

"A fairly good crop for white men:" The political ecology of agricultural science and settler colonialism between the US and Palestine

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Abstract

From 1919 through the early 1950s, agricultural scientists affiliated with the University of California and agricultural scientists setting up settlements in Mandatory Palestine traveled between California and Palestine on a series of research trips. Building on conversations in historical political ecology and critical political ecologies of settler colonialism and racial capitalism, this article sets out to answer: how was agricultural science part of the project of settler colonialism in both California and Palestine in the first half of the twentieth century? Through an analysis of archival materials – field notes, professional and personal correspondence, and scholarly and popular media publications by US and European Jewish Zionist scientists – I argue that these scientists naturalized and made universal racial hierarchies through transnational technoscientific collaboration. US and Zionist scientists engaged in exchange and debate in two topics: the proper physical organization and location of farms, and; the concept of carrying capacity of the land of historic Palestine. In both, agricultural science was used as an objective reason to elevate Western ideologies of proper cultivation and capitalist yield. This justified the dispossession of Palestinians from their land because they were "poor stewards." This historical case study holds implications for contemporary issues around land and population by Zionists in Israel today, and related debates in global sustainable development at large.

Keywords: Palestine, racial science, agriculture, carrying capacity, California

Resumen

Desde 1919 hasta principios de la década de 1950, los científicos agrícolas afiliados a la Universidad de California y los científicos agrícolas que establecieron asentamientos en la Palestina del Mandato viajaron entre California y Palestina en una serie de viajes de investigación. A partir de conversaciones sobre ecología política histórica y ecologías políticas críticas del colonialismo de colonos y el capitalismo racial, este artículo se propone responder: ¿cómo fue la ciencia agrícola parte del proyecto de colonialismo de colonos tanto en California como en Palestina en la primera mitad del siglo XX? A través de un análisis de materiales de archivo (notas de campo, correspondencia profesional y personal, y publicaciones académicas y populares en los medios de comunicación de científicos judíos sionistas estadounidenses y europeos), sostengo que estos científicos naturalizaron e hicieron jerarquías raciales universales a través de la colaboración tecnocientífica transnacional. Científicos estadounidenses y sionistas entablaron intercambios y debates sobre dos temas: sobre la organización física y la ubicación adecuadas de las granjas, y sobre el concepto de capacidad de carga de la

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tierra de la Palestina histórica. En ambos, la ciencia agrícola se utilizó como una razón objetiva para elevar las ideologías occidentales de cultivo adecuado y rendimiento capitalista. Esto justificó el despojo de los palestinos de sus tierras porque eran "malos administradores". Este estudio de caso histórico tiene implicaciones para los problemas contemporáneos relacionados con la tierra y la población que plantean los sionistas en Israel hoy, y los debates relacionados con el desarrollo sostenible global en general.

Palabras clave: Palestina, ciencia racial, agricultura, capacidad de carga, California

خلاصة

منذ عام 1919 وحتى أوائل خمسينيات القرن العشرين، تنقل علماء الزراعة المرتبطون بجامعة كاليفورنيا، إلى جانب العلماء الزراعيين المساهمين في تأسيس المستوطنات في فلسطين تحت الانتداب، بين كاليفورنيا وفلسطين في سلسلة من الرحلات البحثية. تستند هذه المقالة إلى نقاشات في الإيكولوجيا السياسية التاريخية والإيكولوجيا السياسية النقدية للاستعمار الاستيطاني والرأسمالية العرقية، بهدف استقصاء الدور الذي لعبته العلوم الزراعية في مشروع الاستعمار الاستيطاني في كاليفورنيا وفلسطين خلال النصف الأول من القرن العشرين. من خلال تحليل المواد الأرشيفية – بما في ذلك الملاحظات الميدانية والمراسلات الشخصية والمهنية، بالإضافة إلى المنشورات العلمية والشعبية التي كتبها علماء صهاينة من اليهود الأمريكيين والأوروبيين – أطر فرضية مفادها أن هؤلاء العلماء أسهموا في تطبيع وتعميم الهياكل الهرمية العرقية عبر التعاون التكنولوجي والعلمي العابر للحدود. لقد دار التبادل العلمي والنقاش بين العلماء الأمريكيين والصهاينة حول موضوعين رئيسيين: التنظيم المادي المثالي وموقع المزارع، ومفهوم السعة الاستيعابية لأراضي فلسطين التاريخية. في كلا الحالتين، تم توظيف العلوم الزراعية كأداة "موضوعية" لتأكيد أيديولوجيات الغرب حول الزراعة الصحيحة والجدوى الرأسمالية، مما أتاح تبرير نزع ملكية أراضي الفلسطينيين بدعوى أنهم "وكلاء سيئون" على الأرض، ذلك أنهم المنعوتون بالعبث تصرفاً بحقها؛ فما رعوها حق رعايتها. تُظهر هذه الدراسة التاريخية أهمية هذه الفترة في فهم القضايا المعاصرة المتعلقة بالأرض والسكان، التي لا تزال تشكل محور السياسات الإسرائيلية الصهيونية اليوم، بالإضافة إلى ارتباطها بالنقاشات العالمية حول التنمية المستدامة.

الكلمات المفتاحية: فلسطين، العلوم العرقية، الزراعة، السعة الاستيعابية، كاليفورنيا.

1. Introduction

On May 4, 1920, Yitzhak Wilkansky (later Elazari-Volcani) sent his latest report from San Francisco to the offices of the World Zionist Organization in London.² An agronomist specializing in dairy production, and a major scientific architect of Zionist agricultural settlement in Palestine before the state of Israel was founded, Wilkansky toured the US to meet agricultural scientists and visit farms. The Jewish Agency, the Zionist parastate organization, was interested in US agricultural development to inform their plans for building new agricultural settlements and economic endeavors to support expanded Jewish immigration to British Mandatory Palestine. Wilkansky's report meanders through various topics summarizing his most recent travels throughout northern and southern California. He visited Durham, CA, a state-initiated agricultural settlement, and was "much impressed with the simplicity and smoothness" of the farmers' meetings.³ He summarized types of new tractor technology in California,⁴ and agronomists' advice on techniques of crop rotation "especially adapted for dry farming."⁵ In this technical report, one of a series Wilkansky sent to the World Zionist Organization who had sponsored his travels through the US from fall 1919 through spring 1920, one meeting stands out. Wilkansky recounts an interview with Professor John Gilmore, head of the Division of Agronomy at the University of California in Berkeley. When comparing rice and cotton farming in California's Central Valley, Wilkansky reported Gilmore's justification of poor working conditions for Asian immigrant workers because he claimed they were inherently better suited for such circumstances:

² Yitzhak Wilkansky, Report no. 5 to the Actions Committee of the World Zionist Organization, London, 4 May 1920, Z4\41076-2t, Central Zionist Archives, Jerusalem.

³ Wilkansky, Report no. 5, 2.

⁴ Wilkansky, Report no. 5, 6.

⁵ Wilkansky, Report no. 5, 8.

Rice fields encourage the breeding of mosquitoes and the spreading of malaria. The growing of rice necessities [sp] the introduction of cheap, foreign, cooly labor willing to work under conditions which a white man will reject...[O]n the other hand...he thinks that cotton is a fairly good crop for white men and considers it a good auxiliary 'family crop.'⁶

Wilkansky offers no written comment on Gilmore's denigration of Asian immigration workers as unskilled and better suited to work under harsh conditions, using a term now considered a racial slur. Nor does he hypothesize why Gilmore posits Asian immigrants as naturally suited for malaria-infested environments while areas with a "high cultural level"⁷ (white-settled) were successfully eradicating the disease. Nor necessarily should he have found anything strange in Gilmore's work: Gilmore and Wilkansky were both working in social and historical contexts in which state bureaucrats and agencies mobilized natural and social scientific expertise to classify and solidify racial boundaries and hierarchies.

