

RESEARCH ARTICLE

## Comparative globalizations: building and dismantling genetic laboratories in Lebanon

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### Abstract

This paper examines two moments in the globalization of human genetics, focusing on the American University of Beirut as a site of interaction between American, European and Middle Eastern scientific actors and research subjects. In the interwar period, the establishment of clinical laboratories at AUB's medical school enabled the development of an informal large-scale programme to study human heredity through anthropometry and sero-anthropology. AUB's Middle Eastern students were trained in these techniques, and research results were disseminated locally in Arabic as well as in international scientific journals. In the post-war period, new technologies transformed human genetics into an internationally coordinated science with specialized laboratories. However, an attempt to establish such a lab at AUB during the 1960s ended in failure: the Anthropological Blood Grouping Laboratory functioned for only four years before closing. The American and British personalities who promoted the ABGL in Lebanon aimed to collect blood samples from across the region without committing to long-term relationships with local scientists and research subjects. As an 'outpost' for Western scientists, the ABGL embodied the neo-colonial structure of post-war human population genetics, both in its unfulfilled aspirations to serve metropolitan research agendas and in its marginalization of Middle Eastern scientists.

At present, the ABO blood groups are best known within the context of medicine, due to the essential role of these blood antigen types in the compatibility of blood transfusions. However, the original discovery of the ABO blood groups at the turn of the twentieth century was not immediately recognized as a medical breakthrough. Before ABO testing was widely applied as a prerequisite for blood transfusion, geneticists had much more reason than physicians to be excited about blood groups, which were the first human trait proven to be inherited according to a Mendelian pattern. The detection of this inheritance pattern meant that blood group research was very quickly applied to anthropological questions about human variation and evolution. Indeed, 'one of the most rapid and widespread applications' of blood group testing was to search for differences in human populations, to examine the 'possibility that blood types were a potential genetic marker for race, disease, criminality and other human conditions'.<sup>1</sup> Historian William Schneider used bibliometric

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1 William H. Schneider, 'The history of research on blood group genetics: initial discovery and diffusion', *History and Philosophy of the Life Sciences* (1996) 3, pp. 277–303, 277–8.

methods to examine the swift global spread of this emergent field, which became known as sero-anthropology (named after blood serum). He found that less than ten years after the field's ostensible foundation in 1919, researchers had published sero-anthropological data from all six inhabited continents; by 1939, blood type results had been collected from over 1.3 million people.<sup>2</sup> Schneider attributes the speed of this globalization primarily to the wide circulation of scientific and medical periodicals (including new journals that sprouted up specifically for blood group research) alongside the colonial scientific infrastructure of European overseas empires.<sup>3</sup>

Although French, Dutch and British colonial structures certainly enabled the techniques and concepts of sero-anthropology to spread quickly beyond Europe, the field did not always function to reinforce the narratives of human evolution and racial supremacy espoused by these empires. The highly decentralized nature of sero-anthropological research, facilitated by the relative technological simplicity of ABO blood typing after 1919, enabled individuals with a broad range of ideological motivations to participate in these studies. Nor were non-Europeans simply the passive subjects of racial research on blood groups. For example, East Asian imperialists, as well as anti-colonial nationalists in the Middle East, were equally interested in participating in sero-anthropology, contesting the field's Eurocentric hypotheses and proposing their own. Japanese researchers, who were among the world's most prolific and prominent sero-anthropologists, collected blood from thousands of people not only on the Japanese home islands but also in Japanese colonies like Korea and Taiwan.<sup>4</sup> Turkish nationalist physicians were also early and enthusiastic adopters of sero-anthropology, perceiving it to bolster their claims that Turks were racially European.<sup>5</sup> Before and during the Second World War, global sero-anthropology was an institutionally marginal, and therefore intellectually diverse, enterprise in which no single political or scientific agenda could claim international dominance.<sup>6</sup>

Recent historiography has focused more closely on post-war human population genetics, with an emphasis on scrutinizing what precisely differentiates this field (particularly its subfield of 'anthropological genetics') from interwar sero-anthropology. The basic consensus is that despite geneticists' public efforts to distance themselves from the politics of racism, the field's working assumptions about how to define and study human groups remained closely aligned to those of Eurocentric racial anthropology.<sup>7</sup> The primary changes in post-war science were not intellectual, but rather technological and institutional: specifically, the spread of technologies to preserve and transport blood (accelerated by wartime blood transfusion needs), as well as the emergence of national and international organizations to manage this movement of blood samples (such as the World Health Organization and affiliated institutions). Several historians have perceptively traced how these trends

2 Schneider, *op. cit.* (1), p. 287.

3 Schneider, *op. cit.* (1), pp. 302–3.

4 Jaehwan Hyun, 'Blood purity and scientific independence: blood science and postcolonial struggles in Korea, 1926–1975', *Science in Context* (2019) 3, pp. 239–60; Jennifer Robertson, 'Hemato-nationalism: the past, present, and future of "Japanese blood"', *Medical Anthropology* (2012) 2, pp. 93–112.

5 See Chapter 2 in Elise K. Burton, *Genetic Crossroads: The Middle East and the Science of Human Heredity*, Stanford, CA: Stanford University Press, 2021.

6 On sero-anthropology's marginality see Jonathan Marks, 'The legacy of serological studies in American physical anthropology', *History and Philosophy of the Life Sciences* (1996) 3, pp. 345–62.

7 Jenny Reardon, *Race to the Finish: Identity and Governance in an Age of Genomics*, Princeton, NJ: Princeton University Press, 2005; Veronika Lipphardt, 'The Jewish community of Rome: an isolated population? Sampling procedures and bio-historical narratives in genetic analysis in the 1950s', *BioSocieties* (2010) 3, pp. 306–29; Jenny Bangham and Soraya de Chadarevian, 'Human heredity after 1945: moving populations centre stage', *Studies in History and Philosophy of Science. Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* (2014) 47, pp. 45–9.

enabled a massive ‘scaling up’ of human genetics into a ‘broad global project’.<sup>8</sup> In this paper, I highlight how these technological and institutional factors made the globalization of blood group genetics in the post-war period a fundamentally different process than the earlier globalization of sero-anthropology. ‘Scaling up’ human genetics certainly involved great increases in the amount of research funds invested, the number of blood samples collected, and the number of blood group systems tested (many others besides the ABO system). But to a significant extent, scaling up also involved streamlining, an elision and marginalization of those generalist scientists and laboratories who had engaged in sero-anthropology as one of a number of biomedical research projects. The World Health Organization (WHO) facilitated the ‘global project’ of human genetics by designating a few specialized laboratories as ‘international reference centres’, mostly located in Europe and North America, whose staff not only tested blood specimens, but also standardized global protocols for the collection, transport and analysis of blood.<sup>9</sup> This explicit centralization of infrastructure enabled Euro-American labs to dominate the research and publishing agendas of human genetics, at the same time as refrigeration technologies made it possible to ship blood samples from anywhere in the world directly to these Western reference centres. In interwar sero-anthropology, it had been widely accepted that any one researcher could only study a relatively small number of populations in close proximity, requiring the cooperation of many scientists worldwide to publish and collate a global data set of ABO blood group frequencies. The post-war scaling up of human genetics fundamentally changed the dynamics of research collaborations as a few prominent laboratory directors and star geneticists began competing to acquire and test the most genes on the most samples from the broadest geographic expanse. This combination of Western-centred scientific authority and competitive scientific territorialism exacerbated, even incentivized, the withholding of financial and material resources from smaller non-Western genetic laboratories in order to funnel as many blood samples as possible to a select number of labs in the global North.<sup>10</sup>

This article invites historians of human genetics to reconsider the nature of this science’s varying globalization processes in the interwar and post-war periods through the experiences of scientific actors in peripheralized regions such as the Middle East. I use the American University of Beirut (AUB), a prestigious institution founded by Protestant missionaries in 1866, as a case study to explore how local research communities were forged and broken down in these two periods. First, I focus on the interwar period, when the emergent states of Lebanon and Syria were controlled by the French Mandate and the neighbouring territories of Palestine, Transjordan and Iraq by the British Mandate. At this time, members of AUB’s medical faculty engaged a diverse group of Middle Eastern students and staff in sero-anthropology as part of an unofficial and diffusely organized region-wide programme of race science. Second, I summarize the post-war changes that consolidated human genetics as a discipline alongside AUB’s efforts to rebuild its regional influence after Lebanon’s independence. Finally, I write an archival microhistory of the Anthropological Blood Grouping Laboratory (ABGL), a specialized facility initially affiliated with AUB upon opening in 1962, separated from the

8 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* (2014) 47, pp. 185–90, 188; Joanna Radin, *Life on Ice: A History of New Uses for Cold Blood*, Chicago: The University of Chicago Press, 2017.

