

“Essential Collaborators”: Locating Middle Eastern Geneticists in the Global Scientific Infrastructure, 1950s–1970s

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Between the two world wars, a number of European and American scientists proposed that the collection of data on inherited blood types, such as the ABO antigens, from populations across the globe could illuminate the evolutionary history of the entire human species. While these emergent geneticists quickly began to tabulate blood-group frequencies from their own and neighboring countries, they lamented the logistical and technological limitations that made a comprehensive dataset impossible, especially one including those coveted “people[s] giving evidence of long isolation and all of the rapidly vanishing primitive tribes” from the far-flung corners of the earth.¹ The kind of global biomedical infrastructure necessary to coordinate such a massive undertaking did not become available until after World War II. By the early 1950s, United Nations-affiliated agencies tasked with coordinating global health and scientific research, such as UNESCO and the WHO, founded and supervised a myriad of international organizations, projects, and conferences specializing

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¹ Leland C. Wyman and William C. Boyd, “Human Blood Groups and Anthropology,” *American Anthropologist* 37, 2 (1935): 181–200, 198. During this period, human genetics was not a well-defined field of inquiry and most of its practitioners initially rose to prominence within more established scientific disciplines. Accordingly, throughout this paper, 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 various questions of human heredity.

in the genetic analysis of human blood. These organizations also unofficially enforced a particular scientific division of labor within the Cold War geopolitical order, 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).² 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. For example, many of the British geneticists who attained global prominence and worked closely with international organizations in this period, like Arthur Ernest Mourant and Hermann Lehmann, had begun their careers by conducting clinical research across colonial settings from India to Uganda.³ Meanwhile, their counterparts in the United States, like James V. Neel and D. Carleton Gajdusek, coordinated research on the indigenous peoples of the Americas and the Pacific.

The WHO was responsible for authorizing the status of particular laboratories and serum banks 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. Center staff produced the standardized reagents to be used in field and laboratory testing and performed analyses for researchers who did not have the equipment or facilities to do so themselves.⁴ These centers, overwhelmingly located in Europe and North America, were sometimes generated anew, but more often were built out of existing national reference laboratories developed for “utilitarian wartime purposes,” such as Mourant’s Blood Group Reference Laboratory in London and Lehmann’s International Reference Center for Abnormal Hemoglobins in Cambridge, which attained WHO recognition in 1952 and 1965, respectively.⁵ Many such centers were designated in the early 1960s during the preparatory stages of the International Biological Program (IBP), whose Human Adaptability component channeled vast quantities of blood samples

² Michael A. Little, “Human Population Biology in the Second Half of the Twentieth Century,” *Current Anthropology* 53, S5 (2012): S126–S138, S132.

³ Soraya de Chadarevian, “Following Molecules: Hemoglobin between the Clinic and the Laboratory,” in Soraya de Chadarevian and Harmke Kamminga, eds., *Molecularizing Biology and Medicine: New Practices and Alliances, 1910s–1970s* (Amsterdam: Harwood Academic Publishers, 1998), 171–201, 179; John Dacie, “Hermann Lehmann, 8 July 1910–13 July 1985,” *Biographical Memoirs of the Fellows of the Royal Society* 34 (1988): 406–49, 412–14.

⁴ Joanna Radin, “Unfolding Epidemiological Stories: How the WHO Made Frozen Blood into a Flexible Resource for the Future,” *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 47 (2014): 62–73, 68; Joanna Radin, “Latent Life: Concepts and Practices of Human Tissue Preservation in the International Biological Program,” *Social Studies of Science* 43, 4 (2013): 484–508, 499.

⁵ Arthur E. Mourant, *Blood and Stones: An Autobiography* (La Haule, Jersey: La Haule Books, 1995), 60–62; Chadarevian, “Following Molecules,” 185; Marcolino Gomes Candau, “The Work of WHO, 1965: Annual Report of the Director-General to the World Health Assembly and to the United Nations,” *Official Records* (Geneva: World Health Organization, Mar. 1966), 53–54.

from “primitive” populations living in underdeveloped countries to freezers in laboratories across Western Europe and North America.⁶

In short, the postwar international scientific community ultimately reduplicated colonial patterns of research.⁷ Even blood samples from countries that had never been formally colonized, like Iran and Ethiopia, were shipped to the same laboratories in the same European metropolises 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 United States and the UK, who sought to dominate the coordination and management of international data collection in the Third World.⁸ For example, when Mourant accepted the role of IBP’s general coordinator for worldwide population surveys, he apparently felt some animus from James Neel, who had served as the chairman for the earlier WHO working group that defined much of the protocol for the IBP (the “WHO Scientific Group for Research on Population Genetics of Primitive Groups”). Anxious to smooth things over with Neel, Mourant turned to another American colleague, William C. Boyd, for help: “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.”⁹ 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 acknowledgment of others’ scientific priority and/or expertise on 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, such as the Middle East. He spoke of local research facilities in these areas as regional “outposts” for Western scientists, in which he sought to install and maintain his own protégés (like Harry M. Smith, an American biologist), rather than as centers for training and collaborating with local researchers. If Mourant

⁶ Little, “Human Population Biology,” S132.

⁷ Radin, “Unfolding Epidemiological Stories,” 63. See also Sabine Clarke, “A Technocratic Imperial State? The Colonial Office and Scientific Research, 1940–1960,” *Twentieth Century British History* 18, 4 (2007): 453–80.

⁸ The notable absence of the USSR from the early stages of this unofficial competition can be attributed to the iron grip of Lysenkoism on Soviet genetics research until 1965. Soviet scientists would eventually join in the International Biological Program, in the early 1970s. See Susanne Bauer, “Mutations in Soviet Public Health Science: Post-Lysenko Medical Genetics, 1969–1991,” *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 47 (Sept. 2014): 163–72.

⁹ Letter from Mourant to Boyd, 11 June 1965, PP/AEM/K.13, box 28, A. E. Mourant Papers, Wellcome Library, London (hereafter “Mourant Papers”).

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. [...] 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).¹⁰

Not every Western geneticist was as callous as Mourant. Some, especially those who spent significant time working in foreign universities or hospitals and maintained close relationships with their research subjects, took the provision of medical care as an ethical responsibility rather than as a coercive means of exchange. Unfortunately, however, Mourant’s attitudes toward both research subjects and local researchers were not unusual, and they set the tone for how Western scientists approached projects in developing nations. In an era prior to informed consent, Western researchers coaxed blood and other tissues from their “primitive” research subjects in exchange for basic medical supplies, like antibiotics, or “trade goods” like knives and blankets.¹¹ Meanwhile, Westerners presumed local scientists to be incapable of accurately interpreting genetic data due to the “unstable governments” and “unreliable infrastructures” in recently decolonized regions, necessitating the shipment of biological materials to “nations with robust biomedical facilities” (i.e., former colonial powers).¹² As a result, the professional conflicts that occasionally erupted between Western scientists and their non-Western collaborators, mostly regarding the former’s publication and interpretation of the genetic data produced by

¹⁰ Ibid. Harry Smith did not last much longer in Beirut; he shuttered the laboratory in August 1966, less than fourteen months after Mourant composed this letter. Letter from Paul Congdon to Victor Alan Clarke, 9 Aug. 1966, PP/AEM/K.157, box 34, Mourant Papers.