Recent work in political ecology has detailed other parts of the racializing project of global colonial and imperial agronomy and horticulture and other environmental sciences in the long twentieth century (P. Anderson, 2018; Fullilove, 2017; Koch, 2021; Van Sant, 2018). This article focuses on a specific subset of this project, the collaboration between American and Jewish Zionist agronomists, botanists, and other agricultural scientists between 1919-1948. These men traveled between the US and Palestine to share best practices and models for agricultural settlements, what types of farms to build, and which crops to grow and where. Their development plans sought not only to maximize the production and value of crop yields, but also to build socially stable enclaves of non-native peoples and crops upon which their settler-colonial nations could rely.

What role did agricultural science play in shaping settler colonialism in Palestine in the early twentieth century, and vice versa? This article seeks to answer this by drawing on field notes, technical reports, professional and personal correspondence, and scholarly and popular media publications from agricultural scientists. Some of these men were Zionist and some agnostic to Zionism, some Jewish and others Christian, from the US and Europe, and their collaborations lasted from 1919, after the end of World War I, through the British Mandate (1921-1947) and into the 1950s and 1960s, the early years of the state of Israel. How did power/knowledge function in the Zionist project of the British Mandate period and early Israeli statehood through environmental and agricultural sciences? How was this scientific expertise co-constituted with categories of difference, specifically race? Colonial scientists co-constituted science with whiteness and Europe, laying claim to scientific expertise as exclusively the purview of "Western nations" and attempting to exclude Palestinians from the status of scientific knowledge producers and experts. Thus, understanding the spatial segregation that agricultural expertise created and relied on in Mandatory Palestine, and how the US's own settler-colonial project influenced the process in the Mandate, suggests how scientific knowledge has been key to the racialization, dispossession, and removal of Native peoples both historically and in the present (Arvin, 2015; TallBear, 2013).

Many have analyzed how colonialism constituted and mobilized various environmental sciences, particularly in the field of medicine and climate, to control and expropriate land through racial logics of settler belonging while also positioning settlers as superior to the people already living there (Cohen, 2024; Sufian, 2007). Here I add to this body of work to make a specific argument about agricultural science. The transnational agricultural technoscientific collaboration between US and European Jewish scientists in support of Jewish settlement in mandatory Palestine naturalized racial and colonial logics as universal, desirable, and *sustainable*. Their reports and studies were part of a larger global racial science project in the early twentieth century that positioned colonized peoples as suited for more "difficult" climates and harsher labor – therefore justifying their physical and social segregation from white populations, as well as the dispossession of their lands under the auspices of improving both the colonized "quality of life" and the land itself.

⁶ Wilkansky, Report no. 5, 4.

⁷ Wilkansky, Report no. 5, 5.

Specifically, these scientists collected evidence for a racial hierarchy that positioned Palestinian laborers as suited to hotter climates and hard labor with less-developed technology. But because Zionist settlers needed to figure out how to move large number of European Jews to Palestine, scientists also need to figure out how to "acclimatize" these settlers to what they saw as a hostile climate (W. Anderson, 2005; Cohen, 2022). Speaking as agronomists, soil scientists, horticulturalists, and water engineers, these experts claimed that the Jews' naturally high intellectual capacity meant that Zionist settlement should favor technologically advanced agriculture rather than rote manual labor. At the same time, the Jewish Zionist scientists among this group praised field labor as a method to overcome the biological limitations of the Jewish body and form a "New Jew." Jewish Zionist agronomists felt that strong attention to scientific training, emphasis on intensive instead of extensive agriculture, and siting farms in valleys instead of hillsides would not only result in more economically productive settlements but also would be more "fit" for Jews' natural abilities.

The American non-Jewish scientists amongst this cohort advocated for what Jessica Teisch termed the "California model" of racialized settler-colonial development in Mandatory Palestine, one that emphasized capitalist growth by exploiting Palestinian labor (Teisch, 2011). Rather than seeing this exchange as one where socialist Zionism clashed with and ultimately rejected American capitalist goals (Troen, 1996), this article instead looks both at what settler-colonial projects held in common and what they shared back and forth between them: scientific ideas and techniques to naturalize a racial hierarchy of land and labor. This hierarchy privileged European Jews as superior to Arabs, racializing them into whiteness, but both the Jewish Zionist and Anglo-American scientists also held European Jews apart from the white Christian settlers who made up the "yeoman farmer" ideal in the US. As Zionist agricultural settlement expanded in the 1930s and 1940s, these experts contributed to the stratification of an Arab-Jewish binary through scientific and economic classification, particularly through their arguments over the "absorptive capacity" of Palestine. These debates were part of an early global geopolitics of neo-Malthusianism which came to define development in the waning age of empires, and later, in the decolonizing world.

This case study thus aims to bring the history of sustainable development both in Palestine-Israel but also throughout the world to an earlier era, dating questions of "sustainability" not to the global environmental and peasant movements of the postcolonial era in the late 1960s but instead to the interwar period of late imperialism.⁸ I discuss how these late colonial scientists conceptualized how the natural world should best be managed in order to "sustain life," and how they determined whose lives and life-worlds were worth sustaining. This can help to better understand how sustainable development, as an outgrowth of colonial development, has always shaped and been shaped by racialization in settler-colonial contexts, and how colonial racial formations in turn shape natural and built environments (Ben Zeev, 2021; Davis, 2007; Guarasci, 2015; Norris, 2013). Additionally, this history offers new understandings of contemporary issues of environmental injustice and environmental racism, by offering a pointed criticism of the global resurgence of ideas about combatting "overpopulation" as an environmentalist strategy, with a focus on the environmental racism this strategy generates in Palestine-Israel today.

2. Agricultural science and global colonialism

The history of modern agriculture is one intimately tied to the emergence of global capitalism and colonialism, as capitalism remade agriculture to emphasize yield and productivity for accumulation rather than simply subsistence (Friedmann, 1999). The industrial era saw the emergence of agriculture as a field of modern scientific study, one consisting of discrete yet linked political, economic, and scientific problems to be solved with technoscience. Agricultural science is interdisciplinary: it covers natural and physical science topics in plant and soil science, animal husbandry, infrastructural engineering, and pest management; as well as social issues of economic organization and growth, social relations on farms and between rural and urban areas, and even cultural issues of technology transfer. Research, educational, and development institutions were established in the mid to late nineteenth and early twentieth century to come up with technoscientific problems in agriculture that were then in need of technoscientific solutions. As Tania Murray Li defined it, "rendering

⁸ For more on the intersection between sustainable development and late imperialism, see Adams (2009).

technical" agriculture and development made it "simultaneously rendered nonpolitical" (2007, p. 7). Li describes development as an "antipolitics" (p. 8), a response to fears of popular mobilizations for communism across the decolonizing world. Imperial powers have various aimed to depoliticize agriculture; that is, move it away from a collective politics of anti-imperialism rooted in peasant struggles for the commons and towards a technopolitical endeavor fitting with capitalist notions of yield and profit (Cullather, 2010). In this way, horticulture and agronomy as fields of science and research are not just apolitical science (per Robbins, 2012), but in fact a specific *kind* of politics. The global infrastructure of agricultural science that emerged in the late nineteenth century was, according to Courtney Fullilove, built upon a "reconfiguration of local knowledge in capitalized research and development," which "abetted some political futures and foreclosed others" (2017, p. 8). As this case study examines, Zionist planners rendered agriculture technical not to excise it of politics entirely, but to build a logical case for their settler project in Palestine as an "antipolitics" to Palestinian national aspirations and anti-colonial struggle.