9 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* (2014) 47, pp. 74–86; 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* (2014) 47, pp. 62–73, 68.

10 See Radin, op. cit. (8); Jenny Bangham, *Blood Relations: Transfusion and the Making of Human Genetics*, Chicago: The University of Chicago Press, 2020.

university in 1965, and shut down completely in 1966. The American and British scientists who promoted the ABGL in Lebanon aimed to collect blood samples from across the Middle East and funnel them abroad, without committing to long-term relationships with Middle Eastern scientific actors or research subjects. I argue that comparing the different social processes used to organize genetic research in these two periods can explain how the post-war era of political decolonization and economic developmentalism could paradoxically foster neo-colonial patterns of scientific exchange and collaboration. As an ‘outpost’ for Western scientists to extract Middle Eastern blood, the ABGL embodied the neo-colonial structure of post-war human population genetics, both in its unfulfilled aspirations to serve metropolitan research agendas and in its marginalization of Middle Eastern scientific actors.

### Anthropological genetics in interwar Beirut

The territories and peoples of the former Ottoman Empire played an important role in the initial emergence and globalization of sero-anthropology. On the Balkan–Ottoman front of the First World War, Allied physicians tested the blood of diverse groups of Balkan refugees as well as soldiers from the Asian and African colonies of France and Britain. These tests revealed that frequencies of inherited ABO blood types varied dramatically between different populations defined by racial, ethnic, religious and national categories.<sup>11</sup> Based on this initial discovery, the new field of sero-anthropology formed during the interwar years, spreading alongside the new medical practices and technologies of blood transfusion. A number of European and American physicians argued that the history of human evolution could be reconstructed on the basis of a worldwide accumulation of blood group data. These nascent human geneticists began to tabulate blood group frequencies from their own and neighbouring countries, as well as from locations hosting colonial or missionary medical facilities.<sup>12</sup> The French and British Mandates in the Middle East, for example, provided convenient research sites. The American University of Beirut, in particular, became a pioneering institution for Middle Eastern human genetics research during the interwar period as it repaired and updated its medical school and hospital.<sup>13</sup>

Harry G. Dorman, the dean of AUB’s medical faculty, first introduced blood transfusion to the university in 1921, when he brought over typing sera and transfusion apparatus from the United States.<sup>14</sup> That same year, representatives of the US-based Rockefeller Foundation began regularly visiting AUB’s medical school. They advised the school’s reorganization into specialist departments and, through significant financial investment, enabled the hiring of new faculty to conduct laboratory research as well as teach students. Later in the 1920s, additional Rockefeller donations enabled AUB to modernize its medical

11 Lisa Gannett and James R. Griesemer, ‘The ABO blood groups: mapping the history and geography of genes in *Homo sapiens*’, in Hans-Jörg Rheinberger and Jean-Paul Gaudillière (eds.), *Classical Genetics Research and Its Legacy: The Mapping Cultures of Twentieth-Century Genetics*, London: Routledge, 2004, pp. 119–72.

12 See Leland C. Wyman and William C. Boyd, ‘Human blood groups and anthropology’, *American Anthropologist* (1935) 37(2), pp. 181–200, 198. During this period, human genetics was not a well-defined field; throughout this paper, I use ‘geneticists’ as a shorthand for the scientists trained in anthropology, medicine and biochemistry who studied inherited traits in humans.

13 The Hadassah hospitals in Mandate Palestine also provided a venue for sero-anthropological studies. See the work of Hadassah physician Rina Younovitch during the early 1930s: Rina Younovitch, ‘Contribution à l’étude sérologique des juifs de Yémen’, *Comptes rendus des séances de la Société de biologie* (1932) 111, pp. 929–31; Younovitch, ‘Les caractères sérologiques des juifs asiatiques’, *Comptes rendus des séances de la Société de biologie* (1933) 113, pp. 1101–3; Younovitch, ‘Etude sérologique des juifs samaritains’, *Comptes rendus des séances de la Société de biologie* (1933) 112, pp. 970–1.

14 Fouad G. Dadis, ‘Transfusion and blood groups’, MD thesis, American University of Beirut, 1930, pp. 7–8.

facilities and construct purpose-built laboratories for bacteriology, pathology and parasitology.<sup>15</sup> Shortly after joining AUB as a professor of bacteriology in 1923, Leland Wilbur Parr made use of the newly acquired blood transfusion reagents, equipment and facilities to initiate a major sero-anthropology programme, reporting blood group data on nearly ten thousand people over the next six years. Parr and his technicians, Agnes Young and Michel George Knesevich, typed blood samples collected from AUB staff, students and clinic patients, as well as from 'orphanage and sanatorium subjects under the care of various relief agencies, which have kindly given [Parr] access to their charges'.<sup>16</sup> Parr categorized the majority of his research subjects as 'Armenians' and 'Syrians', with the latter subdivided by religion as Christians, Muslims, Druze and Jews. Smaller contingents of Assyrian, Persian and Egyptian students also provided blood samples. Parr then travelled to Egypt to sample patients at the American University Hospital in Cairo. In 1928, he ventured to Nablus in Mandate Palestine to study the Samaritans, a small ethno-religious community that had attracted attention from pre-war racial anthropologists as the supposed living representatives of an ancient Judaeen gene pool.<sup>17</sup> Parr was the first of many geneticists to test this historical claim using blood groups; the next attempts would be a source of scientific territorial conflict, which I discuss in a later section.

Parr's work inspired several of his colleagues at AUB's medical school to begin anthropological and racial research, combining blood group studies with racial pathology (comparative studies of disease and susceptibility) and anthropometry (external measurements of body parts). Harald Krischner, an Austrian pathologist who joined AUB in 1928, ventured even farther afield than Parr; he and his wife arranged expeditions to northern Iraq and Iran, where they measured the heads of about three thousand people identified as Armenians, Assyrians, Chaldeans, Yezidis, Kurds, Jews, Muslim and Christian Arabs of Mosul, Iraqi Bedouins, Persians and Zoroastrians.<sup>18</sup> Histologist William M. Shanklin took a particular interest in neuroanatomy, and his research technician Tamir Khalil Nassar served as his co-instructor in this subject. In the 1929–30 academic year, Shanklin went on leave to the United States for advanced research training, and prominent Dutch neuro-anatomist Cornelius U. Ariens Kappers visited AUB to cover Shanklin's teaching and conduct his own research in neurology and craniometry. One line of this work included studying a small number of Armenian and Lebanese brain specimens.<sup>19</sup> His most substantial investigation involved measuring the heads of about 2,500 people with the help of numerous assistants.<sup>20</sup> Kappers took a particular liking to Nassar, Shanklin's highly skilled technician, and insisted that Nassar accompany him during all of his research activities.<sup>21</sup>

15 S.B.L. Penrose, *That They May Have Life: The Story of the American University of Beirut 1866–1941*, Beirut: Trustees of the American University of Beirut, 1941, pp. 224–6.

16 Leland W. Parr, 'Studies in isohemagglutination', *Journal of Immunology* (1929) 2, pp. 99–107, 100.

17 Leland W. Parr, 'Blood studies on peoples of Western Asia and North Africa', *American Journal of Physical Anthropology* (1931) 1, pp. 15–29. It is beyond the scope of this paper to discuss how the geneticists interpreted the results of their blood data; for a detailed analysis and critique of such interpretations see Burton, op. cit. (5).

18 H. Krischner and M. Krischner, 'The anthropology of Mesopotamia and Persia. A.: Armenians, Khaldeans, Suriani (or Aissori) and Christian "Arabs" from Iraq', *Proceedings of the Royal Academy of Sciences at Amsterdam* (1932) 35, pp. 205–17; Krischner and Krischner, 'The anthropology of Mesopotamia and Persia. B.: Jesidis and (Moslem) Arabs from Iraq, with some remarks on Kurds and Jews', *Proceedings of the Royal Academy of Sciences at Amsterdam* (1932) 35, pp. 218–27; Krischner and Krischner, 'The anthropology of Mesopotamia and Persia. C.: The anthropology of Persia', *Proceedings of the Royal Academy of Sciences at Amsterdam* (1932) 35, pp. 399–410.

