequence the DNA themselves. They simply applied new computational methods to genetic data archived from previous studies, a fact which highlights the disproportionate representation of Jewish populations within genetic ancestry research despite their supposed isolation from the rest of human population history.

The severely negative responses to Elhaik’s reimagined geography of Ashkenazi origins further draws attention to the question of why, relative to other Middle Eastern groups, publications on Jewish genetic history are rarely illustrated with geographical maps. Compared to other questions of genetic history—such as testing biblically-oriented hypotheses about descent from Cohanim or Levites—most geneticists working on Jewish groups throughout the 20th and early 21st century have proven ambivalent about phylogeography. For these researchers, the unique Diasporic trajectory of Jewish populations from their origin point in the Middle East was not a hypothesis, but a given. Furthermore, despite the Zionist emphasis on shared Jewish origins in Palestine, in reality Diaspora connections have consistently been a more important source of Jewish community identities, both inside and outside of Israel. The subdivision of
Jewish groups according to Diasporic affiliation has become deeply entrenched in the practices of Jewish genetics, which generally assumed that the biological differences between Jewish communities could be attributed to isolation and genetic drift rather than proselytism and admixture with local populations. But these core assumptions were actually first challenged in the DNA era by geneticists who still shared Zionist sympathies. By heralding certain genetic sequences, like the CMH, as markers of definitive Jewish ancestry, scientists like Michael Hammer, Karl Skorecki, and Harry Ostrer granted DNA the power to transform the canonized narrative and geography of Jewish dispersal. The well-publicized story of the Lemba’s possession of the CMH served to further marginalize convert communities like Ethiopian and Indian Jews within narratives of Jewish history and geography. Avshalom Zoosmann-Diskin and Eran Elhaik merely seized upon the epistemic logic, as well as the data, of this “clique” to foreground Jewish proselytism and conversion in Europe and reimagine Ashkenazi Diasporic geography.

Within the overall story of human evolution, the Middle East has proved an enduring concept despite its unclear geographical borders. In fact, studies of global genetic history rely on the region’s liminality, as demonstrated by the frequent characterizations of the Middle East as a genetic corridor, buffer, border zone, or pathway between the initial Out of Africa migrations into Europe and Asia. Turkish and Iranian geneticists have incorporated this rhetoric to varying degrees within their own research, and employ different kinds of geographical maps to reflect their interpretive priorities. The significance of Anatolia to Cavalli-Sforza’s high-profile hypotheses about the spread of agricultural society and Indo-European languages into Europe has ushered Turkish geneticists into engagement with non-Kemalist ideas about Turkish origins. Pressed to reassess Turkey’s relationship to Asia and Europe amidst debates about EU ascension
and a post-Soviet revival of pan-Turkism, Turkish scientists took a range of positions, but many ultimately supported Cavalli-Sforza’s appraisal that the Turkish genetic profile shared more in common with European than Central or East Asian populations. However, their historical interpretations of this phenomenon reflected local ideological commitments to disentangle anthropological genetics from prevailing notions of Turkish racial identity, with biologists like Ceren Caner Berkman, Ömer Gökcümen, and Cemalettin Bekpen emphasizing that modern Turks are a highly mixed population of ancient Anatolians with Balkan, Middle Eastern and Central Asian immigrants. On the other hand, scientists like Osman Çataloluk strove to counter the emerging consensus around this more nuanced version of the Cavalli-Sforza hypothesis by recasting the Kemalist Turkish History Thesis in the language of DNA haplogroups. In other words, the adoption of Out of Africa discourse by scientists affiliated with the TGP and AGHP do not reflect a wholesale transformation in the social role of the Turkish scientific community, but rather the splintering of their professional class along the lines of the “culture war” associated with Turkish identity politics.

Iranian geneticists have taken a relatively more unified approach to human phylogeography. As a group, they have embraced those elements of the Out of Africa paradigm that characterize Iran as a global crossroads, while their approaches to DNA sampling, mapping, and interpretation simultaneously constitute Iran as a bounded geographical and biological unit. Dariush Farhud and his compatriots at NIGEB and Shiraz University turn to Iran’s cultural diversity, in terms of ethnicity, language, and religion, as an explanation for the country’s genetic diversity. However, all of these forms of variation are imagined to derive from an “Aryan” essence that comprises the core of Iran’s identity as a geographical space and a nation-state, and the logic that eternalizes the borders of its “territorial integrity.” But while Iranians’ genetic
maps and sampling strategies reflect specific local concerns about ethnic politics and separatism, their discourse of “unity in diversity” mirrors that of Cavalli-Sforza’s own vision for human genetics research, as presented in the Human Genome Diversity Project and the Genographic Project. In this light, the transmutations of Middle Eastern nationalist geographies into genetic maps visually represent the ongoing co-production of national identity and international science. The global “human journey” that phylogeography aims to reconstruct is as much a story about the contemporary nation-state as it is about evolutionary history.
Conclusion