What is unique about the link between agricultural science and settler colonialism is the issue of *cultivation*. The emergence of capitalism alongside global colonialism reconceptualized notions of productivity to narrowly classify certain land-use practices as useful for capitalist accumulation. In a Marxian sense of primitive accumulation (Marx, 1976), enclosure is both the legal and the material process of transforming common lands into cultivated private property, justified discursively by claiming common land was "wasteland" or improperly used for not extracting high value yield for private use (Di Palma, 2014; Goldstein, 2013). Under settler colonialism, Native people who were considered part of nature were also seen as "waste" (Voyles, 2015). Legal, discursive, and material structures and histories of enclosure is well examined in political ecology and historical geography (Davis, 2007; Fields, 2017; Heynen *et al.*, 2007). Less examined, however, is the knowledge production process required to define productivity as a measurable outcome or to define certain agricultural practices as "cultivation" because of their use of specific technoscientific tools and techniques. Analyzing the knowledge regimes that undergird capitalist-colonial agriculture is crucial because, as Nelly Leblond and Julie Trottier have argued, models that posit global capitalism as the basis of a desirable food system are always also "constructing a structure of signification that suit... a specific structure of domination" (2016, p. 3).

Additionally, a critical history of agricultural science must deal not only with land, but also with population. While many point to a neo-Malthusian resurgence in environmental sciences and development in the 1960s and 1970s (Robbins, 2012), neo-Malthusian logics were embedded in agricultural science starting at least since the 1920s, as colonial bureaucratic and scientific administrators worked to calculate how many people could be supported with specific land use practices (Bashford, 2014; Hodge, 2007). As Joseph Hodge demonstrates, imperial policy makers and experts collaborated between multiple colonial sites and the metropole to solve the problems of population growth and support, thus ushering in the "growing institutionalization and globalization of colonial scientific knowledge" in the first half of the twentieth century (2007, 5). Postcolonial scholars have argued that these colonial efforts at knowledge production, circulation, and application were never completely "top-down" but instead always fraught with friction and failures, both in the local context and in trying to universalize knowledge to multiple sites (Cooper & Stoler, 1997; Goldman *et al.*, 2011; Harding, 2011; Stoler, 2010). This article's case study between two settler-colonial sites, the US and Palestine-Israel, over multiple decades illuminates not the seamless workings of transnational empire but instead contestations between imperial actors over the proper material organization—both economic and ecological—of space and population.

Much the critical history of agricultural science looks at sites of colonialism and empire in which native subjects became the object of development as their natural resources were expropriated for accumulation in the metropole. Settler colonialism, however, perpetrates an "intricate matrix of genocide, enclosure, and expropriation" that cannot be subtended as simply an imperial mode (Byrd, 2016, p. 84). Yet settler colonialism does not exist in a vacuum wholly separate from other forms of colonialism in which Indigenous peoples that survive genocide are targeted by the settler-colonial state for assimilation into "civilization." This case study adds to the conversation on science, development, and empire by examining settler-colonial power/knowledge regimes in multiple sites. Thus, this study aims to enlist a "comparative approach" that "attend[s] to the political-

economic and juridical *formations* that subtend colonization as a process" by examining agricultural development as one such transnational formation (Bhandar & Ziadah, 2016, p. 3).

The US and Palestine in this period were both settler-colonial projects, although Palestine had the unique "double status" of ongoing colonial rule (the British Mandate) and settler colonization (the Zionist state-building project). Joseph Getzoff argues that "both colonial development and settler colonialism mobilized each other" in Palestine (2020, p. 5). It is because of this double colonization that Sherene Seikaly argues "the Palestinians could never become developmental subjects" under the British Mandate (2016, p. 3), but rather were subject to attempted erasure by the parastate institutions of both the British imperial government and the Zionist state-building project.

Power/knowledge in British Mandatory Palestine

The mandatory period (1920-1947), both in Palestine and globally, represented a different colonial approach that has been called the beginning of the end of the age of European empire. Hodge classifies the bureaucratic governance of the late colonial period of the British empire as one characterized by an "increasing sensitivity and awareness of the complexities of local conditions articulated by technical officers and researchers working on the ground as part of the colonial professional departments" (2007, 4). Set up across the territory ceded by the former German and Ottoman empires after World War I, mandates were to represent a transition from brute exploitation of colonized people and resources for the benefit of the metropole to instead shepherding new sovereign nation-states into an emerging international polity. Of course, late colonial technocracy cannot be construed as politically neutral. While the mandatory system in many ways originated the concept of international development, earlier colonial ideas about "uncivilized" people who colonizers assumed would graciously accept European aid to lift them out of destitution shaped its governing practices on the ground (Anghie, 2002). At the same time, as Sara Pursley's history of gender and sovereignty in interwar Iraq demonstrates, "the assertion of a singular and universalizing modern concept of development does not attend carefully enough either to the particular forms of British governance [in place] or to the shifting, but still very multiple, meanings of 'development' in this period" (2019, p. 17).

British scientists and governmental administrators in Mandatory Palestine created infrastructural development projects for what they argued was the good of both the existing Arab population and the growing Jewish settlement enterprise. But these also served imperial economic and military interests, such as increased tax revenue and the opening new markets and investment opportunities for foreigners (Bunton, 2020). The Mandatory government formulated a rural development plan to rehabilitate what they saw as "wasted land" in Palestine. They focused their education efforts on the Palestinian Arab population, as they perceived Jewish settlers to be better equipped with technology, capital, and organizational capacity. Agriculture became a major avenue for Britain to develop the Palestinian *fellahin* (peasantry) and, after Arab nationalist uprisings beginning in the late 1920s, to make visible their imperial presence. Yet despite a *de jure* policy of building up the local Arab economy, Zionist agricultural development grew more quickly (whether intended by the British or not) through Zionists' better-organized institutions, ease of navigating legal and economic imperial structures, and massive outside capital investment which could be replenished even when self-sufficient economic endeavors failed (El-Eini, 2006; Robinson, 2013). Additionally, British law began to institutionalize the separation of Jews and Arabs as distinct races of people. As Shira Robinson notes, European ideals of sovereignty were linked specifically to national groups – often coterminous with racial, ethnic, or religious groups (2013, 17). While the scientists under study here were not formally part of Britain's mandatory governance system, they were still part of these global scientific communities which shaped and were shaped by ideas of scientific governance and development.

Finally, this period in Palestine specifically was also characterized by an intensified US-Zionist collaboration which supplanted the German and French support for earlier waves of Jewish Zionist settlement. Many of the early Zionist agricultural colonies of the First *Aliyah* (the first wave of political Zionist settlement from 1882-1903) were economic and ecological failures. Early settlers at first took up traditional Arab farming techniques from the *fellahin*, notably dry farming, even as they disparaged them as undeveloped and closer to nature (Aaronsohn, 1995). As more European capital investment came in after the turn of the century, and a

large wave of willing but cash-poor Jewish laborers arrived, Zionist agricultural settlement and planning during the Second (1904-1914) and Third (1919-1923) *Aliyot* (waves of Zionist settlement) turned fully towards Western models of productivity and cultivation. At the end of World War I, most Jewishly-held property was privately owned, mostly in the large citrus plantations of the coastal plain (Karlinsky, 2005). Usually these settlements were heavily externally funded from overseas capital and survived despite their failure to become either internally self-sufficient or economically viable, a privilege Palestinian *fellahin* lacked (Wolfe, 2012).