19 C.U. Ariens Kappers, 'The brain of a Lebanese', *Journal of Comparative Neurology* (1932) 1, pp. 15–26.

20 C.U. Ariens Kappers, *An Introduction to the Anthropology of the Near East in Ancient and Recent Times*, Amsterdam: Noord-Hollandsche Uitgeversmaatschappij, 1934.

21 See Nabil T. Nassar's biographical notes, 'Tamir Nassar: father and teacher', 20 February 2007, and Kappers's letter of recommendation for Tamir Nassar, 13 September 1930, Tamir Nassar collection, Saab Medical Library, American University of Beirut.



Kappers's accounts record in greater detail than Parr or Krischner the many AUB students, staff and alumni of different ethnicities who participated in the anthropometric work. He noted his special indebtedness to 'Mr. Zeyne Nur-ed-din and Mr. Dowlatshahi' for their help in recruiting and measuring AUB's thriving community of over a hundred 'Persian' students and staff.<sup>22</sup> According to AUB's alumni and staff directories, in 1930 Zeine Nur-ud-din Zeine was a recent arts graduate who served as a high-school instructor in sociology, French and history; he later earned a PhD and went on to become an AUB history professor after 1945. Hishmat Amir Dawlat-shahi, whose surname suggests he belonged to a particularly elite family, was a medical student who earned an MD in 1934.<sup>23</sup> Kappers also acknowledged the major contribution of data by Najla Abu 'Izz al-Din, a Druze woman who measured over a thousand members of her community as part of her doctoral dissertation for the University of Chicago.<sup>24</sup> Further research is needed to verify the identities of other collaborators that Kappers left unnamed or partially named, such as the 'Dr. Kh. Furayha' who helped measure ninety Druze; a Kurdish AUB student, 'Mr. Mirzo', who helped measure a 'large Kurdish colony' in Damascus that had migrated from south-eastern Turkey; and a 'Transjordan Beduin' student who provided Kappers with two Beduin skulls.<sup>25</sup>

Parr left AUB in 1930 to work in the United States, and Krischner unexpectedly died in autumn 1931. The unofficial programme of racial anthropology research was taken over by Shanklin, who spent his full career at AUB, teaching anatomy and histology continuously until his retirement in 1962. Between 1934 and 1941, Shanklin organized regular expeditions to study different ethno-religious communities across Lebanon and Syria, as well as Beduin tribes in the deserts of Syria and Transjordan.<sup>26</sup> He used both sero-anthropology and anthropometric measurements, as well as other methodologies, to analyse the biological relationships and origins of these communities. The blood-typing of the Beduin tribes was notably performed in a field camp in the middle of the desert, using antisera prepared at AUB's bacteriology laboratory and other equipment including test tubes, glass slides and a microscope. Shanklin emphasized that he did not do the typing himself, but rather relied on 'an experienced technician' whose readings were checked by 'the medical doctor'.<sup>27</sup> Based on the names in the acknowledgements, these figures were almost all Syro-Lebanese Arab AUB graduates: Tamir Nassar was the technician, and the medical doctor could refer to Ahmad Muhyiddin Salamah, a recent MD, and/or to Dr Abdur-Rahman Sinnu, a clinical assistant in AUB's surgery department. In the later Beduin expeditions Shanklin also credits Adib Tayyar, an AUB pharmacy graduate and research assistant in the bacteriology department, for assisting with blood collection.<sup>28</sup>

Shanklin's work, more clearly than that of Kappers, highlights that many students participating in the research were not merely liaisons to their own communities or engaging in scientific 'self-study', but also were learning to perceive other social groups and human

22 Kappers, *op. cit.* (20), p. 80.

23 See AUB Alumni Association, *The American University of Beirut Directory of Alumni 1870-1952*, Beirut: American University of Beirut, 1953.

24 Kappers, *op. cit.* (20), p. 25. See also N.M. Izzeddin, 'The racial origins of the Druze', PhD dissertation, University of Chicago, June 1934.

25 Kappers, *op. cit.* (20), pp. 25, 74, 57.

26 William M. Shanklin, 'Anthropometry of Syrian males', *Journal of the Royal Anthropological Institute of Great Britain and Ireland* (1938) 68, pp. 379-414.

27 W.M. Shanklin, 'Blood grouping of Rwala Beduin', *Journal of Immunology* (1935) 6, pp. 427-33, 428.

28 W.M. Shanklin, 'Blood grouping of the Maualy and Akeydat Beduin', *American Journal of Physical Anthropology* (1936) 1, pp. 39-48. For more on Ahmad Adib Abdul-Kader Tayyar see AUB Alumni Association, *The American University of Beirut Directory of Alumni 1870-1952*, pp. 241-2.

remains as anthropological Others. For example, an Iraqi Jewish medical student, Isaac Yehuda Peress, helped Shanklin take anthropometric measurements of the Khazaal Bedouin tribe of southern Iraq's Diwaniyah region.<sup>29</sup> Another medical student, George Fawwaz, recounted in passing that Shanklin 'made some students like me do the job' of measuring skulls.<sup>30</sup> In addition to examining the ethnic and religious dynamics of student participation in interwar genetic studies, further archival research needs to interrogate the role of gender, as Shanklin and his male colleagues relied on women to obtain data on female research subjects. Shanklin co-authored a paper on the blood and physical traits of Syrian women with Najla Abu 'Izz al-Din, who had returned from Chicago to Beirut to teach at the American Junior College for Women.<sup>31</sup> Furthermore, most of the European and American AUB staff credited with measuring and blood-collecting assistance were women technicians, such as Eleanor Blish, the assistant director of the hospital laboratory; Annie Lyman, the director of nursing education; Shanklin's wife, Gladys; and Harald Krischner's widow, whose own first name is frustratingly omitted from all documents currently available to me.<sup>32</sup>

Existing historiography emphasizes the professional clashes that emerged between advocates of sero-anthropology, who were mostly medical scientists, and the old-guard physical anthropologists, who favoured anthropometry for racial classification.<sup>33</sup> However, because AUB had no anthropology department during the interwar period, medical faculty like Parr, Kappers, Krischner and Shanklin faced no local professional opposition to their work. In fact, they played a critical role in popularizing physical anthropology in Beirut. They formed a committee to promote anthropology, which involved giving public lectures in English and disseminating them in both Arabic and English through the AUB alumni magazine *al-Kulliyah*, which had a region-wide circulation.<sup>34</sup> The interwar globalization of sero-anthropology, at least in this Middle Eastern case, was therefore embedded within local programmes of medical research development and substantially relied on the interest, training and active participation of local students and medical professionals. In making this evaluation, I am not passing any kind of positive moral judgement on AUB sero-anthropology, which at its intellectual and procedural core adhered to Eurocentric standards of race science and reinforced white supremacist colonial hierarchies. Nor can I contend, without further archival evidence, that Parr and his colleagues cared more about the advancement of their Middle Eastern students and research subjects than about their status in the Eurocentric international scientific community. Rather, I highlight here the extent to which technological and institutional constraints in the interwar Middle East encouraged long-term supportive relationships between American, European and Middle Eastern scientific actors in educational settings.

29 W.M. Shanklin, 'Anthropology of the Akeydat and the Maualy Bedouin', *American Journal of Physical Anthropology* (1936) 2, pp. 217–52.

30 G. Fawwaz, 'Reminiscences of an alumnus: AUB in the early thirties, its golden age', *Scan: Medical Alumni Newsletter: A Supplement of al-Kulliyah*, 1987, 1. Cited from the online transcription of the article in the digitized Tamir Nassar collection, Saab Medical Library, American University of Beirut.

31 W.M. Shanklin and N. Izzeddin, 'Anthropology of the Near East female', *American Journal of Physical Anthropology* (1937) 3, pp. 381–415.

32 Annie Lyman, Gladys Shanklin and Mrs. Krischner are thanked in Shanklin's papers cited above. On Blish see Kappers, op. cit. (20), pp. 79–80.

33 Marks, op. cit. (6); Rachel Silverman, 'The blood group "fad" in post-war racial anthropology', *Kroeber Anthropological Society Papers* (2000) 84, pp. 11–27.

34 'Anthropological notes and news', *American Anthropologist* (1931) 33, p. 487. For Arabic articles see, for example, Kappers's three-part article in *al-Kulliyah*, which was revised and published in English two years later: C.U.A. Kappers, 'Anthrübülūjīyyat al-sharq al-adani', *al-Kulliyah* (1932) 4, pp. 266–9; Kappers, 'Anthrübülūjīyyat al-sharq al-adani', *al-Kulliyah* (1932) 5, pp. 349–65; Kappers, 'Anthrübülūjīyyat al-sharq al-adani', *al-Kulliyah* (1932) 6, pp. 425–31.