In October 2015, the Nobel Prize Committee named Aziz Sancar, a biochemistry professor at the University of North Carolina, Chapel Hill, as one of the year’s three winners in Chemistry for his work on DNA repair mechanisms. The Turkish media immediately turned Sancar, as the first Turkish citizen to receive a Nobel in a scientific field, into a national celebrity. While many news outlets were quick to designate Sancar’s award a source of national pride, many also probed him for details of his ethnic origins: as one of eight children born to illiterate farmers in the southeastern province of Mardin, popular speculation abounded as to whether he was “really” Turkish, or perhaps of Arab or Kurdish background. Sancar’s anger at such rumors was widely reprinted, particularly his complaint that a BBC representative, interviewing him by phone, had “disrespected” him by asking first whether he was “Arab” or “partly Turkish.” According to Sancar, he responded, “I don’t speak Arabic, I don’t speak Kurdish, I am Turkish… I am Turkish and that’s it. Whether I was born in Mardin, Cizre, or Kars, I am Turkish.”

Sancar’s response was hailed as an exemplary rebuke to a Turkish “disease,” i.e., an obsession with identity politics that turned Sancar’s Nobel Prize into a public discussion not of the scientist’s accomplishments, but rather of his family’s ethnic background. Meanwhile, Sancar’s impassioned declarations of gratitude to the Turkish public education system and his resolution to dedicate his Nobel medal to Mustafa Kemal Atatürk, the


founding father of the Turkish Republic, cemented his bona fides as a devotee of Turkish civic nationalism. However, the portrayal of Sancar as embodying an ideal secular and de-ethnicized Turkish identity glossed over the many processes that molded his own self-representation. Predictably, the media turned to Sancar’s relatives to fulfill their quest for a clear ethnic categorization, although the family itself could not agree. On the one hand, Sancar’s brother claimed the family descended from a tribe of Oghuz Turks who had immigrated to Anatolia from Central Asia; on the other hand, Mithat Sancar, a cousin serving as a parliament deputy for the Halkların Demokratik Partisi (a political party identified with Kurdish interests), claimed the family had Arab and Kurdish ancestry. Reporters also connected Aziz Sancar’s insistence on his Turkishness to his brief affiliation with the Bozkurtlar, the youth wing of an “ultra-nationalist,” Turkish-chauvinist political party, during his high school days in the early 1960s. Meanwhile, none of the coverage considered how Sancar might have been affected by his professional socialization as a scientist.

At the conclusion of his Nobel Lecture in Stockholm, Sancar took the time to express his gratitude to dozens of colleagues and mentors who had contributed to his work. In addition to his American doctoral advisors and collaborators, he mentioned just one of his compatriots by name: “Being a Turk, I wish to acknowledge Muzaffer Aksoy, my internal medicine professor, who encouraged me to go to the United States and do science.” As shown in this dissertation,

---


Muzaffer Aksoy represented a generation of Turkish scientists and physicians largely devoted to Atatürk’s vision of nationalism, and his collaboration with British and American researchers brought the term “Eti-Turk” into international use. Certainly, Aksoy’s professional mentorship of Sancar was not innocent of this political orientation. Sancar’s emphatic rejection of any ethnic identity other than Turkish strongly resonates with Aksoy’s insinuation that any challenge to the population labels he used would represent “extreme nationalism” and “a backward form of thinking.”

What Aksoy and Sancar really mean is that the potential scientific validation of any non-Turkish nationalism would be “extreme” and “backward.” Meanwhile, public interpretation of their careers is constrained by the same essentialized concepts of Turkish identity that their work helped to create.

It may be argued that Sancar’s story, which played out mostly in Turkish-language popular press rather than in the realm of scientific discourse, reveals only the entanglements between nationalism and professional science at the local level and is not truly significant at the international scale of genetic research. As a counterpoint, I return to the case of Iran, which provides one of the most remarkable examples of how nationalist models of human genetic research can travel beyond and function outside of their original contexts. The international regime of economic sanctions against Iran has impeded scientific collaboration and publication, although Iranian scientists themselves disagree over the nature and extent of the damage.