Yet in the 1920s tensions arose between overseas funders of Zionist settlement, some of whom were not particularly ideologically Zionist, and the reality of the economic challenges settlers in Palestine faced. The rise of Labor, or socialist, Zionism during the Second and Third Aliyot socially and physically began to supplant the German scientific and social models of farms (Penslar, 1991). Socialist Zionist leaders agitated for Jewish settlements to become economically and socially independent from the cheap Arab labor that had kept them afloat, arguing the national development of a Jewish state would be inhibited by continued reliance on an "outside" labor force (Shafir, 1996). Zionist scientists tackled the question of how to reorganize farms to be fully separate from Arab labor – and therefore to be sovereign over the land of Palestine – as both a technical and political question. At the same time, the end of the Ottoman tax system and replacement with British rule friendly to international capital meant that Europe and US-based funders began to demand a return on their investments. For instance, the Rothschild-funded settlements run by the Palestine Jewish Colonization Association (P.I.C.A) founded during the First and Second Aliyah began to face repayment plans (Mead *et al.*, 1928, p. 34). While American agronomists, notably horticulturalists working in the American West, had been collaborating with Zionist agronomists since before World War I (Teddell, 2017), American Jewish funding became an increasingly desirable source of foreign capital in Palestine after the war. However, American Jewish funders began to feel skeptical about the long-term sustainability of their investments, demanding technical evaluation and reorganization of settlement projects. American Jewish philanthropists requested a neutral expert evaluation before continuing or expanding their financial support (Ryerson, 1977, p. 147). As Arthur Ruppin, head of the Palestine Office of the Zionist Organization in Jaffa who supervised much of the settlement development in the late Ottoman and Mandate Era noted after a fundraising trip to the US in 1923, "Many of the Jews [in the US] will not adhere to Zionism until it is hammered into their heads by non-Jewish papers, that Zionism is a matter worthy of assistance and until the same thing is preached by Americans of high standing."⁹

In the Mandate Era, then, scientific expertise from the US took on a particularly important role in building global material and ideological support for the Zionist project. The following sections examine how US-Mandatory Palestine collaborations and conversations shaped two scientific debates. The first was the question of where to put Jewish agricultural settlements in Palestine, and how the settlements should be both physically and economically organized. The second was the issue of how many people, particularly Jewish immigrants, the land of Palestine could physically and economically contain.

3. The first problem rendered technical: Siting and organization of farms

The first problem Zionist planners ran into was where to locate new Jewish settlements and what kind of farms they should be. This was influenced strongly by existing population patterns in rural Palestine, as Palestinian hinterlands were more densely congregated in the Judean Hills around Jerusalem, Nablus, and Hebron, and across the Jezreel and Hula Valleys in the Galilee (Doumani, 1995; Khalidi, 1992). However, although much scholarship has focused on how and where Zionists bought land and developed farms in the Mandate period, much of it takes as a given that they avoided areas with dense Palestinian population and/or land ownership. The explanation that Zionist settlements were simply sited where Palestinians were absent reinforces ideas of a *terra nullius* in which Jewish settlers came to an empty land to rehabilitate it and restore it. In actuality, Zionist agronomists, with support from international allies like the US, spent decades studying what they felt was the most rational way – both scientifically and economically – to place farms, choose crops, and organize production. This scientific rationalism was shaped by racial science ideas circulating in global

⁹Arthur Ruppin, correspondence with the Zionist Executive, 14 February 1923, Z4\40770, Central Zionist Archives, Jerusalem, 2.

environmental and agricultural sciences, particularly from the US, and came to influence the dominant racial idea embedded within Zionism: that "Jews" and "Arabs" were two separate races with different political futures.

Zionist agronomy in a global network

Isaac Elazari-Volcani (born Yitzhak Wilkansky)¹⁰ matriculated in agronomy in Germany before leaving for Palestine in 1908. An active leader in *Ha'poal Ha'tzair* (the non-Marxist Socialist Zionist movement), he helped reroute institutional Zionist support from the World Zionist Organization towards communistic agricultural settlement (Penslar, 1991). His interest lay particularly in "mixed farming" systems, or the growing of both crops and livestock on the same farmstead. Zionist agricultural development for export, particularly citriculture, was dominated by the plantation system. Huge swaths of the coastal plain were covered with citrus orchards, where Arab laborers picked oranges to be exported to England and Europe. Wilkansky saw these plantation systems as anathema to the Zionist project, both in their capitalist nature and in their use of Arab labor (Karlinsky, 2005, 33); he felt mixed farms based around smaller communities would foster economic growth and, just as (if not more) importantly, a lasting connection between Jewish settlers and the land. He was motivated to travel to the US to visit models of such farms, although what he found did not always match his technical vision for mixed farming.

From November 1919 through June 2020, Wilkansky traveled the US with David Shapiro, a Zionist settler and agronomist originally from California.¹¹ His research trip itinerary, made in consultation with the US Department of Agriculture (USDA) Extension Department, had two major objectives. First, he would examine US models of "making the land ready for the people [emphasis original]," understanding how to "prepare the land to the highest efficiency of production" through experimental stations model farms, and other scientific innovations.¹² Second, he was interested in how US agricultural education programs were "preparing the people for the land" through agricultural extension,¹³ such as the American farming youth programs like 4-H which, he observed, "have more or less succeeded in bringing up the country youth in such a spirit which keeps them nailed to the soil."¹⁴

In a series of nine reports sent to the World Zionist Organization headquarters in London, he offers detailed accounts of the assorted ecological, technical, economic, and social elements of and advice on agricultural colonization in the US. Wilkansky wished to study not only dry farming techniques in the arid lands of the American West, but also to examine farming in warmer, wetter climates of the American South that he felt resembled the Jordan Valley.¹⁵ However, in his visits to Georgia, Alabama, Louisiana, and Texas, he found little of interest.¹⁶ When he reached California, he found both friendly colleagues and what he saw as similar climates and ecosystems to much of Palestine. He arranged the remainder of his trip with department chairs of the University of California College of Agriculture in Davis, California.

Wilkansky met with a series of professors from the College of Agriculture in both Berkeley and Davis, from various departments including entomology, citriculture, plant breeding, and farm mechanics. He was impressed with the university's horticultural research, global agricultural development experience and agrobusiness ties. He saw in California a model for how to redeem what the Zionists saw as degraded "wasteland" in Palestine. For instance, he described inland southern California's Imperial Valley as one with a "climate and

¹⁰ Many European Zionist leaders "Hebraized" their names from Yiddish birth names to Modern Hebrew names at some point in their life. I refer to Wilkansky by the name he used at the time specific events occurred or papers were published. During his US trip, he signed all letters and reports as Wilkansky; later scientific publications were published under Elazari-Volcani.

¹¹ Yitzhak Wilkansky, Report no. 1 to the Actions Committee of the World Zionist Organization, London, 30 November 1919, Z4\41076-2t, Central Zionist Archives, Jerusalem.

¹² Wilkansky, Report no. 1, 3.

¹³ Ibid.

¹⁴ Wilkansky, Report no. 1, 2.

¹⁵ Wilkansky, Report no. 1, 3.

¹⁶ Yitzhak Wilkansky, Report no. 2 to the Actions Committee of the World Zionist Organization, London, 30 November 1919, Z4\41076-2t, Central Zionist Archives, Jerusalem.

features quite similar to our Jordan Valley," admiringly noting that "the valley is very prosperous and is developing very quickly. Fifteen years ago, before the installation of its present irrigation system, it was nothing but a desert waste."¹⁷

Aside from the interview with Gilmore described in this article's introduction, race does not generally appear so starkly, if at all, in Wilkansky's reports from his US travels. Wilkansky did not describe meeting or seeing non-white populations on US farms, nor do most of the US scientists describe their scientific research or policy work to him in terms of racial categories, dynamics, or hierarchies. Explicit "racism" or segregation that we know to be present in California farms as well as institutions of agronomic research like the University of California at the time are absent.

However, evident in Wilkansky's description of his travels is a colonial logic that presents California's agronomic innovations as at once cosmopolitan and specific. On his visit to the private California Fruit Growers' Exchange, the manager, a Mr. Powell, proudly explains to Wilkansky that "within the last year or so California was visited by agriculturalists from Australia, South Africa and Porto Rico [sp.]"¹⁸ The Zionist project in Palestine thus became part of this global network of settler-colonial scientific expertise. The University of California and representatives of private agri-business in the state positioned themselves as scientific innovation leaders that drew on California's specific ecological context to create universal schemas for global settler-colonial economic development.

Wilkansky's later work, including narrative essays written after his trip that summarized the overarching issues with Jewish Zionist agricultural settlement, as well as books on farming practices published later in his career, can also be analyzed to illuminate how racial thinking influenced his analysis of issues with Zionist agricultural settlement planning and his future plans. In particular, his narrative writings on Zionist agricultural settlement can be interpreted for his understandings of racial differences between Jews and Palestinian Arabs as well as broader global racial logics naturalized through colonial development science.