For this period, the globalization of genetic science implies that more people from more places in the world were being trained in the relevant methods and initiating independent research projects. In contrast, the post-war mode of globalization emphasized internationally coordinated projects collecting more *blood samples* from more places in the world, to be analysed and published by a *smaller* number of scientists who regarded each other as professional competition.

### The post-war ‘globalization’ of anthropological genetics

The Second World War and its aftermath provided medical technologies and infrastructures that marked a new approach to globalizing the anthropological study of human blood. Wartime investment in blood research enabled a rapid succession of discoveries of heritable blood group and serum proteins. Sero-anthropology had relied almost exclusively on the frequencies of ABO types, which could be determined by simple tests at any medical facility that provided blood transfusions, or even out in the field with test tubes and antisera. This changed quickly after 1950, when ‘the sciences of human biology were scaled up in a breathtaking expansion of collection and surveillance’ through a ‘cumulative process of emerging consensus that reflected technological change, opportunistic field research, and unprecedented funding for genetics research’, which reflected ‘significant and growing interest in the technical elucidation of human heredity’.<sup>35</sup> Blood samples were mined for data on more and more hereditary traits, reaching over a dozen antigen systems and blood protein variations by the 1960s. Detecting many of these traits, however, required much more expensive, specialized equipment and training than ABO blood groups did. Furthermore, this ‘emerging consensus’ and ‘unprecedented funding’ belonged to scientists in developed nations, not to struggling former colonies. The new research expectations for post-war human population genetics compelled those scientists without the necessary financial and equipment resources to test their own blood samples to refrigerate and ship them, based on the war-time ‘cold-chain’ model, to a handful of centralized reference laboratories designated by the WHO.<sup>36</sup>

One of these labs was Arthur Mourant’s Blood Group Reference Laboratory (BGRL) in London, which attained WHO recognition in 1952.<sup>37</sup> With the 1954 publication of his master compilation of global population data, *The Distribution of the Human Blood Groups*, Mourant became a central figure in anthropological genetics during the Cold War.<sup>38</sup> The Middle East was a region of particular interest for Mourant; during the 1950s, his laboratory drew on British military and medical connections to procure blood samples from British colonies like Aden and former protectorates and mandates like Egypt and Iraq.<sup>39</sup> Although Mourant and many of his Western-based colleagues depended heavily

35 Lindee, op. cit. (8), p. 186.

36 Radin, op. cit. (8).

37 Arthur E. Mourant, *Blood and Stones: An Autobiography*, La Haule, Jersey: La Haule Books, 1995, pp. 60–2; 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, pp. 171–201, 185; World Health Organization and M.G. Candau, *The Work of WHO, 1965: Annual Report of the Director-General to the World Health Assembly and to the United Nations* (1966), pp. 53–4.

38 Arthur E. Mourant, *The Distribution of the Human Blood Groups*, 1st edn, Oxford: Blackwell Scientific, 1954.

39 See, for example, Joyce A. Donegani, Karima A. Ibrahim, Elizabeth W. Ikin and Arthur E. Mourant, ‘The blood groups of the people of Egypt’, *Heredity* (1950) 3, pp. 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, pp. 262–5; Elizabeth W. Ikin, A.E. Mourant and H. Lehmann, ‘The blood groups and haemoglobin of the Assyrians of Iraq’, *Man* (July 1965).



on local scientific actors for the success of their overseas fieldwork, they were not interested in contributing to the development of scientific communities in decolonizing regions like the Middle East, but rather in shoring up their own international reputations.<sup>40</sup>

These new transformations of human genetics coincided with post-war technocratic ideals of developmentalism and modernization theory, the theoretical and practical underpinnings of which had already germinated at sites like AUB during the interwar period. The early 1950s witnessed the revival of AUB's aspirations to regional 'empire building' in knowledge production through social and medical sciences.<sup>41</sup> These aspirations first took shape through the establishment and annual hosting of the Middle East Medical Assembly, a professional conference that drew hundreds of physicians and nurses from the newly independent Levant states of Lebanon, Syria and Jordan, as well as Iraq, Egypt and Turkey. Furthermore, a new wave of financial support from the Rockefeller Foundation, as well as other US private and government funds, provided abundant opportunities for AUB medical students and staff to enjoy academic exchange programmes in the United States and Europe.<sup>42</sup> In 1962, American physician Samuel B. Kirkwood became dean of the Faculties of Medical Sciences. At the end of the academic year, Kirkwood introduced his annual report with a stirring proposal to transform AUB's hospital and medical schools into the Middle East's premier regional centre for medical research and education.<sup>43</sup> Given the ongoing struggles of individual Arab states to train practising physicians, let alone medical researchers, Kirkwood argued that AUB had a responsibility to serve as 'the primary technical resource point' and 'graduate school of choice' for the entire region. By investing in research facilities, AUB could reduce the need for Middle Eastern medical students to seek advanced training in Europe or America, allowing them to learn in 'an environment tuned to problems of the area'.<sup>44</sup> To support this vision, Kirkwood promoted the development of new laboratories that could bridge basic science research with the clinical needs of local communities.

Kirkwood's first year at AUB coincided with the establishment of the ABGL within the hospital's department of clinical pathology. Created by American biologist Harry Madison Smith with funding from the US National Institutes of Health (NIH), the ABGL seemed to represent just the kind of research investment that Kirkwood hoped to see. However, Smith and his professional collaborators in the US and the UK had quite different ideas about the purpose of this laboratory. Whereas Kirkwood spoke in terms of regional development and envisioned AUB as a scientific centre for the Middle East, Smith's colleagues described the ABGL as an 'outpost' to serve the research needs of American scientists. Although the lab hired some Lebanese staff to assist in the collection and testing of blood, it never operated as a training facility for Middle Eastern scientists, nor did it directly address the region's healthcare needs. In fact, within four years, the lab terminated its affiliation with AUB and relocated to a private Beirut apartment. Smith brought most of the equipment and data records back to the United States, leaving behind a skeleton

40 Elise K. Burton, "'Essential collaborators': locating Middle Eastern geneticists in the global scientific infrastructure, 1950s–1970s', *Comparative Studies in Society and History* (2018) 1, pp. 119–49.

41 On AUB's interwar 'empire building' see Cyrus Schayegh, 'The interwar germination of development and modernization theory and practice: politics, institution building, and knowledge production between the Rockefeller Foundation and the American University of Beirut', *Geschichte und Gesellschaft* (2015), pp. 649–84, 674.

42 See Annual Report of the Division of Medicine, 1953–4, and Annual Reports of the Faculty of Medical Sciences, 1955–6 and 1956–8, American University of Beirut.

43 Annual Report of the Faculties of Medical Sciences, American University of Beirut, 1962–3, pp. III-A-1–III-A-15.

44 Annual Report of the Faculties of Medical Sciences, op. cit. (43), p. III-A-9.

crew of precariously compensated technicians and fieldworkers with orders to continue collecting and shipping blood from local populations overseas.

Below, I trace the brief history of the ABGL in Beirut, with particular attention to its role as an interstitial space, representing conflicting expectations about how Lebanon and the broader Middle East should be integrated into the post-war international genetics infrastructure. Rather than pursuing a mission of regional scientific enlightenment, the Beirut lab essentially functioned as an experimental way station for a global project called the International Biological Programme (IBP), a ten-year initiative that promoted the shipment of vast quantities of human blood samples from developing countries to laboratory freezers across Western Europe and North America between 1964 and 1974.<sup>45</sup> Mourant, the IBP's general coordinator for worldwide population surveys, treated laboratories in the developing world as outposts for a Western scientific agenda rather than as independent institutions capable of serving both local and global research interests. Mourant also regarded Smith as his personal protégé and his laboratory as a satellite of Mourant's own lab in London. Accordingly, the marginalization of Lebanese researchers in the management of Beirut's ABGL, as well as the lab's rapid decline from a testing centre into a temporary collection and transit point for Middle Eastern blood and demographic data, reflects neo-colonial practices of international collaboration that privileged Western scientists at the expense of their Middle Eastern colleagues.