---

860 Aziz Sancar, Nobel Lecture, Stockholm University, Sweden, December 8, 2015.


Sanctions have certainly made the importation of laboratory equipment and reagents more difficult and costly, which has burdened biological research more than (e.g.) theoretical physics or computer science. On the other hand, the sanctions have forced Iranian scientists to become more resourceful and self-sufficient by developing their own equipment and academic programs.\textsuperscript{863} Recent visitors to Iran’s laboratories, such as correspondents for the journal \textit{Science}, have commented that they are “on par” with those of the West.\textsuperscript{864} Regardless, the translational capacity of Iranian gene databases has been hampered by their inability to maintain a stable Internet presence. For example, as of March 2016, none of the published URLs for the Iranian Human Mutation Gene Bank or the Iranian Human Genome Project were functional.

Despite these political and economic barriers, nationalist approaches to studying the genetics of Iranian populations have been effectively reproduced in the United States through the California-based “Iranian Genome Project” (IGP), a so-called “pet project” of Iranian-born Mostafa Ronaghi, the Chief Technology Officer of the American biotechnology company Illumina. Through Ronaghi’s coordinating efforts, the bioengineering laboratory of Russ Altman at Stanford University became the project’s institutional home in 2010. Although the IGP professes the same basic aims as the research conducted in Iran nearly a decade earlier, its use of next-generation sequencing techniques promised a “one-of-a-kind” genomic study of Iranians residing in the United States. According to the project leader, Stanford medical student Roxana


Daneshjou, the predominantly Iranian-American research team initially hoped to collaborate with geneticists within Iran, but university lawyers warned them that such collaboration could violate US sanctions against Iran. Therefore, the project proceeded completely independently from Iranian geneticists. Given this fact, the methodological and discursive similarities between the Iranian and Iranian-American projects are striking.

The project is primarily funded by the Parsa Community Foundation, described on its website as “the first Persian community foundation in the U.S. and the leading Persian philanthropic institution.” After receiving a $250,000 grant from Parsa at the end of 2010, the project swung into its next phase of recruiting Iranian-American DNA donors in California. The recruitment efforts of the IGP reflect the scarcity of human, as opposed to material, resources inherent to the study of diaspora communities within the United States. While the IGP now had plenty of funding and unfettered access to equipment and supplies for genomic sequencing and analysis, the options for tracking down a randomized sample of Iranian-American blood donors were more limited, and the IGP understandably targeted its message for Iranian community organizations. However, the project researchers also hoped to extract data about deep-historical population movements and the biological relationships between different Iranian sub-populations. In other words, their Iranian-American sample would need to serve as a “diasporic proxy” standing in for the entire population of Iran, capturing a plurality of Iran’s many ethnolinguistic and religious minority groups. To communicate this need in their recruitment appeal, the IGP had to destabilize their own narrative of Iranian-American as a single ethnic category and acknowledge the internal diversity collapsed by such a category: “we will have the

---

opportunity to draw our family tree and to explore our heritage in a way that has never been done before…we will be able to celebrate both the similarities and unique characteristics of the diverse Iranian family."

Interestingly, the IGP’s vision of “the diverse Iranian family” substantially aligns with the categories used by the Iranian government’s own genomic diversity project. The IGP’s participation eligibility survey asks potential blood donors to identify themselves as members of one or more out of 18 ethnicities and speakers of one or more out of 18 languages. Respondents are also asked to identify with one out of eight religions (two of which—Judaism and Zoroastrianism—are also listed in the ethnic category). The religious identification options, which include Baha’i, Yarsani, and “Sufi” (groups unrecognized by the Islamic Republic and face severe political discrimination), offer the only notable point of difference between the diasporic and Iranian state projects. Otherwise, both adopt the same approach of encapsulating diversity within a population defined *a priori* as Iranian.

Through its recruitment materials and presentation of preliminary results, the IGP reconfigures Iranian territorial origin and/or pre-immigration nationality as diagnostic of a biological whole, the “Iranian family.” In the process, they reduce a series of ethnic, linguistic and religious identifications to minority derivations of Iranian status. This reductionism overlooks the evidence that many Iranian “sub-populations” in the diaspora—such as Kurds, Armenians, Jews, and Baha’is—may not primarily identify themselves as Iranian. For example, research among first-generation Kurdish and Armenian emigrants from Iran to Sweden has shown that such individuals prefer to forge ties with and join communal organizations for Kurds...
or Armenians more broadly, rather than specifically valuing their connections to Iran.\textsuperscript{868} Similarly, the participation of Iranian Zoroastrians, Jews and Baha’is in religious organizations in the US serves to integrate them with non-Iranian coreligionists. Accordingly, two decades ago, sociological research in Los Angeles strongly argued that Iranian “sub-populations” formed distinct ethnic communities and “should not be subsumed under an umbrella Iranian category.”\textsuperscript{869} In contrast, the IGP imposes just such an umbrella category—effectively reconstituting the Iranian state’s own approach to nationalist discourse.

