



Wild wheat to productive drylands: Global scientific practice and the agroecological remaking of Palestine



Omar Tesdell

Department of Geography, Birzeit University, PO Box 14, Birzeit, West Bank, Palestine

ARTICLE INFO

Article history:

Received 23 May 2016

Received in revised form 16 November 2016

Accepted 18 November 2016

Available online 28 November 2016

Keywords:

Agro-climatology

Agro-ecology

Colonization

Palestine

United States

Drylands

ABSTRACT

This paper traces how scientific research on wheat (*Triticum*) worked to establish Palestine as a region sought for colonization. Recent work in geography has refined our understanding of agricultural expansion as an outcome of colonization, however, this work leaves the place-making capacity of agricultural research largely unexplored. My claim is that rather than a byproduct of colonization, wheat research served to remake Palestine as a biophysical region in need of improvement and colonization. I show how a shift in the plant sciences from research in taxonomy to plant breeding corresponded to an agro-climatic shift on Palestine from an undesirable, arid region to a promising dryland agricultural region. In this way, wheat research drew Palestine and the United States into a wider effort to transform arid areas into agricultural drylands. Drawing on a previously unexplored episode of technical cooperation between researchers in the United States and Palestine, I argue that we must examine how wildness, native-ness, and agro-climatic suitability are scientifically constituted within and not apart from colonial conquest. In doing so, the paper calls for reconsideration within geography and political ecology of the place-making relationship between colonization and scientific practice.

© 2016 Elsevier Ltd. All rights reserved.

1. Introduction

The fledgling railroad town of Billings, Montana, in 1909 is an unlikely place to begin a story about Palestinian agriculture. Just thirty years before, the area had witnessed one of the last large-scale, campaigns by Native American tribes in the American West. Indeed, the history of the West and the production of scientific knowledge cannot be seen apart from the regimes of violence that underpinned American expansion into the West (Blackhawk, 2008, p. 9). But thirty years later, Billings must have posed an attractive location on the semi-arid steppe to showcase efforts to settle the West when hundreds of agricultural officials came together for the Fourth Dry Farming Congress to discuss research on intensive production in the so-called arid and semi-arid areas. As Knobloch has shown, the renewed, turn-of-the-century, settlement effort in the U.S. West was meant to make arid areas cultivable by using new technologies and by developing adapted crop varieties (Knobloch, 1996, p. 61).

One of the key figures addressing the gathering was Aaron Aaronsohn (1876–1919), an agronomist and resident of a Jewish colony in Ottoman Palestine, who claimed to have discovered the singular wild ancestor of cultivated wheat. He had been invited

by the U.S. Department of Agriculture (USDA) on a sprawling tour of the United States. Aaronsohn was seeking funding to establish a research station in Palestine that he argued would also benefit U.S. agriculture. Aaronsohn must have felt a certain affinity with pioneers of the American West, whose concern with settlement and agricultural productivity he shared in Palestine. His early emphasis on botanical explorations of Palestine gave way to a new emphasis on plant breeding, especially wheat. His reorganization of plant material using the natural forces of genetics and climate through field trials and plant breeding would in turn allow him to remake the modern geographic situation of Palestine.

Indeed, plants shape our world in unexpected ways, affecting how and where we live and thereby making plant science a field that is inextricably linked to place-making. This paper traces one historical case: how scientific research on wheat (*Triticum*) worked to establish Palestine as a region sought for colonization. My claim is that rather than a byproduct of colonization, wheat research served to remake Palestine as a biophysical region in need of improvement and colonization. I show how a shift in the plant sciences from research in taxonomy to plant breeding corresponded to an agro-climatic shift on Palestine from an undesirable, arid region to a promising dryland agricultural region. I argue that as modern agro-climatic regions, drylands are arid areas that require action, development, and improvement to enable

E-mail address: otesdell@birzeit.edu

domination of the peoples, the living organisms, and the landscape by the settler enterprise.

The case for Palestine's promise as a geographic region was underpinned by the manipulation of the wheat plant. To illustrate this, the paper tracks research practices of Zionist, European, and American scientists on wild strains of cultivated wheat varieties. Scientific practice on plant material drove an epistemological and political turn from 'pure' scientific (botanical) practices to 'practical' scientific (agronomic) practices. The shift culminated in the establishment of the USDA-supported modern agricultural research station, which was established during Ottoman rule of Palestine. The short-lived agronomic research station sought to breed new varieties of crops to benefit Zionist and American agriculture and drive colonization of other dryland areas.

Methodologically, I draw on previously unexplored evidence through a critical analysis of published historical materials – USDA publications, conference proceedings, scientific journal articles, and published field journals from the turn of the twentieth century – to show that modern Palestine was engineered as a settler-colonial space in part through material practices of plant sciences. I show how wheat research in Palestine manifested three intertwined modes of appropriation – taxonomic, agro-climatic, and genetic – and how those research practices on wild wheat helped to draw Palestine into a wider effort to transform arid areas in the United States into agricultural drylands sought for colonization. In doing so, the paper calls for reconsideration within geography and political ecology of the place-making relation between colonization and practices of plant science.