### Harry Smith and the establishment of the ABGL

Before his arrival in Beirut, Harry Madison Smith had been an itinerant scholar. After earning his PhD in biology from the University of Chicago in 1942, he spent the next twelve years teaching in contingent positions at five different universities. In 1954 he joined AUB, where he worked for four years until receiving a two-year NIH-funded post-doctoral fellowship at Columbia University to study the geographic distribution of human blood groups.<sup>46</sup> During this fellowship, he visited the BGRL in London, where he made the acquaintance of Arthur Mourant. Though not his direct supervisor, Mourant formed a personal attachment to Smith, since the latter traced his roots to Mourant's home island of Jersey.<sup>47</sup> In 1960, Smith joined a BGRL expedition to Ibadan, Nigeria, where he collected blood from a Yoruba village, and flew the specimens back to London for laboratory tests.<sup>48</sup> His perceptions about anthropological genetics, and specifically the norms of fieldwork in (post-)colonial regions, were thus strongly shaped by his experiences with Mourant's BGRL.

Upon his return to the United States, Smith took a faculty position in Pennsylvania, but planned on returning to Beirut to initiate his own blood-grouping programme in the Levant. In late 1961, he won an NIH grant to set up a laboratory affiliated with AUB's medical school. Shortly thereafter, he received an unexpected letter from Cummins E. Speakman Jr, whom he had met at AUB in 1956. Speakman had just become the dean of Springfield College, a small YMCA-affiliated school in western Massachusetts,

45 M.A. Little, 'Human population biology in the second half of the twentieth century', *Current Anthropology* (2012) 55, pp. S126–38, S132.

46 Springfield College Undergraduate Catalog, 1964–5, p. 114. Archived catalogs of the American University of Beirut attest to Smith's original appointment as an assistant professor of biology in 1955–6 (p. 21) and his promotion to associate professor of biology in 1956–7 (p. 24). In the 1957–58 (p. 135) and 1958–59 (p. 137) academic years, he is identified as 'associate professor of engineering sciences'.

47 Mourant, *op. cit.* (37), p. 77.

48 Harry Madison Smith to Cummins E. Speakman, 30 October 1961, Folder 1, Harry Madison Smith Papers, Faculty Records, Springfield College Archives and Special Collections, Springfield, MA (subsequently Smith Papers).

and he hoped to recruit Smith to Springfield's biology department. Upon hearing of Smith's new grant to work in Beirut, he eagerly proposed that Springfield act as the US-based institutional partner. Although Smith's research abroad would impede him from meeting the college's immediate instructional needs, Speakman pressed his colleagues to accept Smith's appointment, arguing that he could assist in developing a faculty exchange programme between Springfield and AUB. Ultimately, Speakman presented the following compromise: Springfield would hire Smith and sponsor his NIH grant for AUB, releasing him from all teaching duties for the duration of the grant between June 1962 and September 1965. In exchange, Smith committed to return to full-time teaching upon the grant's expiration. Smith accepted the arrangement, a fateful decision that ultimately shortened the lifespan of his Beirut laboratory.<sup>49</sup>

When Smith arrived at AUB hospital in June 1962, he found that the promised lab space would not be available until the end of September. He accordingly busied himself with hiring staff to begin work in the hospital's student laboratory, namely a part-time secretary, Armineh Bezikian, and a technician, Fares Aftimos Ghareeb. Smith evidently did not feel comfortable appointing a Lebanese worker to fill the position of senior research assistant, who would have the authority to oversee the laboratory in Smith's absence; he asked Maurant to hire a qualified British researcher for the post. This preference for foreign over local staff backfired in several ways, the first being that Maurant's choice, Victor Alan Clarke, struggled to obtain a Lebanese work permit and did not arrive in Beirut until February 1963.<sup>50</sup> In the meantime, Smith's only assistant was Ghareeb, who was the only staff member to work continuously in the lab until its closure.

With Ghareeb's help, Smith began testing blood from Lebanese AUB affiliates, whose genetic data were sorted into the following categories: 'Druzes, Shi'a, Alawi, Assyrian Orthodox, Maronites, Latins, and other Christian sects inhabiting Mount Lebanon and adjacent regions in northern Israel'.<sup>51</sup> In mid-August, Smith and Ghareeb flew to the Jordanian side of Jerusalem on a flight chartered by the UN Relief and Works Agency. They visited a number of hospitals in Jerusalem, Nablus, Ramallah and Amman, collecting blood from fifty Palestinians and twenty other individuals identified as Circassians and Bedouins. Two weeks later, they made a similar trip to 'Gaza strip territory controlled by United Nations', where they collected a further forty Palestinian samples.<sup>52</sup>

Soon after these early expeditions, AUB finally had a bare room ready to serve as Smith's Anthropological Blood Grouping Laboratory. Smith used his grant funds to 'completely furnish [the room] with work-benches, sink, refrigerator, shelving, maps, centrifuges, racks, stools, pipettes, tubes, and other material needed for use'.<sup>53</sup> The 'other material' included chemical reagents, such as thirty-seven different antisera used to identify various blood groups, and 'IBM electronic equipment' for statistical calculations.<sup>54</sup> Smith's sizable material investment in the ABGL, however, was not matched by a comparable investment in the training of Middle Eastern medical researchers, in contradiction of AUB's stated ambitions for laboratory development. Recruiting more local staff like Ghareeb, and supporting their acquisition of advanced laboratory

49 Speakman to Smith, 28 December 1961, Smith to Speakman, 13 February 1962, Folder 1, Smith Papers.

50 Smith to Speakman, 2 March 1963, Folder 1, Smith Papers.

51 H.M. Smith, J.G. Shiber, H.M. Hawa and F.A. Ghareeb, 'Geographic variation and human population genetics among the indigenous peoples of Lebanon', *Proceedings of the XII International Congress of Genetics, Tokyo, Japan, August 19-28, 1968*, Tokyo: Science Council of Japan, 1968, p. 295.

52 'Summary progress report' for Smith's NIH grant covering the period 1 September 1961 to 31 May 1963, Folder 1, Smith Papers.

53 'Summary progress report', op. cit. (52).

54 Annual Report of the Faculties of Medical Sciences, American University of Beirut, 1962-3, pp. VIII-B-9, VIII-B-10.

skills, could have made the lab more sustainable over the long term. However, Smith instead positioned his lab as an offshoot of Mourant's BGRL in London and proudly recorded that 'the world's two leading blood groupers in the field of genetics and anthropology' (referring to Mourant and to William C. Boyd of Boston University) visited the ABGL in January 1963.<sup>55</sup> In anticipation of expanding the lab's blood-testing capacities to protein electrophoresis, Smith chose to send his British assistant Clarke – not Ghareeb – to England on a six-month grant-funded study trip to learn the techniques.<sup>56</sup> For his part, Mourant consistently portrayed Smith's facility as an American rather than a Middle Eastern installation, suggesting that it 'could be a very valuable outpost of American serological genetics for the whole of western Asia and N.E. Africa'.<sup>57</sup>

However, the circumstances behind the visits of Mourant and Boyd in January 1963 signalled a looming clash between the self-consciously Western 'outpost' in Beirut and the regional aspirations of another national scientific community: the rising generation of Israeli geneticists. Smith had long planned for Mourant to come to Beirut with his two top technicians, Elizabeth Ikin and Patricia Brooks, to assist his expedition to survey the blood of the Samaritans of Nablus. Boyd, though, was a late addition to the team, representing his Israeli doctoral student Batsheva Bonné, who had independently begun studying the Samaritans two years earlier. As a young anthropologist, Bonné had already forged strong ties to the branch of the Samaritan community living in the Israeli town of Holon. Based on her ethnographic experience and familiarity with life in the Middle East, she felt that she had superior qualifications to study the Nablus Samaritans.

### Scientific territorialism and the Samaritans of Nablus

Batsheva Bonné first established contact with the Holon Samaritans as a master's student in physical anthropology at the University of Chicago. Yisra'el Tsedaka, the scion of Holon's leading family, helped her write a thesis on the community's demography and became her long-time Samaritan liaison.<sup>58</sup> During the summer of 1961, Bonné initiated a genetic survey of the community with the assistance of established Israeli geneticists at Tel-Hashomer Hospital. She planned to continue studying the Samaritans for her doctorate in human genetics at Boston University under the supervision of William C. Boyd. However, as an Israeli citizen, she could not personally visit the rest of the Samaritans in Nablus, which lay in Jordanian territory. Her adviser Boyd decided to go to Nablus on her behalf, applying to the Wenner-Gren Foundation for travel funding in November 1962.<sup>59</sup> By chance, Wenner-Gren asked Arthur Mourant to review their funding application. With much chagrin, Mourant wrote to Boyd explaining that he and Harry Smith planned to conduct the very same research in January 1963. He insisted that they could not change their plans because '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'. However, he proposed a 'joint scheme', whereby Smith's lab would share blood samples with Bonné.<sup>60</sup>

55 Smith to Britton C. McCabe, 9 February 1963, Folder 1, Smith Papers.

56 Annual Report of the Faculties of Medical Sciences, American University of Beirut, 1963–4, p. VIII-B-8.

57 Arthur Mourant to William C. Boyd, 11 June 1965, PP/AEM/K.13, Box 28, A.E. Mourant Papers, Wellcome Library, London (subsequently Mourant Papers).