While ethnic concepts from Turkey and Iran have quietly trickled into the work of scientists abroad, Israeli geneticists openly promote their research practices as models for the rest of the global scientific community to follow. Batsheva Bonné-Tamir, weighing in on the ethical controversies surrounding the Human Genome Diversity Project in 1999, claimed that her own research on anthropological genetics never faced accusations of racism or exploitation. She attributed “the success of the Israeli experience” to the “coupling of the collection of the material for population genetic analysis to the actual provision of especially attentive medical services and genetic counseling,” as well as “the frequent inclusion within the research team of dependable members of the studied population, with high competence and authority, such as interpreters, technical aides, or sometimes teachers, nurses, or even doctors.”\textsuperscript{870} Yet even as Bonné-Tamir performed an enlightened benevolence in advocating for “good relationships and harmony” with research populations in the “Third World,” the instrumentalism of her approach


surfaced in a comment that “those who pretend to represent these populations sometimes exaggerate artificially” the “exploitation, discrimination, or stigma” faced by these communities in conjunction with the research.871

Bonné-Tamir’s comments, of course, equally “pretend to represent” the communities studied by Israeli researchers, eliding the power asymmetry between the Ashkenazi technocratic class and the variously marginalized Mizrahim, Samaritans, Armenians, and Palestinians in her narrative of “the Israeli experience.” Meanwhile, her claims about the superior ethical standards of Israeli geneticists stand at odds with the social and cultural effects of their work, which ultimately serves to reify politically manipulated group identities into essentialized biological categories. Recently, a team of American, European, and Israeli psychologists turned to the Arab-Israeli conflict to investigate how genetic discourses might contribute to the resolution or exacerbation of ethnic-nationalist tensions. Following a series of studies conducted mainly on Jewish subjects, the psychologists found that Jewish Israelis who read a simulated news article emphasizing genetic differences between Jews and Arabs “showed less support for political compromise and […] more support for collective punishment toward Palestinians and more support for the political exclusion of Palestinian citizens of Israel.”872 The psychologists concluded that heightened publicity of research that conflates ethnicity with genetic difference could foreshadow or inflame political violence. Furthermore, the study reaffirmed the mutually constitutive role of Zionist politics and genetic science in the construction of a Jewish biological category and the chronic otherization of Palestinians.

871 Ibid.

I conclude with these anecdotes to illustrate the deeply entangled nature of contemporary genetic research practices with the social divisions produced and exacerbated by twentieth-century nationalism. While these stories immediately concern the work of Middle Eastern geneticists, the impetus for each case—the Nobel Prize, the global effects of economic sanctions on Iran, the Human Genome Diversity Project—highlights the international scale at which “ethnic mythmaking” takes place. The use of Turkish, Iranian, and Israeli nationalist narratives and population labels by both local and foreign scientists shows how nationalism is sustained by particular practices of human genetics research, namely, the need to describe human populations according to geography and ancestral history—coinciding with the two major constituent elements of the nation-state paradigm. “Genetic nationalism,” therefore, is not fraudulent or pseudoscientific, but has been and continues to be the normative logic of human population genetics as practiced within a global sphere of nation-states. It is the professed internationalism of professional scientific communities—that is, the numerous stages of education, research collaboration, and publication that bring Turks, Iranians, and Israelis into dialogue with others—that reinforces the use of nationalist terminology, even when, or perhaps especially when, this terminology is contested and poorly defined. Accordingly, the persistence of nationalist concepts in Middle Eastern genetic studies does not indicate local resistance to Western models of universal science, nor does it represent the simplistic corruption of objective research through the imposition of retrograde political discourses. Rather, it reflects the thorough integration of Middle Eastern geneticists as collaborators in an international sphere of scientific discourse over the course of the twentieth century.
Bibliography

Archival Collections and Unpublished Works:

**Germany:**

*German Federal Archives (Bundesarchiv), Lichterfelde, Berlin:* R 43/3640; R 43-II/1498B; R 55/20087; R 55/20088.

*City Archives of Mainz (Stadtarchiv Mainz):* Modern and Contemporary History collection (ZGS).

*Johannes Gutenberg University Archives, Mainz:* Egon Freiherr von Eickstedt files, Bestande 13 and 64; uncatalogued papers of the Anthropology Institute, Bestande 89.

*Political Archive of the German Foreign Ministry (Politisches Archiv des Auswärtigen Amtes):* German Reich Files: R64067, R64068, R99173, R99174, R99175, R99422, R99446, R99447, R99581, R99598, R100217. Federal Republic of Germany Files: B 36, B 94.