¹¹ See, for example, Robert Borofsky and Bruce Albert, *Yanomami: The Fierce Controversy and What We Might Learn from It* (Berkeley: University of California Press, 2005), 64; Warwick Anderson, “Objectivity and Its Discontents,” *Social Studies of Science* 43, 4 (2013): 557–76; Alexandra Widmer, “Making Blood ‘Melanesian’: Fieldwork and Isolating Techniques in Genetic Epidemiology (1963–1976),” *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 47 (2014): 118–29.

¹² Susan Lindee, “Scaling Up: Human Genetics as a Cold War Network,” *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 47 (2014): 185–90, 189, referring to Radin, “Unfolding Epidemiological Stories,” 63. See also Jenny Bangham, “Blood Groups and Human Groups: Collecting and Calibrating Genetic Data after World War Two,” *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 47 (2014): 74–86.

the latter’s scientific labor, were shaped by not only a professional, but also a geopolitical hierarchy of scientific prestige.

As such, “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 early twentieth-century Southeast Asia can also be found in the Middle East during the Cold War era.¹³ Mourant’s aforementioned letter concerning Lebanon, and his laboratory’s publications involving the procurement of blood samples from British colonies like Aden and former protectorates and mandates like Egypt and Iraq, readily confirm this state of affairs.¹⁴ However, the notion of a neocolonial scientific hegemony applies well even to countries that were never formally colonized by Western powers (like Iran) or in which ethnic nationalism took the form of settler-colonialism (like Israel). In this paper I add another layer to this analysis by examining how international professional networks of genetic researchers simultaneously reinforced regional and national power structures. In this regard, 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 development of “internal colonialisms” produced by anthropological research in service to local nationalist regimes.¹⁵

Addressing Cyrus Schayegh’s call to investigate the positionality of Middle Eastern science,¹⁶ I situate the people of Israel and Iran as both practitioners and subjects of genetic research within the biomedical infrastructure emerging from postwar international organizations. By the early 1960s, Israel had established itself as the Middle East’s regional center for human genetics research. Nearly twice as many publications were produced by and on Israeli Jews as for Iranians, and Israeli scientists took on much more prominent roles in terms of organizing and participating in international genetics conferences, including one hosted in Jerusalem in 1961. Yet, in practical terms, Israeli researchers had much in common with their colleagues in Iran. As biomedical researchers in self-professed “developing” countries, they

¹³ Warwick Anderson and Hans Pols, “Scientific Patriotism: Medical Science and National Self-Fashioning in Southeast Asia,” *Comparative Studies in Society and History* 54, 1 (2012): 93–113, 113.

¹⁴ See, for example, Joyce A. Donegani et al., “The Blood Groups of the People of Egypt,” *Heredity* 4, 3 (1950): 377–82; Elizabeth W. Ikin, “Blood Group Distribution in the Near East,” in L. Holländer, ed., *Proceedings of the Seventh Congress of the International Society of Blood Transfusion, Rome, September 3–6, 1958* (Basel: S. Karger, 1959), 262–65; Elizabeth W. Ikin, A. E. Mourant, and H. Lehmann, “The Blood Groups and Haemoglobin of the Assyrians of Iraq,” *Man* 65 (July 1965): 110–111.

¹⁵ Christopher Houston, “An Anti-History of a non-People: Kurds, Colonialism, and Nationalism in the History of Anthropology,” *Journal of the Royal Anthropological Institute* 15 (2009): 19–35.

¹⁶ Cyrus Schayegh, “Three Questions for Historians of Science in the Modern Middle East and North Africa,” *International Journal of Middle East Studies* 47, 3 (2015): 588–91.

struggled against the limitations of local facilities and infrastructure, inadequate state funding, and unfavorable currency exchange rates that inhibited the procurement of necessary laboratory equipment and serological reagents.¹⁷ Furthermore, Israelis as well as 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 Iranian nationalism. The governing regimes of both 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 Persian-speaking subject. 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. 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 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 both 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.¹⁸ In this sense, Israeli and Iranian scientists behaved as “native informants” to their Western colleagues, marshaling their national identities to speak on behalf of their fellow citizens, even when they did not belong to the specific minority communities under investigation.¹⁹

Historians of science now acknowledge that the modern natural sciences emerged as a process of mercantile, colonial, and imperial interaction between

¹⁷ My assessment of these circumstances is based on a diverse body of material, including oral history reports, published observations of Western visitors, and archived correspondence from Israeli and Iranian scientists to colleagues and funding agencies abroad. In addition to the archival sources cited below, interested readers may peruse Chaim Sheba’s correspondence and reports on Tel-Hashomer Hospital to the American Jewish Joint Distribution Committee (NY AR195564/4/33/17/385, JDC Archives); and Daniel Carleton Gajdusek, *A Year in the Middle East: Expeditions in Iran and Afghanistan with Travels in Europe and North Africa, February 4, 1954 to December 22, 1954* (Bethesda: U.S. Department of Health and Human Services, National Institutes of Health, 1991).

¹⁸ To understand the interest of Western geneticists in “population isolates,” see, for example, Veronika Lipphardt, “The Jewish Community of Rome: An Isolated Population? Sampling Procedures and Bio-Historical Narratives in Genetic Analysis in the 1950s,” *BioSocieties* 5, 3 (2010): 306–29.

¹⁹ In this paper, I use the term “native informant” not in a conventional anthropological sense but in reference to Gayatri Chakravorty Spivak’s critique of postcolonial nationalist intellectuals, aiming to apply this critique to the biomedical sciences; *A Critique of Postcolonial Reason: Toward a History of the Vanishing Present* (Cambridge: Harvard University Press, 1999).

the West and the rest of the world, dependent on the work of “go-betweens” and “intermediaries” that both physically and intellectually transported ideas, objects, and technologies across the globe.²⁰ For example, Londa Schiebinger describes how European naturalists in the eighteenth-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.²¹ 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, that is, “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.”²²

These terms do not quite capture the dynamics of sociopolitical power experienced by Israeli and Iranian scientists in their interstitial role between Western geneticists and doubly marginalized research subjects.²³ As mediators of medical and anthropological knowledge, they were engaged not only in the intellectual work of Jewish 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.”²⁴ 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.²⁵ Furthermore, these processes occurred not through an outright rejection of Western models of scientific

²⁰ Simon Schaffer et al., eds., *The Brokered World: Go-Betweens and Global Intelligence, 1770–1820* (Sagamore Beach, Mass.: Science History Publications, 2009), xxi–xxx.