58 Batsheva Bonné-Tamir, *Hayim 'im ha-genim: hamishim shenot mehkar ba-genetikah shel 'edot Yisra'el*, Jerusalem: Karmel, 2010, pp. 22–24. See also Batsheva Bonné, 'The Samaritans: a demographic study', *Human Biology* (1963) 1, pp. 61–89.

59 Bonné-Tamir, op. cit. (58), pp. 43–50.

60 Mourant to Boyd, 22 November 1962, PP/AEM/K.13, Box 28, Mourant Papers.

Bonné was devastated, but because of Mourant's international status, she felt she had no choice other than to agree to his terms.<sup>61</sup> Smith and Mourant took the leading role in planning the allegedly 'joint' expedition, and soon argued with Bonné about whether and how the Nablus Samaritans should be financially compensated for donating their blood. Bonné explained that her contacts in Holon had warned her that their 'fellow-brothers in Jordan' would not cooperate with the research unless they were paid.<sup>62</sup> Smith, however, insisted that the Nablus Samaritans might have been 'pampered by tourists' but he himself would not 'resort to bribery' for fear that other communities he planned to study might do the same.<sup>63</sup> To Bonné's consternation, Smith and Mourant largely ignored her advice and devalued her personal relationships with the Samaritan communities, instead treating her prior correspondence with the Nablus Samaritans as a liability both to the immediate expedition and to their long-term plans to expand the ABGL's territorial remit. However, Bonné was vindicated when conflicting expectations of compensation between the Nablus Samaritans and the Anglo-American research team ultimately led to the expedition's undoing.

After Boyd departed in January 1963, Bonné waited anxiously to hear from the men at Nablus. Weeks passed before she finally received a telegram from Boyd reading, 'Reason for delay is lack of Samaritan cooperation. Only 82 samples sent to Beirut.' In a community of over two hundred people, Mourant and Smith had not sampled even half of its members. A letter from Boyd explained that only the priestly families who had previously been in contact with Bonné gave blood. The rest of the community refused due to unfounded rumours that the priests had received substantial sums from the researchers (which were ostensibly not being shared with the other Samaritans). The team enlisted one Dr Masud, a Jordanian physician, to attempt to wheedle blood samples from the disagreeable faction, then tried financial negotiations, offering fifty cents and then three dollars per sample, all to no avail. The team then gave up and left Nablus. Boyd added, 'You may think that you would have successfully collected the bloods if you had come yourself. Let me say that if Harry Smith, Arthur Mourant and William Boyd failed to do so, it seems that the task is indeed impossible.'<sup>64</sup> Bonné clearly believed otherwise. Invoking her greater familiarity with the region, she wrote 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.'<sup>65</sup>

Several months later, Bonné wrote to Harry Smith to find out whether Dr Masud had been able to pursue any further sample collection with the Samaritans. Smith strongly discouraged her from contacting the Nablus Samaritans again, emphasizing the dependence of his laboratory on the cooperation of Arab governments and the danger she posed to the Samaritan project as an Israeli citizen. He even mentioned that Dr Masud's life had been threatened if he should send samples to her. Arab colleagues at AUB, too, were causing him problems. Boyd's visit to Beirut after the January Nablus trip had prompted pathology professor Nimr Tuqan, himself a Palestinian from Nablus, to contact the university president in protest and demand an official policy statement clarifying the university's intentions regarding collaborative work with Israelis. Despite Tuqan's sudden death in a plane crash, Smith wrote, 'the doubt and suspicion that he aroused' still affected Smith's work environment at AUB.<sup>66</sup> Mourant further cautioned Bonné that her

61 Bonné-Tamir, *op. cit.* (58), p. 50.

62 Bonné to Mourant, 17 December 1962, PP/AEM/K.8, Box 28, Mourant Papers.

63 Mourant to Boyd, 10 December 1962, PP/AEM/K.13, Box 28, Mourant Papers.

64 Bonné-Tamir, *op. cit.* (58), pp. 51–3.

65 Bonné to Mourant, 19 February 1963, PP/AEM/K.8, Box 28, Mourant Papers.

66 Bonné-Tamir, *op. cit.* (58), p. 54.



involvement with the Nablus Samaritans could endanger the community as well as Smith's future research plans: 'An unwise step could therefore have unfortunate personal [consequences] for the Samaritans (e.g. in preventing the free movement of those from Israel to join in the Passover – or even in more unpleasant ways). It could also prejudice future blood group work in the Arab countries.'<sup>67</sup>

Paradoxically, as Bonné noted in her autobiography with some bitterness, Smith himself visited Israel a few months later.<sup>68</sup> In November 1963, Smith spent a week in Israel, meeting with 'geneticists, doctors, biochemists ... with whom he discussed at length possibilities for future projects'.<sup>69</sup> Even Dean Speakman back at Springfield was surprised to learn of Smith's trip: 'I recall when I talked to you on the telephone last summer that there was quite a bit of danger connected with any kind of collaboration or even the sharing of scientific information with the Israelis. I trust that Arab hotheads in Beirut are not aware of your visit.'<sup>70</sup> Despite her suspicions about Smith's competitive hostility and territorial opportunism, Bonné also introduced Smith to the Holon Samaritans, who had welcomed Bonné's team of Israeli workers from Tel-Hashomer Hospital for weekly visits to the community beginning in the autumn of 1963.

Bonné contrasted the failures of Smith and Mourant in Nablus with her own success among the Holon Samaritans, whom she triumphantly described as 'so cooperative that they almost stood in line to give blood. There was no reward or money involved'.<sup>71</sup> Within two months, Bonné's team collected blood and saliva samples from 90 per cent of the community members, who also submitted to more tedious procedures such as colour-blindness testing and anthropometric measurements.<sup>72</sup> Bonné attributed her success to the nature of her relationship with the Holon Samaritans, which she consistently portrayed as one of sustained friendship and mutual respect, in contrast to Smith and Mourant's exploitative approach with the Nablus Samaritans. Her autobiography and correspondence portray the two men as representatives of a flawed model of international genetics research, with outposts and 'collection agents' feeding Western-based laboratories.<sup>73</sup> But Bonné's self-representation as a Middle Eastern native capable of cultivating a socially responsible rapport with her research subjects similarly relied on a colonial logic: that of Zionism, which naturalized Jewish settlers as indigenous to the Palestinian landscape. The sense of ownership she projected over the Samaritan project, and later over other communities in Israeli-occupied territory, reveals how the competitive nature of post-war anthropological genetics has played a significant role in staking political territorial claims.<sup>74</sup>

### The disintegration of an outpost

Over the next two years, Smith's 'outpost' successfully collected and tested over 1,800 blood samples, expanding its territorial coverage well beyond the Levant. In February 1963, shortly after the debacle in Nablus, Smith, Ghareeb, the freshly arrived Clarke and two other AUB physicians (Samih Yusuf Alami and Adnan Mrouweh) travelled to

67 Mourant to Bonné, 25 April 1963, PP/AEM/K.8, Box 28, Mourant Papers.

68 Bonné-Tamir, op. cit. (58), p. 55.

69 Bonné to Mourant, 3 December 1963, PP/AEM/K.8, Box 28, Mourant Papers.

70 Speakman to Smith, 24 March 1964, Folder 2, Smith Papers.

71 Bonné to Mourant, 10 October 1963, PP/AEM/K.8, Box 28, Mourant Papers.

72 B. Bonné, 'Genes and phenotypes in the Samaritan isolate', *American Journal of Physical Anthropology* (1966) 1, pp. 1–19, 17.

73 Burton, op. cit. (40).

74 See Nadia Abu El-Haj, *The Genealogical Science: The Search for Jewish Origins and the Politics of Epistemology*, Chicago: The University of Chicago Press, 2012; Nurit Kirsh, 'Population genetics in Israel in the 1950s: the unconscious internalization of ideology', *Isis* (2003) 4, pp. 631–55.