**Israel:**

*Central Archives, Hebrew University of Jerusalem:* Genetics Faculty files; Medical Faculty files, 1960-1966; files on Avinoam Adam, Elisabeth Goldschmidt, Joseph Gurevitch, and Chaim Sheba.


**Switzerland:**

*Bibliothèque de Genève:* Papiers Eugène Pittard; Papiers Jean-Jacques Pittard; Papiers Noelle Roger.

**Turkey:**


**United Kingdom:**

*Bodleian Library, Oxford:* Papers of Sir Walter Bodmer and Lady Julia Bodmer.

*British Library:* India Office Political and Secret Department Records 12: 3447 Coll 28/44; 3448 Coll 28/44; 3449 Coll 28/44A; 3455 Coll 28/50; 3481 Coll 28/77; 3509 Coll 28/98; 3488 Coll 28/84; 3513 Coll 28/102; 3526 Coll 28/114; 3532 Coll 28/119.
Department of Manuscripts and University Archives, Cambridge University Library: Redcliffe Nathan Salaman Papers.

Special Collections and Archives, Cardiff University: Interviews with Human and Medical Geneticists Collection, André and Joelle Boué interview.

Special Collections, University College London: J. B. S. Haldane Papers.


United States:

American Philosophical Society, Philadelphia: James V. Neel Papers.

Foundation for Iranian Studies, Bethesda, MD: Oral History Collection; Mehrangiz Dowlatshahi, Taher Ziya’i, Amir Aslan Afshar.

History & Special Collections Division, Louise M. Darling Biomedical Library, UCLA: Oral History of Human Genetics Collection (Ms. Coll. no. 316), James E. Bowman oral history.


Rare Book and Manuscript Library, Columbia University: Robert College Records.

University of Pennsylvania Archives: Pahlavi University Projects Records; Office of the President Records (Gaylord Probasco Harnwell Administration).

Published Primary and Secondary Sources:


Avise, John C. “The History and Purview of Phylogeography: A Personal Reflection.” 


———. *Türk kafalarının zaviye kıymetleri üzerinde bir tetkik (A research on the blood groups of Turks and on the correlation of these groups with anthropological characters).* Vol. no. 50. Ankara Üniversitesi Dil ve Tarih-Coğrafya, Fakültesi yayımları ; Ankara: Ideal basımevi, 1946.


429


the Seventh National Genetics Congress at Jundi Shapur University, Ahvaz, Iran, March 14-17, 1978, 43. Ahvaz: Jundi Shapur University, 1978.


Haqiqi, Fazlollah. “‘ilm-i insân-shinâsî.” *Ta’âlîm va Tarbiyat* 7, no. 3 (1316 1937): 165–70.


Hirsch, Dafna. “‘We Are Here to Bring the West, Not Only to Ourselves’: Zionist Occidentalism and the Discourse of Hygiene in Mandate Palestine.” *International Journal of Middle East Studies* 41, no. 4 (2009): 577.


———. *L’Anatolie, le pays de la “race” turque: recherches sur les caractères anthropologiques des populations de la Turquie (enquête sur 64,000 individus)*. Genève: Georg, 1941.

———. *Prof. Dr. Afet İnan. Çağaloğlu, İstanbul: Remzi Kitabevi, 2005. *

———. *Türkiye halkının antropolojik karakterleri ve Türkiye tarihi: Türk ırkının vatanı Anadolu (64.000 kişi üzerinde anket)*. Ankara: Türk Tarih Kurumu Basmevi, 1947.


Khatib-Shahidi, Rashid Armin. “German Foreign Policy towards Iran: The Case of the National Bank of Persia.” D. Phil., Oxford University, 1999.


Onur, Nureddin. İnsan ve hayvanlarda kan grupları. İstanbul: Kader Basmevi, 1941.


Özek, Ömer. “Kan grupları üzerinde araştırmalar.” *Türk Cemiyeti Mecmuası* 8, no. 6 (1942).


Podliachouk, Luba, André Eyquem, R. Choaripour, and M. Eftekari. “Les facteurs sériques Gm(a), Gm(b), Gm(x) et Gm-like chez les Iraniens.” *Vox Sanguinis* 7 (1962): 496–99.


Stone, Dan. “‘Not a Race but Only a People after All’: The Racial Origins of the Jews in Fin-de-Siècle Anthropology.” *Patterns of Prejudice* 42, no. 2 (2008): 133–49.


Sulzberger, C. L. “German Preparations in the Middle East.” *Foreign Affairs* 20, no. 4 (1942): 663–78.