²¹ See ch. 2 in Londa L. Schiebinger, *Plants and Empire: Colonial Bioprospecting in the Atlantic World* (Cambridge: Harvard University Press, 2004).

²² Bangham, “Blood Groups”; Susan Lindee and Ricardo Ventura Santos, “The Biological Anthropology of Living Human Populations: World Histories, National Styles, and International Networks: An Introduction to Supplement 5,” *Current Anthropology* 53, S5 (2012): S3–S16, S7.

²³ My concept of “interstitial” is borrowed from Cyrus Schayegh, “The Social Relevance of Knowledge: Science and the Formation of Modern Iran, 1910s–40s,” *Middle Eastern Studies* 43, 6 (2007): 941–60; Schayegh, *Who Is Knowledgeable, Is Strong: Science, Class, and the Formation of Modern Iranian Society, 1900–1950* (Berkeley: University of California Press, 2009).

²⁴ Greggor Mattson, “Nation-State Science: Lappology and Sweden’s Ethnoracial Purity,” *Comparative Studies in Society and History* 56, 2 (2014): 320–50, 324.

²⁵ Jennifer Robertson, “Blood Talks: Eugenic Modernity and the Creation of New Japanese,” *History and Anthropology* 13, 3 (2002): 191–216; Projit B. Mukharji, “From Serosocial to Sanguinary Identities: Caste, Transnational Race Science and the Shifting Metonymies of Blood Group B, India c. 1918–1960,” *Indian Economic & Social History Review* 51, 2 (2014): 143–76; M. Kent et al., “Building the Genomic Nation: ‘Homo Brasiliis’ and the ‘Genoma Mexicano’ in Comparative Cultural Perspective,” *Social Studies of Science* 45, 6 (2015): 839–61.

practice, but rather 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 post-colonial politics, “collaborator” is also a loaded term, often posed as a derogatory opposite to heroic nationalists.²⁶ 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 a comparative lens, I highlight the basic tensions between Iranian and Israeli geneticists’ (conscious or unconscious) interests in consolidating the dominant national culture to which they belonged, and the quests 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 reveal 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.

ISRAELI BIOLOGY: WESTERN ASPIRATIONS, MIDDLE EASTERN SUBJECTS

Throughout the 1950s, Arthur Mourant had established close working relationships with the first generation of Israeli geneticists, including the prominent physician Chaim Sheba. Historian Nurit Kirsh and anthropologist Nadia Abu El-Haj have closely analyzed Sheba’s publications on hereditary blood diseases (most notably G6PD deficiency) among Mizrahi immigrants to Israel, as well as his attempts to interpret genetic variations between Jewish communities according to a Zionist historical narrative.²⁷ Although Mourant’s own interpretations of Jewish genetics rarely aligned with Sheba’s fanciful “medical archaeology,” he certainly accepted Sheba and his Israeli colleagues as important

²⁶ I thank the anonymous *CSSH* reviewer who highlighted this issue.

²⁷ The deficiency of the enzyme glucose-6-phosphate-dehydrogenase (G6PD), a condition often known as “favism” in individuals of Mediterranean descent, causes red blood cells (erythrocytes) to break down in the response to specific triggers, notably fava beans, certain anti-malarial drugs, and aspirin. Nurit Kirsh, “Population Genetics in Israel in the 1950s: The Unconscious Internalization of Ideology,” *Isis* 94, 4 (2003): 631–55; Nadia Abu El-Haj, *The Genealogical Science: The Search for Jewish Origins and the Politics of Epistemology* (Chicago: University of Chicago Press, 2012), 103–7.

collaborators whose cooperation was necessary for all work concerning Jewish populations. This can largely be attributed to the ability of Western scientists like Mourant to culturally identify with scientists in Israel, many of whom were German Jews driven out of their homeland during the 1930s. The professional network of these German refugee geneticists, including Hermann Lehmann in the United Kingdom and many scientists and physicians in Israel and the United States, therefore also represented shared social norms and educational experiences rooted in a German intellectual tradition.²⁸

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.²⁹ 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 in Israel in 1951,³⁰ 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,³¹ Mizrahi populations thus became relevant to a major international medical research agenda and to collaborative relationships between the emerging community of Israeli geneticists and Lehmann and Mourant's laboratories in Britain.

In the resulting exchange of blood serum and statistical data between Israel and London, Mourant entrusted Israeli scientists with handling the collection of biological material from Middle Eastern Jewish populations. 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. The Samaritans, a small isolated population generally understood to be an ancient offshoot of Judaism, had already attracted attention from racial anthropologists in prior decades, and in the 1950s several Samaritan families had been convinced to resettle in the town of Holon within Israel. In the 1960s, the Samaritans' coveted status as an ancient genetic isolate made them a source of conflict between Batsheva Bonné, a young Israeli anthropologist who worked with the Samaritans in Holon, and Mourant, who controlled

²⁸ Nurit Kirsh, "Genetic Studies of Ethnic Communities in Israel: A Case of Values-Motivated Research Work," *Leo Baeck Institute Yearbook* 72 (2007): 181–94, 192.

²⁹ Dacie, "Hermann Lehmann," 407.

³⁰ Fritz Dreyfuss and M. Benyesh, "Sickle-Cell Trait in Yemenite Jews," *Nature* 167 (1951): 950.

³¹ See Fritz Dreyfuss et al., "An Investigation of Blood-Groups and a Search for Sickle-Cell Trait in Yemenite Jews," *Lancet* 260, 6743 (1952): 1010–12.

blood-sampling and testing of the Samaritans on the Jordanian side of the border until 1967. Bonn e's efforts to stake out professional boundaries against Mourant, particularly in terms of defining the Israeli community of geneticists as a distinct entity with its own interests and not merely an "outpost" conducting fieldwork on behalf of Western scientists, reveal the post-colonial power dynamics shaping the operations of international scientific agendas within a Middle Eastern context.