Wilkansky believed Jews had a natural intellectual gift as a people, but "the hereditary bent to study" had been "forcibly suppressed." He stated that through a dialectic between agricultural colonization and intellectual development, "we shall again become the 'People of the Book'" – a reference to the theological belief of the Jewish people's "chosen" status due to being granted the Torah.¹⁹ He surmised that this intellectualism was perhaps "not innate" but instead "subsequently acquired" since "the time when our ancestors stood on Mount Sinai" when, according to the Torah, G-d made the covenant with the Israelites, thus positioning the story of Exodus as historical fact.²⁰ He nonetheless felt that such intellectualism "has become second nature" to the Jewish people to the point that "we can no more control it than we can change the features of our countenance" – it had become natural.²¹ Rejecting a binary between educated and manual labor, he instead saw technical education as "guid[ing] and train[ing]" agricultural work.²² Yet not all agricultural labor was created equal. The Jew needed intellectually stimulating labor, emphasizing "modern implements and a rational system," to keep the "mind sufficiently fresh even when his actual work is most dulling."²³

As Wilkansky believed Jews were more naturally suited to modern farm labor because of their inherent intellect, the next problem which arose was where such "rational systems" of farms should be located. He acknowledged the central mountain chains of Palestine were historically the most fertile and that the climate of the hills was better suited for human health, decrying the valleys. In another essay, "Where We Should First Settle?" Wilkansky describes the Jordan Valley as such: "the climate here is very trying, the heat enervates the worker and malaria is a constant visitor in this locality... Even the Yemenites, who have grown up under the

¹⁷ Yitzhak Wilkansky, Report No. 4 to the Zionist Organization Actions Committee, London, 5 April 1920, A111/77, Central Zionist Archives, Jerusalem.

¹⁸ Wilkansky, Report no. 4, 4.

¹⁹ Yitzhak Wilkansky, "Agricultural education," likely 1920-1924, Z4\41452-3-9, Central Zionist Archives, Jerusalem, 1.

²⁰ Ibid.

²¹ Ibid.

²² Ibid.

²³ Wilkansky, "Agricultural education," 6.

sun of the East, cannot acclimatize themselves to this spot."²⁴ Upon ascending to the hills "the more refreshing [the Jewish laborer] finds the pure air of the heights," noting that the American Jewish settlers of Poriah (south of the Sea of Galilee) call it "the clear, light, and refreshing 'air of America.'"²⁵

However, as noted earlier, the central mountain chains were also home to the densest Palestinian villages and cities. Of course, the existence of major Palestinian villages and cities did not dissuade Zionist militias and the Israeli state in later years from using military force to violently expel many of these communities, particularly in the Judean Hills around Jerusalem and Mount Carmel near Haifa. However, in the early British Mandate period, Zionist expansion still mostly functioned through land purchases – as aided and supported by the British authorities – and would not turn more fully to organized militarized violence until later in the 1930s (Essaid, 2014). Wilkansky thus concludes that hillsides were unsuitable for Jewish agricultural settlement, but he does not actually mention any difficulty in finding land to farm there. Instead, he justifies prioritizing valley settlement through a scientific and moral philosophy that focuses on the importance of living and laboring in the exact same place:

The natives as a rule make their dwellings on the mountain in a place where the climate is healthy and invigorating. ... But what the natives can do is impossible for us. With them economic and hygienic conditions are in complete harmony; with us in complete contradiction. The *fellah* who lives on the mountain can go down to the valley every day at dawn with his light beast and with his 'nail plough', and at sunset take them up again to the mountain... But the modern farmer is saddled with heavy implements and machinery which it is hardly possible to take up and down by the narrow paths and tracks. ... A farmer who lives on the mountain and works in the valley has to belong to two places ... Hygienic conditions must be created in the place from which his living is derived in order to give him the strength of the soil.²⁶

Wilkansky's optimal model of farming required the laborers and their families to live where they worked. On a surface level, this is a pragmatic concern, as daily farm labor is difficult enough without traveling long distances from residences to fields. However, Wilkansky's emphasis on creating "hygienic conditions" as opposed to "what the natives [Arabs] can do" hints at larger racial anxieties rooted in Zionism's nation-building project and its settler-colonial nature.

The linking of moral and environmental hygiene through science and social science was important for settler-colonial states throughout the world to figure out how to keep new settlers on the land in an often hostile natural environment, and to justify the expulsion of native peoples from their land through seemingly politically neutral justifications like improving public health (W. Anderson, 2005). The impetus was both to maintain a purity of the settler body politic while also reforming who the settler is: the true indigenous people of the land. The Yishuv (Jewish settler population of Palestine) underwent a self-fashioning to transform Jewish immigrants into the new "natives" of Palestine, specifically through agricultural labor. Wilkansky felt this project should proceed with attention to scientific rationality, like the agricultural extension and youth programs he observed in the US. Such rationality could also overcome the ecological limitations of both the land and the body; Wilkansky argues that "the conquests of science and technique have altered agricultural values; they have altered the connection between the creators of these values and the soil."²⁷ However, that scientific rational form of farming could only proceed in specific places. The mountains, while having more "beneficial properties" climatically,²⁸ were in Wilkansky's view horribly degraded into a "now desolate land"²⁹ and could

²⁴ Yitzhak Wilkansky, "Where Should We First Settle?" essay, likely 1920-1924, Z4\41452-16-30, Central Zionist Archives, Jerusalem, 2

²⁵ Wilkansky, "Where Should We First Settle?", 4.

²⁶ Wilkansky, "Where Should We First Settle?", 3-5.

²⁷ Wilkansky, "Where Should We First Settle?", 1.

²⁸ Wilkansky, "Where Should We First Settle?", 9.

²⁹ Wilkansky, "Where Should We First Settle?", 7.

not be restored through modern methods as "the use of machinery and of the invention of modern science has become second nature to us, and these it is impossible to take up to the mountain."³⁰ Here, Wilkansky acknowledges a limit to the Zionist adage of "making the desert bloom;" the idea that Jewish effort and ingenuity would restore Palestine's wastes. Counterintuitively, Wilkansky viewed both practical but also biological limits on *which* land the Jewish people could make bloom.

American expertise goes to Palestine

In addition to sending Jewish Zionist scientists to the US for research trips, the World Zionist Organization also brought American agricultural expertise to Palestine. Key to American advice on land use planning for increasing carrying capacity was the concept of "efficiency," or maximizing agricultural yield at minimized economic cost (Rook, 2000). For the American experts who traveled to Palestine in the 1920s-1930s, efficiency was inexorably tied to capitalism through the model of the individual family farm (Teisch, 2011; Troen, 1996).

Dr. Elwood Mead, former professor at University of California Berkeley and then head of the US Bureau of Reclamation, first visited Palestine in 1923 to advise the Zionist Executive on the most efficient organization of agricultural settlement. This first trip was successful enough to warrant recruitment for a larger report. During his tenure at the University of California and as head of the State Settlement Board, Mead advocated for racial segregation in farm labor and land ownership. Like other American progressive reformists of his era, his belief in "the white family farm as the foundation of American society" motivated his scientific and policy pursuits and outlooks (Teisch, 2011, p. 89). He publicly advocated on behalf of white farmers in California who felt threatened by Japanese immigration to rural areas and "fear[ed]...invasion" (Mead, 1921, p. 51), arguing that there were fundamental and insurmountable differences not only between white and Japanese people as races, but also the type of labor which each race was suited.