Saudi Arabia and Kuwait. The team arrived in Dhahran at the invitation of Aramco, whose hospital staff had already been collaborating with Mourant for six years. After consulting on best practices with the Aramco physicians, the AUB team headed to Kuwait, where the Ministry of Health funded their expenses for a week while they collected eighty-eight blood samples from two Kuwaiti hospitals. Their specimens included Kuwaitis, Omanis, Saudis 'and other inhabitants of Eastern Arabia'.<sup>75</sup>

From his base in London, Mourant advocated for Smith's lab as a strategically located way station for particularly remote field surveys, ensuring that blood samples from the Oxford University expedition to Afghanistan (summer 1963) and another British study in Yazd, Iran (spring 1964) were shipped first to Beirut.<sup>76</sup> The ABGL was not as well equipped as metropole laboratories like Mourant's; its staff only conducted the more urgent and time-sensitive blood-grouping tests before forwarding sera from these samples on to such labs. Regardless, in May 1964, Smith began preparing to renew his NIH grant, feeling confident that the ABGL's sampling productivity would secure him further funds. Yet given the financial opportunity to expand the ABGL's technological capabilities on par with its Western counterparts, he instead planned to downscale activities in Beirut and designate Springfield College rather than AUB as the grantee institution. He envisioned that the renewed grant would fund equipment for a 'base laboratory' at Springfield, and pay only a few technicians at the AUB facility to collect 'specimens which can then be processed for shipment to us at our laboratory in the United States'.<sup>77</sup>

Smith's plan was partly motivated by his long-standing obligation to return to Springfield for teaching duties by 1965. However, it also reflected his increasing disaffection with AUB as an institution. Smith never seriously pursued Speakman's idea to open an exchange programme between AUB and Springfield, and indeed felt no commitment to AUB's mission of medical and scientific education, instead regarding the school's administrative bureaucracy as impeding his work. For example, his senior assistant Clarke's return to Beirut after his study trip to England was delayed for over a year because the cash-strapped AUB administration refused to negotiate satisfactory wages for Clarke. Furthermore, Smith demonstrated again his preference for foreign over Arab labour when he hired Helen Hawa, a Scottish woman who had married into a Lebanese-Palestinian family, to take on the senior assistant role rather than promote Ghareeb or another Lebanese technician.

By the time his NIH grant renewal funds came through in the summer of 1965, Smith had decided to terminate his affiliation with AUB and relocate the ABGL to a private apartment. He instructed Clarke to report to Beirut and supervise the transfer of lab equipment out of AUB, with the understanding that Clarke should continue cooperating with AUB hospital staff but plan to act as an autonomous centre of activity for the nascent International Biological Programme. Meanwhile, Smith ordered Ghareeb to complete the blood survey of the Nablus Samaritans and begin new fieldwork on 'Kurds, Armenian Catholics, and Syrian Orthodox'.<sup>78</sup> In the ensuing weeks, Smith became increasingly enthused about building a new lab at Springfield, for which the college had placed 'a large room at [his] disposal'. He asked Clarke to travel to the United States to help install electrophoresis equipment, commenting, 'We have had such difficulty with

75 Annual Report of the Faculties of Medical Sciences, op. cit. (54), p. VIII-B-9.

76 R.B. Woodd-Walker, H.M. Smith and V.A. Clarke, 'The blood groups of the Timuri and related tribes in Afghanistan', *American Journal of Physical Anthropology* (1967) 27, pp. 195-204; E. Sunderland and H.M. Smith, 'The blood groups of the Shi'a in Yazd, Central Iran', *Human Biology* (1966) 1, pp. 50-9.

77 Smith to Speakman, 6 May 1964, Folder 2, Smith Papers.

78 Smith to Victor Alan Clarke, 27 September 1965, PP/AEM/K.155, Box 34, Mourant Papers.

working conditions in Lebanon that I am reluctant to develop any more laboratory facilities there.<sup>79</sup>

Clarke was puzzled by Smith's attitude and the conflicting reports about the laboratory he received from Ghareeb, who complained about Hawa's poor work ethic and his own lower salary. In response to Clarke's request for clarification, Smith's tone became hostile: 'I do not need the AUB and can get along much better without the administrative difficulties that are generic to that institution. You will therefore not involve yourself in any way with AUB administrative procedures.' With regard to conducting electrophoresis tests on samples collected in the Middle East, Smith commanded Clarke not to bring 'any such expensive laboratory equipment to Beirut', emphasizing that further material investments would only be made for his US laboratory. He justified his actions with reference to the source of his funding, pointing out that his 'participation in the IBP will be part of the American effort, not part of the Lebanese effort or that of any other Middle Eastern country'. Finally, Smith added, 'I wish that you would not correspond further with Fares. His letters lead to possible misunderstanding because he cannot write standard English ... I am seriously considering dropping him from the project'.<sup>80</sup>

Over the next four months, Clarke's confusion over the future of the lab and the conditions of his employment devolved into a significant labour dispute with Smith and Springfield College, and he did not return to Beirut until April 1966. Upon his arrival, Clarke was disturbed to find the ABGL 'drifting' without any clear programme of activity. He blamed the mismanagement on Helen Hawa: he wrote a scathing report of her frequent absences from the lab and refusal to participate in blood collecting, which left Ghareeb to do the vast majority of the labour for less pay. Ghareeb sought help from his former colleagues at AUB, haematology professor Munib Shahid and Shahid's research assistant Itaf Sahli, by joining their fieldwork trips and testing occasional batches of blood samples from AUB students and the Lebanese military. Despite Shahid's collegiality, he confided to Clarke his damning assessment that the ABGL's anaemic efforts to test these subjects were redundant, given that Lebanese blood groups had already and quite recently been studied by Lebanese oncologist Najib Taleb, based at AUB's francophone institutional rival, the Université Saint-Joseph (USJ). Taleb, a specialist in blood cancers at the USJ-affiliated Hôtel-Dieu de France hospital, initiated the research to complete a PhD in anthropology supervised by noted French geneticist Jacques Ruffié at the Collège de France. In fact, Taleb had already collaborated directly with AUB to gather genetic data – not through Smith, but through Raif Nassif, a clinical pathologist and the director of AUB's blood bank.<sup>81</sup> Between 1961 and 1964, Taleb 'rigorously identified' the ethnic origins of over three thousand Lebanese research subjects, which he sorted into five Christian and three Muslim communities.<sup>82</sup> Blood samples from these subjects, tested first at USJ's laboratory for biochemical haematology and then forwarded to Ruffié's Centre d'hématologie in Toulouse, were tested for six antigen systems, sickle-cell haemoglobin, and G6PD deficiency. Taleb also travelled with Ruffié to Jordan, where

79 Smith to Clarke, 11 October 1965, PP/AEM/K.155, Box 34, Maurant Papers.

80 Smith to Clarke, 7 November 1965, PP/AEM/K.155, Box 34, Maurant Papers. The exact nature of Smith's conflict with the AUB administration is obscure; Smith frames his lab's relocation as his own choice, motivated at least in part by salary scale issues. Later correspondence from Clarke to Maurant suggests instead that 'AUB refused to have us any more', with the implication that Smith's behaviour was problematic: Clarke to Maurant, 9 June 1966, PP/AEM/K.156, Box 34, Maurant Papers.

81 Clarke to Smith, 25 April 1966, PP/AEM/K.156, Box 34, Maurant Papers. See Raif E. Nassif, 'The incidence of blood groups in Lebanon', *Lebanese Medical Journal* (1953) 6, pp. 346–9; Nagib Taleb, Raif Nassif and Jacques Ruffié, 'Sur la répartition des groupes sanguins dans les ethnies libanaises', *Comptes rendus des séances de la Société de biologie* (1961) 155, pp. 1125–8.

82 Jacques Ruffié and Nagib Taleb, *Étude hématologique des ethnies libanaises*, Paris: Hermann, 1965, p. 14.

they collected blood from Jordanian and Palestinian soldiers and Bedouin tribes for direct shipment to Toulouse.<sup>83</sup> Although for Taleb anthropological genetics was more of a side interest than a career focus, his work meant that many of the Levantine Arab communities Mourant had hoped to access through Smith were ultimately studied through alternate channels rooted in France's legacy of colonial influence in Lebanon.