Bonn e, born and raised in Mandate Palestine by German Jewish immigrants, first encountered the Samaritans in 1960 while looking for a suitable population to be the subject of her master's thesis in physical anthropology at the University of Chicago. She quickly established contact with Yisra'el Tsedaka, who would become her longtime liaison with the Samaritan community of Holon.³² Based on his information and historical sources, she wrote a detailed demography of the Samaritans for her thesis, which was eventually published in the journal *Human Biology*.³³ Bonn e met Tsedaka and other Holon Samaritans in person during the summer of 1961, and at that time she initiated a genetic survey of the community with the assistance of Israeli hematologists. She intended to continue working with the Samaritans for her doctorate in human genetics at Boston University, which she began in October 1961 under the supervision of William C. 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 Bonn e tried to coordinate his visit with her Samaritan contacts in both cities.³⁴

Bonn e 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 a trip to help his prot g e Harry M. Smith set up a blood-grouping laboratory. 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," which would allow them to share the blood samples. If they agreed, Mourant wrote, he would explain

³² Batsheva Bonn e-Tamir, *Hayim 'im ha-genim: hamishim shenot meħkar ba-geneħikah shel 'edot Yišra'el* (Jerusalem: Karmel, 2010), 22–24.

³³ Batsheva Bonn e, "The Samaritans: A Demographic Study," *Human Biology* 35, 1 (1963): 61–89.

³⁴ Bonn e-Tamir, *Hayim 'im ha-genim*, 43–50.

the situation to Wenner-Gren and endorse their application accordingly.³⁵ The idea of sharing her project was a serious disappointment to Bonné, who felt she had no choice other than to agree to Mourant's terms.³⁶ Her letters to him over the subsequent year reveal undercurrents of her frustration with his 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 financially compensated for their participation in the study. Bonné warned Mourant that they would not give blood without being individually paid, but Smith rejected this idea and Mourant sided with Smith. The research team's failure to meet the Samaritans' expectations for compensation indeed led to the expedition's undoing. From a community of over two hundred, Mourant and Smith were only able to collect samples from eighty-two individuals—not even half of its members—while the rest refused to provide their blood. Bonné clearly felt that the 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.”³⁷

Over the next few months, Smith and Mourant strongly discouraged Bonné from contacting the Samaritans again too soon, emphasizing the danger she posed to the Samaritan project as an Israeli citizen. Yet, as Bonné noted in her autobiography, after all these efforts to disassociate the Samaritan project from her as an Israeli, Smith himself visited Israel a few months later.³⁸ As she recounted to Mourant, in November 1963, Smith spent a week in Israel, meeting with “geneticists, doctors, biochemists . . . with whom he discussed at length possibilities for future projects,” while Bonné herself introduced Smith to the Holon Samaritans.³⁹ 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 Hospital, who paid weekly visits to Holon. Describing their very first visit, Bonné commented, “The Samaritans were indeed so cooperative that they almost stood in line to give blood. There

³⁵ Mourant to Boyd, 22 Nov. 1962, PP/AEM/K.13, box 28, Mourant Papers.

³⁶ Bonné-Tamir, *Hayim 'im ha-genim*, 50.

³⁷ Bonné to Mourant, 19 Feb. 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” (27 Sept. 1963, PP/AEM/K.21, box 29, Mourant Papers).

³⁸ Bonné-Tamir, *Hayim 'im ha-genim*, 55.

³⁹ Bonné to Mourant, 3 Dec. 1963, PP/AEM/K.8, box 28, Mourant Papers.

was no reward or money involved....”⁴⁰ Within two months, Bonné’s team had sampled 90 percent of the community members, who provided not only blood and saliva but also submitted to colorblindness testing and eighteen anthropometric measurements.⁴¹ 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. In Bonné’s own words, her relationship with them “was not that of an anthropologist-scientist with a foreign tribe whose customs and traditions are anchored in another world.” Instead, she attained a high degree of personal familiarity with the Samaritan community that enabled the discussion of delicate family and medical information.⁴² 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 to the synagogue just as a token for their extreme cooperation.”⁴³

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.”⁴⁴ Now it was Mourant who needed Bonné’s help to access the blood of the Nablus Samaritans. “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.”⁴⁵ 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 help them] 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.”⁴⁶

Despite the inauspicious start to their professional relationship, Bonné maintained contact with Mourant and even asked to continue collaborating with his lab to test blood samples she collected from other Israeli populations. After graduating from Boston University in 1965, Bonné moved back to Israel

⁴⁰ Bonné to Mourant, 10 Oct. 1963, PP/AEM/K.8, box 28, Mourant Papers.

⁴¹ Batsheva Bonné, “Genes and Phenotypes in the Samaritan Isolate,” *American Journal of Physical Anthropology* 24, 1 (1966): 1–19, 17.

⁴² Bonné-Tamir, *Hayim ‘im ha-genim*, 56.

⁴³ Bonné to Mourant, 3 Dec. 1963, PP/AEM/K.8, box 28, Mourant Papers.

⁴⁴ Bonné-Tamir, *Hayim ‘im ha-genim*, 64.

⁴⁵ Mourant to Bonné, 26 June 1967, PP/AEM/K.10, box 28, Mourant Papers.

⁴⁶ Mourant to Bonné, 11 Aug. 1967, PP/AEM/K.10, box 28, Mourant Papers.

permanently, taking a faculty position at the new medical school at Tel-Aviv University. In February 1966, she 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.⁴⁷ He enthusiastically agreed to have the SPGL perform a full range of blood-group tests on Bonné's Habbanite samples, and over the next several years she shipped him regular batches of samples. 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.

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 into 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. 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 her 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.⁴⁸

Bonné's anger reflected the same essential frustrations she had experienced with Mourant since the Samaritan project. She wanted to be acknowledged as a

⁴⁷ Bonné to Mourant, 15 Feb. 1966, PP/AEM/K.9, box 28, Mourant Papers.

⁴⁸ Bonné to Mourant, 17 Apr. 1969, PP/AEM/K.11, box 28, Mourant Papers (her emphasis).

competent and autonomous geneticist, capable of analyzing, interpreting, and publishing the results of her own research, not merely as a “collection agent” providing raw material to Western scientists. Furthermore, she 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 if not more important 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.”⁴⁹ 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, and he blamed them on her allegedly “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.⁵⁰ Matters came to a final head in 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 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.”⁵¹ 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.”⁵²

⁴⁹ Mukharji, “From Serosocial to Sanguinary Identities.”

⁵⁰ “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, 3 Aug. 1969, PP/AEM/K.336, box 41, Mourant Papers. He clarified in a further letter to Lehmann (4 Aug. 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.”

⁵¹ Bonné to M. Hauge, 28 Apr. 1970, PP/AEM/K.12, box 28, Mourant Papers.

⁵² Bonné to Mourant, 29 Apr. 1970, PP/AEM/K.12, box 28, Mourant Papers.