2. Literature review

This study is located within geographical explorations of the role of science in the production of nature and space under colonialism (Smith, 2008). The relation of scientific practice and colonialism has been extensively explored. Early work Crosby (1977 [2003] and 1985 [2015]) sought to show how European conquest was enabled by not only military but also biological and ecological power. Mintz (1986) showed how the consumption of certain plants like sugar cane is implicated in a suite of social and political processes like slavery, capitalist relations, and knowledge. In the succeeding years, Grove (1995) illustrated how the roots of modern environmentalism are found in the work of European colonial scientists and imperial practices of knowledge production. Knobloch (1996) showed how knowledge production underpinned the capacity to colonize North America. More recent work by Carney (2001) has forcefully demonstrated the relation of rice cultivation and slavery helped to shape our understanding of the making of the Americas. Warman (2003) showed how maize/corn was "a settler of new lands" and how scientific knowledge about it "helped to fashion the modern world" through its relationship to colonial projects.

Geographers working in collaboration with historians of science have shown how science does not occur in a spatial vacuum, but it is practiced in places (Livingstone, 2010). Moreover the practice of field sciences like archeology, ecology, and especially agriculture is constituted by geographic context (Abu El-Haj, 2001; Kohler, 2002). Pioneering scholars like Abu El-Haj has since come to explore how a scientific practice like archeology "became constitutive not solely of the discipline itself, but, more fundamentally, of broader social and political processes as well" (Abu El-Haj, 2001, p. 7). In other words, science emerges in relation to political formations through its practices of knowing, seeing, and documenting. The separation of science and politics has been challenged in explorations of agricultural productivity and water in North Africa (Davis, 2007), Egypt (Barnes, 2014), and Israel-Palestine (Alatout, 2008). For example, Alatout (2008) demonstrated how technical

surveys of annual water potential within Israel are related to political contingencies related to the capacity to resettle immigrants. This relation illustrates how scientific practice was constitutive of processes of Israeli state development among other political processes.

Within geography, one of the most sustained examinations of specific links between politics and plant science is the work of Head et al. (2012) on the "human biogeography" of wheat in Australia. The authors engage with the details of wheat's wild relatives, of its domestication, and of the biogeographic details of its reproductive functions including its ability to self-pollinate. To their credit, the authors refuse what they call the "linear and determinist way that seems to emphasize the inevitability and superiority of agriculture sweeping across human history" (Head et al., 2012, p. 23). They rightly seek to insert the human into the biogeography of wheat.

Turning their attention to Australia, the authors illustrate how European settlers brought wheat to Australia in the eighteenth century. Careful to point out that wheat originated in the Middle East, they argue, "the vernacular experiments of getting wheat to 'belong' in Europe from its semi-arid Middle Eastern origins would have been just as complicated and fraught with failure as those involved in making wheat Australian" (Head et al., 2012, p. 55). The authors use the notion of "making wheat Australian" to explain the wheat varieties and their lineages and relations to wheat varieties in Europe, India, and North America. The authors also acknowledge that the Australian "wheat belt" was predicated on the "removal of Aboriginal owners" and "broad-scale clearing of native vegetation" (Head et al., 2012, p. 79).

However, in the authors' account, the dispossession of the indigenous people of Australia is severed from the act of "making the wheat Australian". In discussing indigenous dispossession, the authors do not apply the same analytic to the understanding of processes of exploitation and uneven power relations inherent to the "mobility" of wheat and wheat science. The collection, transport, and circulation of the genetic material and knowledge of *Triticum* did not happen in a vacuum; it flowed through the uneven circuits of British colonial domination and settler-dominated power relations. Many of the lineages of wheat varieties discussed by the authors (p. 56) come from settler-colonies in North America and India but the uneven power relations of how and why those wheat varieties were deployed in Australia are overlooked in the authors' account. For example, the Federation variety, which the authors cite as "undoubtedly the most famous of the new 'Australian' wheats" (p. 56), was a cross between Fife, a wheat developed on the newly conquered prairies of what has become Canada, and Etawah, a wheat brought from British-dominated India. The authors do not explore the relations of plant breeding and colonial domination that gave rise to this circulation. Moreover, despite the "many practices through which Australian farmers and plant breeders have been in a continuous process of adapting wheat to the particular circumstances in which they find themselves", the authors overlook the cruel circumstances of Federation's deployment across newly conquered Aboriginal lands in Australia (Head et al., 2012, p. 47).

The authors do cite Aboriginal participation in growing European wheat (p. 53–55) and acknowledge evidence of Aboriginal seed-gathering before the European invasion to challenge the distinction between agriculturalist and hunter-gatherer (pp. 48–50) within the social history of wheat. However, when they turn to more technical and scientific aspects, the process of wheat "becoming Australian" loses the history of indigenous knowledge, labor, and dispossession that were its conditions of possibility. In other words, the question must be asked: on whose terms and under what conditions was wheat bred in Australia? How was wheat breeding itself a place-making exercise? This contrasts with other work in geography that holds both the technical aspects and

Download English Version:

<https://daneshyari.com/en/article/5073488>

Download Persian Version:

<https://daneshyari.com/article/5073488>

[Daneshyari.com](https://daneshyari.com)