In 1927, Mead gathered colleagues from the University of California, New Jersey's College of Agriculture and Experiment Station, and the Bureau of Reclamation to embark on a specifically agricultural survey of Zionist settlement in Palestine. According to Knowles A. Ryerson, the horticultural expert on the committee, the fact-finding mission was "set up to be...non-Jewish [and] non-Zionist" in order to "get an unbiased opinion on the land settlement question" (1977, p. 146). The members of the Joint Survey Commission had differing attitudes to the Zionist cause, from outright support to ambivalence. Ryerson, for example, had close college friends from the UC who were now working in the Zionist Experimental Station, or running P.I.C.A settlements and private citrus plantations.³¹ Yet he turned down repeated opportunities to speak publicly to Zionist audiences in the US and privately expressed annoyance about such requests.³²

In the report published by Mead's commission after the trip (Mead et al., 1928), the American experts determined "culture" to be the largest challenge to making Jews into farmers. The socialist ideals of Labor Zionism received an outsized portion of the Americans' criticism. Mead felt the Zionist settlers were "handicapped by idealism" (Mead et al. 1928, 18). Ryerson expressed frustration that Labor Zionists leaders attempted to prevent the committee from speaking to private, individualistic settlements (1977, p. 150). Ultimately, Ryerson believed, "the economics of the [Zionist] project...would decide its success" (ibid). However, focusing solely on the contestation over whether socialist or capitalist economic organization was a better colonial model belies the way the US scientists interpreted racial ideals of what Jewish and Arab labor, and therefore Jews and Arabs as "races," were, could, or should be. The American experts' push for capitalistic growth fit with their understandings of a natural hierarchy of racialized labor, although not always neatly.

The Report's authors first describe Jews as an "emotional people...men with keen minds and lively imaginations" (Mead *et al.*, 1928, 20). However, later, they praise the economic success of P.I.C.A. farms as

³⁰ Wilkansky, "Where Should We First Settle?", 9.

³¹ Letter from Knowles A. Ryerson to Mark Schwartz, Zionist Organization of America, 17 July 1927, Knowles A. Ryerson Papers, D-011, Box 72, Folder 46, Special Collections, University of California, Davis.

³² Letter from Knowles A. Ryerson to A. Tannenbaum, Acting Director, Zionist Organization of America, 1 October 1928. Knowles A. Ryerson Papers, D-011, Box 72, Folder 46, Special Collections, University of California, Davis.

partially due to their ignoring of "social theories" or "claims that the Jew has a peculiar temperament" limiting their social and economic opportunities (p. 35). The P.I.C.A colonies here embody values of American whiteness, including individual thrift, self-sufficiency, and economic competition. Mead and his team here express skepticism of Zionist colonies, not only for their socialism but that they will exceed the resource carrying capacity of the land (p. 42). Conversely, Mead *et al.* describe Arabs as "primitive people who knew no luxury, and to whom hard and ceaseless toil was accepted as inevitable and entirely natural" (p. 30). The Jews, the US delegation felt, can use their intellect to rise above their biological status, while the Arabs cannot – the American scientists argue that their best hope is a better quality of life due to Zionist settlement expansion (p. 38). Finally, Mead and his colleagues note that "successful Jewish or Christian farm colonization in Palestine has been confined to the valleys" (p. 33). Like Wilkansky, they advised no new hill settlements should be attempted (p. 40).

Early British Mandate Palestine thus saw European Jewish Zionist and US agronomists naturalizing racial separation and hierarchy through not always necessarily explicitly racial science ideas. Instead, their language and reporting expressed ostensibly universal concepts of economic productivity and sustainable development. The latter concept did not imply being "environmentally friendly," as it came to be understood in the second half of the twentieth century, but instead a type of physical and social arrangement that could be expected to last the longest and issue the most social benefit. This question of sustainable economic development leads to the second debate highlighted in this article: the question of the maximum population possible in the land of Palestine.

4. The second problem: The issue of "absorptive capacity"

A second, and related, problem that the scientists dealt with regarded the formation of people into the demographic concept of "population." How many people could Palestine support, where, and how? The debates over Palestine's "absorptive capacity" to receive increased Jewish immigration while still supporting the existing Jewish and Arab populations consumed Zionist and Arab nationalist thought and organizing in Palestine and across the world. These debates were part of a global neo-Malthusian concern with population growth amongst scientists and politicians during the first half of the twentieth century. While neo-Malthusianism is often credited as emerging in the late 1960s amongst the tumult of decolonization, the foundations of joint scientific-political concerns with population can be traced to the 1920s and 1930s immediately following World War I. As Alison Bashford argues, geopolitical contestations over national sovereignty in the Mandate era "gradually morphed into a biopolitical solution, entailing sovereignty over one's person" (2014, p. 4).

To the scientific and bureaucratic experts of this early neo-Malthusian era, solving issues of spatial control and the techniques and distribution of food cultivation were just as (if not more) important as controlling birth rates and tracking demography. The political issue of population was naturalized, Michelle Murphy argues, through the emergency of the concept of the national economy. The "economization of life," according to Murphy, "continued the project of racializing life – that is, dividing life into categories of more and less worthy of living, reproducing, and being human – and reinscribed race as the problem of 'population' hinged to the fostering of the economy" (2017, p. 6).³³

Much has already been written on British policies regarding Jewish immigration to Palestine during the Mandate period; here, the focus is specifically on how supporters of the Zionist project within Palestine and the US argued for a scientific calculation of Palestine's absorptive or carrying capacity. This calculation was conditioned by the slippage of "carrying capacity" from a concept originating not only in population ecology but also in global shipping and logistics to one applied to human populations under colonial governance in the late colonial era (Sayre, 2008). Carrying capacity in ecology is a concept that measures the interplay between the available resources in a bounded space and the growth rate of a species' population—when resources are exceeded, population growth will either plateau or resources will be depleted to the point of degradation and

³³ For more on the concept of the national economy as a colonial project throughout history, see Fakhier Eldin, 2019; Mitchell, 2014.

even complete destruction. Writing about the rise of neo-Malthusianism in global development and environmental conservation after World War II, Nathan Sayre describes the concept of carrying capacity as one "simultaneously ideal and real, prescriptive and descriptive, normative and positive – but here it was applied to humans instead of livestock and oriented toward an apocalyptic future rather than an original, pristine past" (2017, p. 168).

Before 1945, when carrying capacity began to take shape as a warning of out-of-control birth rates in the developing world, Zionists had it flipped it on its head. Rather than counting Jewish immigrants or birth rates, Zionist scientists instead emphasized the untapped potential fecundity of the land itself to support a larger Jewish population. While they did not necessarily inflate calculations of carrying capacity, these scientists did argue that absorptive capacity could be modified through sustainable development. Around the globe, Zionist supporters used scientific research – much of it conducted by American scientists visiting Palestine on the invitation of Zionist organizations – to justify allowing more Jews into Palestine (Miller, 2003, p. 58). Thus, the debates around absorptive capacity in Palestine in the years leading up to and during World War II can contribute to an understanding of neo-Malthusianism before its zenith in the era of decolonization, which includes, perhaps surprisingly, finding advocates among British imperialists and Palestinian nationalists.

Various resources, mostly related to agricultural production, were targeted for improvement to justify the increased potential of Palestine's absorptive capacity. Water became problematized and politicized as an important resource through seemingly "apolitical" science in the 1920s and 1930s. Zionist scientists discounted British scientific investigative methods, in order to argue that water was actually abundant, not scarce, in the region, thereby justifying increased intensive farming and Jewish settlement (Alatout, 2009). Scientific reports incorporated into British immigration policy rendered Zionism technical, not political, by calculating the economic potential of Palestine to govern Zionist growth in the region. However, as Sherene Seikaly has shown, "economization of life" in British Mandatory Palestine on the eve of and into World War II oscillated widely and ineffectively between claims that colonial development would increase food and water resources and therefore population growth, an austerity positions that posited resources as naturally scarce. Colonial calculations and their regime of experts were "incoherent and ill equipped" (Seikaly, 2016, p. 100).