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.*”⁵³ Tills thus demeaned Bonn e’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 Bonn e, 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 Bonn e 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.”⁵⁴

Unfazed by Tills’s caustic letter, Bonn e 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.⁵⁵ 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 emphasized so often that it is important for me to see the results and prepare them *myself* for publication.⁵⁶

As a young, female scientist, Bonn e’s relationships with Mourant, Smith, and Tills require an intersectional analysis. The highly gendered and paternalistic attitude of the three men toward Bonn e reflects their general expectations

⁵³ Tills to Bonn e, 5 May 1970, PP/AEM/K.12, box 28, Mourant Papers (my emphasis).

⁵⁴ *Ibid.*

⁵⁵ See Batsheva Bonn e et al., “The Habbanite Isolate I. Genetic Markers in the Blood,” *Human Heredity* 20, 6 (1970): 609–22; Batsheva Bonn e et al., “South-Sinai Beduin: A Preliminary Report on Their Inherited Blood Factors,” *American Journal of Physical Anthropology* 34, 3 (1971): 397–408.

⁵⁶ Bonn e to Mourant, 26 May 1970, PP/AEM/K.12, box 28, Mourant Papers (her emphasis).

that women and foreigners held an auxiliary status 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 Bonn e'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.⁵⁷ However, although gender certainly played a role in Mourant and Tills's assumptions of superiority in the collaborative relationship, the fundamental source of friction was Bonn e's explicit challenge to the neocolonial structure of scientific labor. 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, Bonn e'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, Bonn e communicated her anxieties about proper attribution and fair data-sharing not only in terms of professional courtesy, but also in terms of scientific accuracy. Her 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. Bonn e instead 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.

AN AFRICAN-AMERICAN IN "ARYAN" IRAN

In Iran, human genetics research both before and after World War II was dominated by Western researchers, who targeted ethnic, linguistic, or religious minorities for blood sampling. Their interpretation of the statistical results tended to emphasize the genetic distinctiveness of various groups (such as Turkmens, Kurds, Zoroastrians, Armenians, and Jews) from the majority

⁵⁷ Tills to Bonn e, 5 May 1970, PP/AEM/K.12, box 28, Mourant Papers.

Persian Shi'ite population. While this emphasis on minority difference did not match the contemporary Iranian state's ideology of “one nation, one language” (i.e., Persian-speaking ethnic Aryans), the influence of Pahlavi-era nationalism is nonetheless visible in many aspects of the Western-authored studies. Western researchers relied on Iranian medical staff to provide information on the histories of these communities and to assess their relative isolation from other groups over time. For example, James E. Bowman, the foremost American figure in Iranian population genetics, accepted his Iranian colleagues' foundational assumption that the Zoroastrians were the living remnants of the ancestral Iranian population. During his tenure as the head of the pathology department of the Nemazee Hospital in Shiraz between 1955–1961, Bowman formed close personal relationships not only with Muslim, Persian-speaking Iranians, but also with Zoroastrians, Armenians, Jews, and other minorities. Unlike most other Western geneticists who worked in Iran, Bowman nurtured these relationships with former Iranian students and colleagues for decades, even after returning to the United States. He revisited Shiraz every few years during the 1960s and 1970s, and again in 1993 and 2004. He sponsored many of his Iranian students for postgraduate study in the United States and maintained contact with them over the course of their careers in Iran or abroad.⁵⁸

Bowman arrived in Shiraz in 1955 almost by accident. He had received his medical training, specializing in pathology, at Howard University and at several hospitals in Washington, D.C. and Chicago with the support of the Army Specialized Training Program, and completed his military service at the U.S. Army Medical Nutrition Laboratory in Colorado. After his discharge, Bowman and his wife Barbara decided to look for work somewhere overseas to escape the stifling segregation policies of their home country. By chance, Bowman applied for a pathology position offered through the Iran Foundation, Inc. for the Advancement of Health and Education in Iran (better known by the less-redundant name, Iran Foundation), a joint Iranian-American organization established in 1948 by shipping magnate Haj Mohammad Nemazee. The foundation's purpose was to manage and finance the construction and operation of the Nemazee Hospital, a state-of-the-art facility that opened in May 1955. At the time Bowman assumed the position of director of pathology, nearly all the other departments at the hospital were also headed by Americans, with Iranians filling out the remainder of the staff positions. Bowman noted that the hospital employed no British citizens, 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

⁵⁸ “James Bowman oral history interview, Session I—June 26, 2006,” Oral History of Human Genetics Collection (Ms. Coll. no. 316), History and Special Collections Division, Louise M. Darling Biomedical Library, UCLA (hereafter “Bowman oral history interview, 2006”).

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 his chance encounter with a child brought to the hospital with severe symptoms of favism (G6PD deficiency), the same hereditary condition found in high levels among Mizrahi immigrants to 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, namely 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 conduct 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 percent among Muslims "throughout Iran."⁵⁹ 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 Iranian collaborators and "native informants" representing minority populations, who took a leading role in defining Bowman's personal understanding and professional portrayal of Iran's biological history along nationalist lines.

First, 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. 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 national government, attracted the attention of SAVAK, the Iranian secret police, 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

⁵⁹ Deryck G. Walker and James E. Bowman, "Glutathione Stability of the Erythrocytes of Iranians," *Nature* 184, 4695 (1959): 1325.

questions. In so doing, he preserved the freedom of his own research agenda, as well as (he believed) his personal safety within Iran. His Iranian friends, however, did not enjoy Bowman’s privileged status as an American medical researcher; 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).⁶⁰

Sampling among the urban-dwelling minorities presented considerably fewer difficulties. Not only did Bowman have more Armenian, Zoroastrian, and Jewish colleagues working with him in Shiraz, but also, these groups had well-established practices of recording their history. 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.”⁶¹ These “clarifications” consisted primarily of a narrative of Armenian endogamy within the New Julfa community, which correlated with Bowman and Walker’s genetic findings:

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. Rather than being treated as slaves, they were encouraged to create a prosperous trade centre. [...] 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].⁶²

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. 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

⁶⁰ Bowman oral history interview, 2006.

⁶¹ James E. Bowman and Deryck G. Walker, “Virtual Absence of Glutathione Instability of the Erythrocytes among Armenians in Iran,” *Nature* 191, 4785 (1961): 221–22, 222.

⁶² *Ibid.* The article cites the 1960 edition of Montagu’s *Introduction to Physical Anthropology* (New York: Charles C. Thomas).

history, one to which Iranian Armenians, like his collaborator Minasian, also paid “homage” to secure their community’s safety.⁶³

Meanwhile, a striking absence of G6PD deficiency 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 similarly thanked “for his clarification of Zoroastrian customs.”⁶⁴ 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.’”⁶⁵ 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.⁶⁶ Based on his population surveys, Bowman argued that 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 seventh century CE; Jews originally liberated by Cyrus in the fifth 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.”⁶⁷ Central to his argument was the absence of favism among the Zoroastrian community, which

⁶³ Eliz Sanasarian, *Religious Minorities in Iran* (Cambridge: Cambridge University Press, 2000), 35–40.