Clarke tried to salvage the ABGL's aspired regional programme of activity by collecting Druze specimens from Azraq, Jordan, in concert with a British IBP project, and planned to travel to Nablus to complete the Samaritan project. Within a month, he was blindsided by Smith's sudden decision to close the ABGL entirely. In May 1966, Smith reported to Paul Congdon, dean of Springfield College, that he could not negotiate a suitable renewal of the Beirut apartment lease and therefore planned to clear out the present space by the end of August. Going forward, ABGL staff would 'collect specimens with a mobile unit for the next two years and send them refrigerated by air freight to the United States'.<sup>84</sup> Clarke and Ghareeb were devastated by the decision, not only because the staff in Beirut would only receive irregular hourly wages instead of salaries, but also because they believed that Smith was 'throwing away' a promising installation for which they had made significant personal and professional sacrifices. Clarke complained that the NIH grant funds had been mismanaged and that by severing the association with AUB, Smith had turned the project into a 'personality cult'.<sup>85</sup> Arguing that Smith's plan for a "wandering" team to send specimens back to the States' was 'absolutely impractical', Clarke proposed that local anthropological genetics research should again become the province of AUB. He explained to Mourant,

The important thing is that everyone here wants the work to continue and it should serve as a reference centre for the Middle East, but equally everyone is so sick of the sorry mess and unpredic[t]able cavorting of the present 'programme' that if the work is allowed to die now, it will be very hard to revive the interest.<sup>86</sup>

Clarke spent his last months in Beirut working closely with Munib Shahid to develop a financial and logistical strategy to combine Shahid's clinical haematology lab with an anthropological blood-grouping facility. After confirming the interest and approval of the AUB administration, Clarke wrote dozens of letters to Mourant and other prominent British geneticists between June 1966 and October 1967, requesting that they use their influence with the IBP, the NIH, the WHO or any other Western-based granting agency to help secure funds to reconstitute the lab under Shahid's leadership. In contrast to Smith, Clarke realized that for long-term success, 'any "reference" laboratory would have to offer a service to medical practitioners outside of [AUB] ... if only to gain recognition and goodwill'.<sup>87</sup> In other words, any new incarnation of the ABGL would only be sustainable if it served actual clinical needs in the Middle East in addition to its anthropological mission, and the facility should not simply represent an outpost for American scientists. Although Clarke clearly envisioned that he would retain a senior position in the proposed new laboratory, the AUB faculty perceived another mechanism through which they could overcome an outpost status: investment in local personnel rather than constantly importing foreign research staff. A few months later, Mourant advised

83 Nagib Taleb and Jacques Ruffié, 'Hémostypologie des populations jordaniennes', *Bulletins et mémoires de la Société d'anthropologie de Paris* (1968) 3, pp. 269–82.

84 Smith to Paul Congdon, 5 May 1966, Folder 2, Smith Papers.

85 Clarke to Mourant, 21 July 1966, PP/AEM/K.157, Box 34, Mourant Papers.

86 'Wandering team': Clarke to Mourant, 10 December 1966; 'reference centre': Clarke to Mourant, 23 August 1966, PP/AEM/K.157, Box 34, Mourant Papers.

87 Clarke to Mourant, 25 May 1967, PP/AEM/K.158, Box 34, Mourant Papers.

Clarke to abandon any hopes of remaining involved in the Beirut research. Although Shahid and his AUB colleagues were still determinedly searching for money to fund a blood-grouping laboratory, Mourant explained, they ‘quite naturally wish[ed] the work to be done by local people’, expecting that foreign technicians like Clarke would only be needed on site for six to twelve months to train ‘the local raw material’.<sup>88</sup>

Springfield College holds no documentation to indicate that Smith ever developed a functioning laboratory on US soil or received any blood samples from the Middle East after 1966. If Smith had disengaged from Lebanon in the interest of securing his position at Springfield, it was a grave miscalculation. In May 1967, Smith asked Springfield to sponsor another three-year renewal of his NIH grant; however, the college administration not only refused to do so but also denied him tenure, citing his sparse teaching record.<sup>89</sup> Smith’s publishing record was equally sparse, and after his adventures in Lebanon, he fades out of the historical record entirely. With no grant money forthcoming to revive the ABGL, Munib Shahid soon turned back to his medical research, and no named Lebanese national contribution to the IBP ever materialized. In fact, although IBP-affiliated research was conducted in six countries across the Middle East and North Africa, all of these projects were attributed to American or European research programmes – with the sole exception of Israel, whose researchers nevertheless worked closely with Anglo-American collaborators. The ‘Joint Israel/UK Project’ with which Mourant was affiliated, however, excluded Bonné’s work, which was not organized or funded under IBP auspices.<sup>90</sup> The supposed internationalism of the IBP, and the global biomedical infrastructure more broadly, thus mirrored the geopolitical power dynamics of the Cold War Middle East. The utter dependency of the ABGL on Smith’s ambitions and goodwill for financial solvency reflected overall patterns of neo-colonial authority over regional development. Tensions of gender, race and nationalism further marginalized the contributions of Middle Eastern scientific actors; Smith and Mourant dismissed the legitimate concerns voiced by Ghareeb and Bonné as misunderstandings due to language or personality. These forms of discrimination were exacerbated by the Arab–Israeli conflict, which in turn provided Westerners like Smith and Mourant, who had the privilege of crossing contested state borders with impunity, with a practical justification for their administrative control over local genetic research.

### In lieu of a conclusion

Using archival correspondence, university catalogues and scientific publications, this paper has attempted to reconstruct fine-grained accounts of how scientific actors in and around AUB experienced the globalization of genetics at two distinct moments in time. Rather than focusing on scientific globalization as an abstract phenomenon or process of exchanging ideas and technologies, I have emphasized the many human interactions that represent the effects of global changes. These interactions include not only collaboration and mentorship, but also, in equal measure, conflict, tension and obstruction. It is primarily instances of the latter that reveal the neo-colonial dimensions of post-war international scientific infrastructures. The global project of human genetics incorporated within the IBP asserted only the positive values of transnational scientific collaboration. In 1977, two of its organizers declared, ‘It can be said without reservation that within all the sections of the IBP, scientists from the world over, wherever they met,

<sup>88</sup> Mourant to Clarke, 4 October 1967, PP/AEM/K.159, Box 34, Mourant Papers.

<sup>89</sup> Interoffice memorandum from Congdon to Wilbert E. Locklin, 23 May 1967, Folder 2, Smith Papers.

<sup>90</sup> K.J. Collins and J.S. Weiner, *Human Adaptability: A History and Compendium of Research in the International Biological Programme*, London: Taylor & Francis, 1977, pp. 266–7.



worked together and conferred together in the greatest amity, concentrating on their common scientific and humane goals without the intrusion of differences of political creeds or ideologies.<sup>91</sup> The case of Harry Smith confirms that this vision is nothing but a fantasy: his scientific territorialism and lack of regard for Middle Eastern collaborators, technicians and research subjects alienated so many that his ABGL not only shut down prematurely, but also failed to publish much of the data it had collected on Lebanese and Palestinian communities. As a specialized ‘outpost’ of human genetics in Beirut, the ABGL accomplished neither scientific nor ‘humane’ goals.

But to pinpoint Smith as an exemplar of neo-colonial science raises further questions that complicate a simple narrative of global continuities in colonial patterns of knowledge production. Lebanon, of course, was never a British or American colony but instead a French Mandate possession. Yet in contrast to Smith, the Lebanese and French collaborators Taleb and Ruffié published their interpretations of Levantine population history as part of a French IBP project on ‘human adaptation to arid areas’.<sup>92</sup> And AUB’s interwar participation in the globalization of sero-anthropology, while operating under French Mandate rule, demonstrates a wholly different pattern of collaboration between AUB’s European and American faculty and Middle Eastern students and staff. While these interwar relationships still involved professional and institutional inequality, there is little evidence that they were marked by the same level of hostility and exclusion practised at the ABGL. The differential experiences of Middle Eastern actors, from Tamir Nassar and Najla Abu ‘Izz al-Din to Fares Ghareeb and Batsheva Bonné, who participated in colonial or neo-colonial forms of human genetics, demand further exploration to reassess how historians of modern science conceive of globalization. The professionalization and achievements of Middle Eastern geneticists during the post-war period might be attributed almost exclusively to the earlier globalization of sero-anthropology, instead of – or even in spite of – later global initiatives like the IBP. Our notion of globalizing modern science has often connoted *more* science – that is, sciences characterized by more connectivity, more productivity, more crossing of borders, than in earlier times. However, the concept of ‘scaling up’ used to describe post-war genetics calls for equal attention to what social and scientific commitments were simultaneously being ‘scaled back’ or de-developed in the name of global standardization and technological efficiency.

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91 Collins and Weiner, op. cit. (90), p. 17.

92 Collins and Weiner, op. cit. (90), p. 118.

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