Because of the centrality of infrastructural and agricultural issues to the scientific and political debates around absorptive capacity just before and during World War II, civil engineers, soil scientists, and irrigation experts saw their work grow in political significance. One of the most notable soil and water experts advising the Zionist project and later the state of Israel was Walter C. Lowdermilk. A US World War I veteran who studied forestry in both the American Southwest and Germany, his first international agricultural research posting was in Nanjing, China, where he spent five years studying soil erosion and flood control along the Yellow River. He concluded that deforestation was the cause of increased runoff, decreased fertility, and therefore famine in the river valleys, but his time in China was cut short by the Nanking Incident and nationalist expulsion of foreign capital in 1927. He and his American wife Inez Marks Lowdermilk³⁴ fled, and returned to California where he completed a PhD at the University of California School of Forestry. Appointed as Assistant Chief to the new Soil Conservation Service in 1933, Lowdermilk was tasked with national surveys of soil degradation, particularly in the American South, Southwest, and West. From 1938-1939, he undertook a multi-continent research trip through Europe, North Africa, the Levant, and Iraq. The intent of this trip was not to give advice but to seek in the "Old World" the answer as to what had caused landscape degradation, particularly soil erosion, and use this to build scientific conservation programs in the US (Lowdermilk, 1953, p. 30).

In letters written during his trip, Lowdermilk praised Jewish settlement efforts at landscape restoration and decried what he classified as native Arab degradation over millennia. He frequently used the Bible as a historical and scientific reference point. When traveling by car from Cairo to southern Palestine, he described their path as "the route of the Children of Israel" during Exodus, noting that the Bible described it as "it was the best grazing country in all the land; it is now a barren uninhabited country whose naked slopes are outlined with

³⁴ Walter C. Lowdermilk took the China posting upon urging of his new wife, who had served as a Christian missionary in China for several years before marriage, taking up a campaign against foot-binding. A fervent Zionist supporter, Inez Marks Lowdermilk would continue to fundraise for Hadassah and lead Christian Zionist trips to Israel for years after her husband's death until she passed at the age of 99 in 1989.

goat paths, but no visible vegetation."³⁵ He blamed Arabs for destroying modern infrastructure; upon passing into Palestine, he wrote that "for hours the Arab hatred of the Jews was visible in the destruction of homes of new development work and even of new orchards."³⁶ He indicated support for Jewish colonization as helping to bring up the quality of life for the Arab population: "The Arabs have been well paid by the Jews for their lands and have been increasing in number, due largely to the increased work and economic prosperity, due to Jewish projects throughout Palestine. If the Jews were permitted to have the land again they would do wonders in increasing its productivity, as shown by what they have done with the new projects."³⁷ Lowdermilk praised Zionist colonization as a regional model, writing during his trip that "the bright spot in all our travels through North Africa and Asia Minor are the Jewish Colonies in Palestine."³⁸

Lowdermilk's 1944 book, *Palestine, Land of Promise*, was touted globally as a "scientific, moral, religious and political argument" for Zionist settlement, arguing that Zionists would restore the land to its former fecundity and that such reclamation would improve the absorptive capacity of the land (Miller, 2003, p. 59). In the book, he argues that the "the Arab invasions" and the "ensuing centuries exploitation, plunder and neglect of ancient conservation devastated and depopulated the land "leading to a "contraction" in absorptive capacity from what it had been in ancient times (Lowdermilk, 1944, p. 219). He praises the "consecrated genius and vision of the Jews" in expanding arable land through anti-desertification and swamp drainage efforts (p. 220). Yet in private field notes written during his 1938-39 trip on which he based *Palestine, Land of Promise*, Lowdermilk expressed skepticism that technoscientific improvement could overcome what he saw as a fundamental limitation of available land. Lowdermilk was concerned that "the area of land in these colonies is limited, and the population of colonies is increasing. The carrying capacity of the land may be increased but not enough to take care of central population increase. The Jews will then find themselves without means unless they go into manufacturing or migration to other lands."³⁹ In his public writings, however, Lowdermilk supported the "more optimistic point of view on the total cultivable area of Palestine" as offered by Zionist scientists (Lowdermilk, 1944, p. 224). Towards the end of his career, Lowdermilk began to publish more explicitly neo-Malthusian texts (Lowdermilk, 1962).

Both Lowdermilk's skepticism of and support for the higher claims of Palestine's absorptive capacity can be understood as consistent with his racial logics of population in general. Lowdermilk's carrying capacity framework was never truly about the physical properties of the land of historic Palestine, or even evidence for a static limit to growth rates. It was about *which* people could or should grow more prosperous and abundant: only those that fit within his white, Christian model of "civilized people," able to take advantage of technoscience to rehabilitate the degradation he claimed that non-white people the world over had wrought.

Overpopulation in Palestine-Israel today

Understanding Lowdermilk and other early Zionist scientists' oscillating attitudes towards the "absorptive capacity" of Palestine is necessary for a critical analysis of contemporary discourses of sustainability around population. This is not in favor of a "presentist" project that traces an uninterrupted thread of the origins of contemporary environmental racism within Israeli or global environmental conversations, or that prescribes solutions to contemporary problems based on a look at past environmental conflicts (Brannstrom, 2004). The implications of the present day remain salient because "the past does not simply recede or accumulate" (Van Sant *et al.*, 2020, p. 3); that is, the wreckage of history remains in the imperial logics that

³⁵ Letter from Walter Clay Lowdermilk to Dr. H. H. Bennett, Chief of Soil Conservation Service, 28 February 1939, W.C. Lowdermilk Papers 1914-1961, BANC MSS 69/36c, Portfolio 1, Folder 38-39, The Bancroft Library, University of California, Berkeley.

³⁶ Walter Clay Lowdermilk to H. H. Bennett 28 February 1939, 4.

³⁷ Walter Clay Lowdermilk to H. H. Bennett 28 February 1939, 5.

³⁸ Letter from Walter Clay Lowdermilk to Dr. H. H. Bennett Chief of Soil Conservation Service, 17 June 1939, W.C. Lowdermilk Papers 1914-1961, BANC MSS 69/36c, Portfolio 1, Folder 38-39, The Bancroft Library, University of California, Berkeley.

³⁹ Walter Clay Lowdermilk, Field notebook 8, 3 June 1939, W. C. Lowdermilk papers, circa 1912-1969, BANC MSS 72/206c Carton 2, The Bancroft Library, University of California, Berkeley.

undergird even progressive political movements. Mainstream environmental organizations in the US, including those with global outposts, have widely reckoned with the settler colonial and racist ideologies of their founders, although structural racism issues persist in domestic environmentalism. Few of these organizations, however, acknowledge the ongoing structural injustices of such environmental work outside of the US and how global environmental movements continue to perpetrate colonial hierarchies. Furthermore, the Israeli environmental movement has had no such accounting in terms of its embeddedness in the structural racism of Israeli society, and is politically unlikely to in the foreseeable future.

This particular study matters to the present because the issue of carrying capacity and population continues to be a thorny and salient topic in global environmental conversations (Sasser, 2018). Even when it takes forms more subtle or less directly coercive than population control measures of the mid-twentieth century, contemporary calls for a cap to the number of people on the planet or even within specific areas constitute the "populationist idea that growing human numbers are always a harbinger of impending environmental degradation" (Bhatia *et al.*, 2020, p. 337). Israeli environmentalism has been no exception to the resurrection of populationist thinking. I turn here to analyze the case against overpopulation from one of Israel's leading environmentalists, Dr. Alon Tal. After growing up in the US and immigrating to Israel, he went on to co-found several major environmental organizations in Israel including the Arava Institute for Environmental Studies and EcoPeace Middle East (formerly Friends of the Earth, Middle East). He also served as a member of the Knesset (Israeli Parliament) from 2021 to 2022 as a representative of *Kahol Lavan*, "Blue and White," a center-left liberal Zionist party. His most recent single authored book *The Land is Full: Addressing overpopulation in Israel* (2016) is a neo-Malthusian tome against "overpopulation" and the resulting "social and environmental crisis" in Israel.