⁶⁴ James E. Bowman, “Haptoglobin and Transferrin Differences in Some Iranian Populations,” *Nature* 201 (1964): 88.

⁶⁵ Bowman oral history interview, 2006.

⁶⁶ James E. Bowman and Deryck G. Walker, “The Origin of Glucose-6-Phosphate Dehydrogenase Deficiency in Iran: Theoretical Considerations,” in Luigi Gedda, ed., *Proceedings of the Second International Congress of Human Genetics (Rome, September 6–12, 1961)*, vol. 1 (Rome: Instituto G. Mendel, 1963), 583–86, 584.

⁶⁷ *Ibid.*

despite its shrinking numbers maintained its total and permanent rejection of proselytism and out-marriage:

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. [...] 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.⁶⁸

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: “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.”⁶⁹

Bowman’s acceptance of Zoroastrians’ claims to have perfectly preserved their original gene pool is 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 the Tel-Hashomer medical geneticists Chaim Sheba, Aryeh Szeinberg, and Bracha Ramot regarding 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: “[G]oing 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.’ [...] That is

⁶⁸ Ibid., 585–86. Note that the conclusion of Bowman and his colleagues that Zoroastrians, by extension Aryans, were “reservoirs” of the B blood type differs markedly from contemporary genetic discourses emerging from India, where type B was associated with non-Aryan autochthonous populations. See Mukharji, “From Serosocial to Sanguinary Identities.”

⁶⁹ Bowman, “Haptoglobin and Transferrin Differences,” 88.

part of your heritage, and it's a beautiful part.... The Zoroastrians did not proselytize. They were a bunch to themselves."⁷⁰

The British-affiliated research in Iran between 1965 and 1972, most of which was financed by the WHO or the IBP, involved stark logistical and conceptual differences to Bowman's approach to blood sampling and interpretation. Curiously, the British hematologists involved (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 and ultimately covered similar ground to Bowman in other locations within Iran. For example, Beaconsfield worked 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. Unlike Bowman, Beaconsfield and his Iranian colleagues 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).⁷¹

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, Chamseddine Mofidi, who was also then vice chancellor of the University of Tehran. 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."⁷² 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 nature of the collaborative hierarchy expected by Western scientists working in developing countries. Mourant expressed his interest in Lehmann's discovery of "Romany speaking people" in Iran

⁷⁰ Bowman oral history interview, 2006.

⁷¹ Peter Beaconsfield et al., "Glucose 6 Phosphate Dehydrogenase Deficiency in Iran and Its Relation to Physiopathological Processes," *Acta Medica Iranica* 9, 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 primaquine—a medication that can cause a dangerous hemolytic reaction when taken in multiple doses by individuals with G6PD deficiency.

⁷² Hermann Lehmann et al., "The Hereditary Blood Factors of the Kurds of Iran," *Philosophical Transactions of the Royal Society of London* 266 (1973): 195–205, 196.

and mused about how to broach the topic with “essential collaborators” who should be involved in future research on the population:

Perhaps [Eric] 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.⁷³

Mourant’s letter designates only fellow British and American researchers as possibly “essential collaborators,” and expresses his concern to avoid “upsetting” them by seeking their permission before treading on their research turf. Meanwhile, despite the fact that he and Lehmann absolutely depended on the cooperation of Iranian hematologists (to say nothing of the prospective “Romany” subject population), their assistance is taken completely for granted. The agency of Chamseddine Mofidi (arguably the one truly “essential collaborator”) is limited here to his evaluations of Western scientists. This reflects the dominant authority Mourant 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 his collaborations operating in a mostly extractive fashion in such regions, fostering relationships with local researchers for instrumental purposes rather than treating them as reciprocal partners in a scientific enterprise. Once the fieldwork was over, everything—the blood samples, the equipment, the funding, the British scientists themselves—returned to the United Kingdom. In publications, local researchers were lucky 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 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 neocolonial attitudes of an American educational consultant toward the Iranians of Pahlavi University:

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.

⁷³ Mourant to Lehmann, 3 Aug. 1969, PP/AEM/K/336, box 41, Mourant Papers (my emphasis).

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.⁷⁴

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 better know your history. Iran is not an Arab country."⁷⁵ Despite these political differences, he maintained his Israeli professional connections, which in turn facilitated ties between his Iranian colleagues in Shiraz and Israeli medical geneticists.⁷⁶

STUDYING ARMENIANS IN JERUSALEM AND TEHRAN

While working on the same diseases forged an internal regional network for medical genetics, the field of genetic anthropology consistently drew both Israeli and Iranian researchers westward. Due to the field's reliance on computational equipment to reconstruct the historical and biological relationships between human groups, Israeli and Iranian genetic anthropologists formed much stronger networks of collaboration with European and American scientists than with each other. On the other hand, the Middle Eastern scientists all worked in an intellectual atmosphere more strongly informed by ethnic nationalism than did their Western counterparts. These localized frames of reference for understanding the history of socially defined human groups profoundly influenced how scientists interpreted genetic data. As an example, here I compare two studies, independently pursued by Israeli-British and Iranian-American research collaborations, on the frequencies of human leukocyte antigen (HLA) types among Armenian communities, published just six

⁷⁴ James E. Bowman, *Middle East Journal* 23, 2 (1969): 288–89, 289.

⁷⁵ Bowman oral history interview, 2006.

⁷⁶ For example, his Iranian students, carrying on his genetic research program, chose to publish in Israeli journals; see Ekmal A. Mohallatee and Mansoor Haghshenas, "Frequency and Distribution of ABO and Rh(D) Blood Groups in Shiraz," *Israel Journal of Medical Sciences* 5, 5 (1969): 1081–82.

months apart in consecutive volumes of the same European journal, *Tissue Antigens*, in 1978.⁷⁷

Until his death in 1971, Chaim Sheba remained undaunted in his grand efforts to explain the genetic differences between Jewish communities according to biblical lore, insisting that all variations had been present in a common Israelite gene pool, but that due to the cycles of ancient conquest and dispersal “parts of the body of the people broke off, taking some mutations with them.”⁷⁸ For example, the high frequency of the hereditary condition, familial Mediterranean fever (FMF), among Libyan Jews was unparalleled in many other Jewish communities, whereas it closely matched the frequency among Armenians. Out of many possible explanations for this similarity, Sheba decided that Armenians as well as the Libyan Jews must be descendants of the ten lost tribes of Israel exiled by the Assyrians in the eighth century BCE; while some of the Israelites carrying the FMF mutation fled to Libya, others must have settled in northwestern Mesopotamia and the Caucasus, and in time changed their religion and language to become Armenians.⁷⁹ Sheba’s embrace of Armenians as fellow descendants of “the common Semitic gene pool”⁸⁰ is all the more remarkable given the ambivalent status of the Armenian community in Palestine vis-à-vis the Zionist national project. At the time of Sheba’s speculations, he and his colleagues had never personally worked with the Armenian community, but rather based their observations on medical literature produced by others. Armenians were culturally and economically integrated with Arab Palestinians under British Mandate and Jordanian rule, and furthermore shared the 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.⁸¹ 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 “close contact with Armenians in Lebanon and Jordan.”⁸²

⁷⁷ The human leukocyte antigen (HLA) system is a highly diverse series of cell-surface proteins that allows the immune system to distinguish between the body’s own cells and foreign matter. By the early 1970s, the seemingly unlimited variability of the HLA proteins, and the genes that encode them, drew the attention of genetic anthropologists who hoped to use them to study human evolutionary history at a finer scale than previously possible.

⁷⁸ Chaim Sheba, “Jewish Migration in Its Historical Perspective,” *Israel Journal of Medical Sciences* 7, 12 (1971): 1333–41, 1339–40.

⁷⁹ *Ibid.*, 1336–37.

⁸⁰ *Ibid.*, 1336.

⁸¹ See Bedross Der Matossian, “The Armenians of Palestine 1918–48,” *Journal of Palestine Studies* 41, 1 (2011): 24–44.

⁸² Batsheva Bonn -Tamir et al., “HLA Polymorphism in Israel 8: The Armenian Community in Jerusalem,” *Tissue Antigens* 11, 3 (1978): 230–34, 231.

In 1972, as part of a major Israeli-British project on HLA polymorphisms in Israeli ethnic groups, Batsheva Bonn  finally initiated a study of the Armenians of Jerusalem due to their status as “one of the ancient communities of the area” and “the resemblance between them and the ancestors of Sephardi Jews.”⁸³ After securing the cooperation of teachers at the Armenian Theological Seminary and St. Tarkmanchatz School, Bonn  led weekly trips with Tel Aviv medical students to the Armenian quarter, collecting blood from twenty seminary students and 140 high school students.⁸⁴ Bonn  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 [*sic*] of the original Armenians and the rest are later ‘joiners’” (i.e., refugees from 1948). She provided 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.⁸⁵ Rather, Bonn  and her coworkers chose to flatten the Armenians’ complex demographic history by treating them as a single undifferentiated “Middle Eastern population” against which the various Jewish categories were measured. More oddly, although Bonn  had earlier written in Sheba’s obituary that his tales about FMF “were perhaps more speculation than documented facts,”⁸⁶ a few years later her comparative discussion of the HLA results noted that a “particular point of interest . . . is the similarity between the Jews from Libya and the Armenians. This observation would have delighted the late Dr. Sheba, who suggested many years ago, on the basis of FMF frequency and distribution, a close relationship between these two communities.”⁸⁷ This statement appears to be a simple tribute to Sheba (whom Bonn -Tamir held in great esteem), without any real scientific purpose, since she did not elaborate any further biological or historical analysis on this point. The reference may also reflect an implicit wish to designate the Armenians, and their quarter within the Old City, as rightfully belonging to the domain of Jewish history that the Zionist enterprise aimed to territorially recover.

Meanwhile, at the School of Public Health at the University of Tehran, Nahid Mohagheghpour and her student Hamideh Tabatabai took a special interest in Tehrani religious minorities as windows into Iran’s “ethnic history.” In 1977, Tabatabai completed a master’s thesis comparing HLA types in Iranian Armenians and Jews. Unlike Bonn , she did not collect the blood samples herself through direct acquaintance with these communities, but rather received samples gathered by

⁸³ Bonn -Tamir, *Hayim ‘im ha-genim*, 110.

⁸⁴ Bonn -Tamir et al., “HLA Polymorphism in Israel 8.”

⁸⁵ *Ibid.*, 230–31.

⁸⁶ Batsheva Bonn , “Chaim Sheba (1908–1971),” *American Journal of Physical Anthropology* 36, 3 (1972): 308–13, 312.

⁸⁷ Batsheva Bonn -Tamir et al., “HLA Polymorphism in Israel: 9. An Overall Comparative Analysis,” *Tissue Antigens* 11, 3 (1978): 235–50, 248.

Tehran hospital and clinic employees, then sent her numerical data to be analyzed by the UCLA Health Sciences Computing Facility. Her description of these two minorities, which occupied a marginal and unstable position in relation to the Aryanist national narrative, unveils further layers of ethno-national negotiation. While most Iranian Jews spoke Persian, they were understood to be 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. Tabatabai and her colleagues identified Aryans as the “original inhabitants” of Iran whereas all subsequent peoples had later “invaded” the territory. Jews and Armenians, who had been brought to settle in Iran in 538 BCE and 1605 CE, respectively, “because of religious restriction ... have remained relatively isolated from the surrounding populations.”⁸⁸ However, in contrast to Bowman’s emphasis (via an Armenian informant) that the Isfahani Armenians were a textbook “religious isolate,” Tabatabai suggested that admixture with other Iranian groups “must be presumed” for Tehrani Armenians, while for Jews, admixture “cannot be ruled out.”⁸⁹

Indeed, after comparing their HLA results to those of Jews from Yemen and India, she argued that Iranian Jews had a closer genetic relationship to the Iranian Armenians and the “control group” of Mazandarani (“descendants of ancient Medes ... and speakers of Persian dialect”) than to other Jewish groups. She 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, however, she also 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,”⁹⁰ although Sheba had specifically posited a close relationship between Armenians and Libyan Jews, not Iranian Jews (because the latter had no reported cases of FMF).⁹¹ Furthermore, Sheba’s account of this relationship certainly does not represent an accurate “historical background,” but rather an idealistic speculation in service to Sheba’s own devotion to constructing an unbroken family tree of Jewish tribes, a goal that sharply contrasts with the Iranian geneticists’ explanatory emphasis on admixture. The reference to Sheba may have been a direct suggestion by Batsheva Bonn -Tamir. Tabatabai’s advisor Mohaghehpour, seeking comparative data about the Jerusalem Armenians, had written to British geneticist Walter Bodmer, who in turn referred her to

⁸⁸ Hamideh Tabatabai, K. Mohammad, and Nahid Mohaghehpour, “HLA Antigens in Two Iranian Populations: The Armenians and The Jews,” *Tissue Antigens* 12, 5 (1978): 309–14, 309.

⁸⁹ The authors further identified Armenians as racially “Mongolo-Aryan”; *ibid.*, 310.