Opening with a preface by Paul and Anne Ehrlich, the authors of the infamous neo-Malthusian *The Population Bomb* (1968), Tal's book aims to outline the harmful environmental impacts of population growth in Israel and advocates for policy solutions to restrict it. He condemns the pre-state Zionist push to expand the "absorptive capacity" number, claiming that long-term environmental impacts of population growth were never considered. Throughout the book Tal paints a picture of a "multi-cultural," environmentally friendly Israel, one in which Zionism, while a historical driver of Jewish population growth, was no longer the "single 'story'" to explain either Jewish birth rates or immigration (2016, p. 11). At the same time, Palestinian population growth is seen as not only an environmental threat but a political one, "a source of considerable anxiety for Israel's Jewish majority" (2016, p. 197). Tal positions combatting overpopulation of both Jewish and Palestinian communities as environmentally beneficial, but only a decreasing Palestinian birth rate is *also* politically important, "offer[ing] the possibility of a stabilized region and reconciliation" and a basis of "common visions of sustainability" (2016, p. 217). This "common vision of sustainability" seems to be one in which a shared physical environment and ecology does not address nor rectify the historic and present colonial power relations of oppression against Palestinians. Here, as in other continuing settler-colonial projects, "race is the grammar and ghost of population" (Murphy, 2017, p. 135). Tal's work is more than haunted by the ghosts of the US-Zionist scientists from a century earlier – it continues in their lineage. As much as Tal tries to position combatting overpopulation as environmentally and socially beneficial for all the inhabitants of Palestine-Israel, one cannot detach his project from Israel's larger system of racialized, settler colonial control.

Tal positions the question of population growth in Palestine-Israel as part of a larger global problem. His final chapter is a call to action: "We Can Do It – A Agenda for Stabilizing Israel's Population." He opens this call not with commentary on the situation locally but instead with a global view:

By 2050 the number of countries with populations of 100 million people or more will double. There will be 398 million people in Nigeria, 137 million people in Tanzania; Uganda will have 101 million, and 309 million people will fill up Pakistan. Over 1.7 billion people will live in India, roughly the number of people who lived on the entire planet at the turn of the twentieth century! *Life in these countries will be very crowded and, for most residents, unpleasant.* (Tal 2016, p. 259, emphasis added)

His examples in the Global South, three of which are African nations, conjure up specifically racialized or even racist images of what conditions might be like in these nations: a "jam-packed, congested tangle" plagued by "acute food and water shortages" (p. 260). Asserting that "only government intervention can produce socially optimal results," he contends that "assuming that the State of Israel prefers to take a *sustainable* route, it is time to consider the measures that it must adopt to stabilize population" (p. 261, emphasis added). Sustainable here then is not just an environmental material determination of resource use that can continue over time—it is a social and political designation of what type of life is worth living, and by whom. A "sustainable route" is one that is determined by the Israeli state (*de jure* a Jewish one). By what measures would the state be able to be held accountable to make this route a just one?

Even though Tal criticizes the early Zionist attempts to expand Palestine's absorptive capacity, his anti-natalist populationism should still be understood as part of the same colonial legacy as those efforts. In both instances, the question of how many people can live within the bounds of historic Palestine supposes a Jewish nation-state that prioritizes a small, middle-class, nuclear family model living self-sufficiently from capitalist wage income. As explained earlier in this article, early Zionist arguments for a higher Jewish population assumed that European Jewish families would only be willing to stay as settlers if they could enjoy a certain "quality of life," higher wages than Palestinian laborers (and later, Mizrahi Jewish immigrants and non-Jewish laborers from eastern Africa and southeast Asia). For Tal, this is particularly evident in his policy solutions on "empowering women," where he articulates longstanding global anti-natalist policy proposals that argues that the higher participation of women in the wage labor workforce, the lower their fertility rate. He notes that the major obstacle to bringing up the average of women in the workforce in the state of Israel is the "low participation rate of Arab women ages twenty-five to sixty-four, only 35 percent of whom are employed" (p. 267). In a further section on "Arab empowerment," he cites "one analysis [which] projects a 50-billion-shekel⁴⁰ benefit to the [Israeli] economy from increasing the number of Arab women in the workforce" (p. 272). For Tal, Palestinian women are a standing surplus labor population. He seems them as ready to be enlisted in waged labor in Israeli industry, but under the guise of paternalistic development. Whether Palestinian women are working in low-paying service industry or the higher-paying tech industry that Tal extols, matters little; the ultimate benefit is to the Israeli economy and therefore, the Israeli state.

5. Conclusion: Violent dehumanization through science today

Through this analysis of contemporary populationist arguments put forth by what is arguably Israel's leading liberal Zionist environmentalist, the contemporary relevance of historical debates over the economic and environmental sustainability of Israel's Zionist settlement can be clearly seen. Too often, "the ways in which history is told can mask and/or naturalize inequitable and exploitative relations at the center of contemporary nature-society problems" (Davis, 2015, p. 264). The telling of the history of Zionist agrarian settlement and scientific development in the pre-state and early statehood period must denaturalize and center the racial hierarchies created and recreated at that time and in the years hence.

As of this writing, Palestinians in Gaza are suffering under Israel's ongoing bombardment, invasion, and genocide since the October 7, 2023 attacks against Jewish Israelis, Thai migrant workers, and Palestinian citizens of Israel in the agricultural settlements surrounding Gaza. The brutal treatment of Palestinians includes massacres of men, women, and children, allegations of torture of prisoners, and the legal and vigilante restriction of humanitarian aid into Gaza. As of June 2024, the death toll of Palestinians in Gaza stands at over 35,000, with more than 75% of the 2.2 million people of Gaza displaced (Salman *et al.*, 2024).⁴¹ The International Court of Justice in January 2024 found it "plausible that Israel's acts could amount to genocide" against the Palestinians (UNCHR, 2024). Outside of Gaza, since October 7, 2023 the Israeli army has escalated and intensifies its raids on Palestinian villages and refugee camps across the West Bank. Military bulldozers

⁴⁰ US\$13.6 bn.

⁴¹ As this article went to press in November 2024, the official reported death toll of Palestinians in Gaza stood at over 43,000, with estimates of at least 10,000 missing, suspected dead =under rubble, and at least another 62,000 dead from starvation. Researchers assert these are likely undercounts. Nearly 700 Palestinians have been killed by Israel in the West Bank. See Stamatapoulou-Robbins (2024).

have demolished roads and soldiers and settlers have attacked Palestinian farmers in their fields and orchards. Alongside these spectacular forms of violence, more pernicious bureaucratic suffocation has impacted Palestinian agricultural livelihoods, as international funding bodies restrict material and monetary support for agricultural development in the West Bank (Qassis, 2024).

The justification for Israel's continued bombardment of Gaza, for its occupation of the West Bank, and for myriad restrictions and violations of the human rights of Palestinians across historic Palestine, is that of Israel's security. In the historical case study of Zionism outlined here, however, we find the logics of dehumanization and racial segregation that underpin Israel's brutal war against the Palestinian people with the US's full backing and support. Since its dismantling of settlements from Gaza in 2005, Israel has managed Gaza through a siege, using the same logics laid out here: calculating and restricting minimum food and resources allowable into Gaza; positioning Gaza as a political and environmental problem for the state because of its overpopulation; and positioning the Israeli state and Jewish settlers as always the ones better suited to take care of the land. Far-right settlers have openly called for proposed new Jewish settlements along the Mediterranean Sea within Gaza (Guerin, 2024), including at conferences attended by high-ranking Israeli officials (Reuters, 2024).

Plans for new Jewish settlements in Gaza expose the logic of Israel's expulsion of Palestinians from the region, the same as since the *Nakba* and even before the founding of the state. For over one hundred years, Zionism has been built on a racial logic which, paradoxically, justifies environmental catastrophe such as massive bombings, destruction of water infrastructure and pollution of wells, destruction of agricultural fields, and more – because it is worth it if the true and rightful managers of the land, Jewish Israelis, are the ones to rehabilitate it in the end.

The historical ideology laid out here was one written by scientists and experts who positioned themselves as politically neutral. Today, one can see the re-inscription of the dehumanization of Palestinians through politically neutral environmentalism and science. This dehumanization and racial segregation of Palestinians is one of the greatest obstacles to a just and lasting peace for all people in the land between the Mediterranean Sea and the Jordan River. It is of great importance, therefore, for political ecologists to analyze and name the histories of dehumanizing and racial logics through apolitical science which justifies acts of brutality and ethnic cleansing.

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