⁹⁰ *Ibid.*, 314.

⁹¹ Sheba, “Jewish Migration.”

Bonné-Tamir, before the Iranians' article was submitted for review. Having just invoked Sheba in her own work, Bonné-Tamir would likely have mentioned the reference to Mohaghehpour upon hearing of further research confirming a genetic similarity between Jews and Armenians.⁹²

In any case, the Iranian researchers did not take Sheba's hypotheses about the biblical ten lost tribes much to heart, and looked instead to articulate the role of Jews and Armenians in Iranian national history. 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 the "Iranian Jews" or "Iranian Armenians" used in the English-language article), testifies to such an underlying conceptualization of minority identities as a superstrate over Iranian subjecthood, rather than the other way around.⁹³ In fact, Tabatabai and Mohaghehpour effectively modeled the protocol for how other Iranian researchers would begin to frame their genetic studies of minorities from the late 1970s onward. 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"—in other words, mere variations on an essential Iranianness defined by nation-state boundaries.

CONCLUSION

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 Hermann Lehmann, William Boyd, and James Neel—ultimately controlled the interpretation and representation of the biological material and historical-cultural information conveyed to him by "third-world" geneticists and fieldworkers for the Anglophone sphere of scientific discourse. Bowman's success in Iran also highlights the colonial aspects of the international biomedical infrastructure. In a 2002 oral history interview, he mentioned that going to Iran was one of the best decisions he had made in his life, and that working at Nemazee Hospital was the first time he "felt like an American" rather than an African-American marginalized by segregation in his own country.⁹⁴ Indeed, the privileges available to

⁹² Mohaghehpour to Bodmer, 8 Dec. 1976; and Bodmer to Mohaghehpour, 24 Jan. 1977, MS Bodmer 94, fol. 1, Bodleian Library. As further evidence of Bonné's recommendation of Sheba's work, Tabatabai's 1977 thesis, completed before the corresponding article went to press, does not include the reference to Sheba.

⁹³ Hamideh Tabatabai, "Barrasī-yi muqāyisah-ī zhinitīk-i īrāniyān-i armanī va yahūdī" (M. Sc. thesis, University of Tehran, 1977). I thank Ehsan Amini for providing a copy of the thesis.

⁹⁴ Oral history interview with James E. Bowman, 27 Sept. 2002. *The HistoryMakers* Digital Archive, <http://www.thehistorymakers.com/biography/dr-james-bowman-39> (accessed Mar. 2016).

Bowman as an American physician in Iran not only made possible his career as a medical researcher, but also brought him the reputation and status in the international scientific community that ultimately secured him prominent positions in the United States, notably becoming the first tenured African-American professor at the University of Chicago’s Pritzker School of Medicine. Yet the professional opportunities for “empire building” afforded to Western researchers 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 Bonné) or indirectly through their influence over sympathetic Western visitors (as did Bowman’s Iranian colleagues). Bowman himself explicitly sought to enhance Iran’s local research capacity and took a strong stance against the “colonialist” attitudes embodied by Mourant, while also accepting certain narratives of Iranian nationalism and exporting them into the Anglophone human genetics literature.

Middle Eastern scientific workers were always “essential collaborators,” whether or not Mourant and other Western geneticists acknowledged them as such. Only through their labor could genetic data on Middle Eastern populations be made available to develop and test large-scale hypotheses about human evolution and historical migrations. Furthermore, as Batsheva Bonné-Tamir herself argued, they were not merely “agents for collecting blood” to be sent abroad. They contributed substantially to Western geneticists’ historical knowledge about the region, promoted specific ethnoreligious groups as ideal models to address fundamental questions about human evolution and biological processes of heredity, and shaped the interpretation of genetic data by participating in international conferences and publishing in international venues. As the case of the Armenians shows, Israeli and Iranian geneticists readily framed their research on minority communities with reference to established nationalist historical narratives. This does not reflect flawed or fringe science; on the contrary, it indicates their thorough integration into the international scientific community and informed adherence to its standardized norms for genetic research. As Jenny Bangham points out, “To make genetic data say anything meaningful about human groups, they had to be aligned with contemporary racial, historical, and geographical knowledge.”⁹⁵ The need to ascribe geographical and genealogical boundaries to research populations made all geneticists dependent on the accounts of historians, ethnographers, and linguists. Not only in the Middle East and other postcolonial contexts, but even in much of Europe, such contemporary knowledge had long been configured for the purpose of consolidating the nation-state.⁹⁶

⁹⁵ Bangham, “Blood Groups,” 11.

⁹⁶ See Mattson, “Nation-State Science.”

From the beginning of the Cold War into the late 1970s, both Israelis and Iranians 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 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. Geneticists of both countries worked on the same hereditary disorders (like G6PD deficiency) and overlapping population groups (like Jews and Armenians), which formed the logical basis of a regional network. Furthermore, most Israeli 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 served as “native informants” representing distinct national identities on the global stage of their profession. In this light, both their individual careers and the biological narratives they produced about their research subjects emblemize “the multiply contingent and hybrid character of science, nationalism, and modernity.”⁹⁷ Ultimately, it is the supposed universalism of scientific knowledge and internationalism of professional scientific communities that has reinforced a sense of national identity within the global ecosystem of healthcare, scholarship, and governance.

⁹⁷ Anderson and Pols, “Scientific Patriotism,” 97.

Abstract: In the aftermath of World War II, a new international infrastructure based on United Nations agencies took charge of coordinating global biomedical research. Through this infrastructure, European and American geneticists hoped to collect and test blood samples from human populations across the world to understand processes of human heredity and evolution and trace the historical migrations of different groups. They relied heavily on local scientific workers to help them identify and access populations of interest, although they did not always acknowledge the critical role non-Western collaborators played in their studies. Using scientific publications, personal correspondence, and oral histories, I investigate the collaborative relationships between Western scientists, their counterparts in the Middle East, and the human subjects of genetic research. I comparatively examine the experiences of Israeli and Iranian scientists and physicians engaged in genetic anthropology and medical genetics between the mid-1950s and the late 1970s, noting how they both applied nationalist historical narratives to their genetic data and struggled to establish the value of their local knowledge and scientific labor. I argue that the Israeli and Iranian experience of transnational scientific collaboration is representative of how Western scientists relegated their collaborators from “developing” regions to a subordinate positionality as collection agents or native informants. Meanwhile, within their own countries, the elite professional identity of Israeli and Iranian scientists granted them the authority to manipulate their research subjects, who often belonged to marginalized minority communities, and to interpret their biology and history within contexts of Jewish and Persian nationalism.

Key words: Iran, Israel, Middle East, genetics, biology, scientific collaboration, nationalism, ethnicity