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# Exploring Agriculture in the Age of Industrial Capitalism

Swiss Farmers and Agronomists in North America and the Transnational Entanglements of Agricultural Knowledge, 1870s to 1950s

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**ABSTRACT** *This article explores how Swiss agronomists and farmers experienced, perceived, and interpreted the modernization of North American agriculture from the late nineteenth to the mid-twentieth centuries by examining a series of travel reports, correspondence, diaries, photographs, and film material that they produced about their study trips to the United States and Canada. These sources are an interesting point of departure for transnational perspectives in agricultural history; they reveal not only a great deal about the expectations, anxieties, perceptions, and prejudices that Swiss agriculturalists expressed in their encounter with agricultural institutions, economic mentalities, and farming practices on the other side of the Atlantic, but, in a much broader sense, also about the contested visions of agriculture in the age of industrial capitalism. The article examines how these visitors perceived and interpreted the patterns of agricultural modernization in the United States and Canada and how they comparatively embedded these observations in the epistemic paradigms shaped by their experiences at home. Furthermore, the article explores how the preoccupation with American agriculture and the transformation of knowledge, technology, and practices across the Atlantic shaped the patterns of change in agriculture in Switzerland.*

**KEYWORDS** *farming, scientific travel, industrialization, modernity, transnational history*

“C’EST DU CHOC DES IDÉES que jaillit la lumière” (It is the collision of ideas that sparks the light). This was the slogan that the agronomist and bacteriologist Willy Dorner used to introduce his 1930 travel report to the United States after having spent a year at the New York State Agricultural Experiment Station in Geneva, New York, and studying American agriculture in some depth.<sup>1</sup> Indeed, the collisions and interactions, the conflicts and negotiations, the demarcations and fusions between the experiences in Switzerland and the experiences in the New World constituted a key intellectual process that shaped the many journeys to North America that Swiss agronomists and farmers undertook in the nineteenth and twentieth

centuries. By documenting their sojourns, they not only tried to come to grips with what they experienced in America, but they also left traces for historians who follow these transatlantic brokers in their explorations into American culture and agriculture. These accounts are a crucial vantage point for all those who attempt to reconstruct the web of social and intellectual connections that enabled and sustained such transcontinental exchanges, and who try to grasp the broader meanings of these cross-cultural encounters for agricultural changes and continuities on both sides of the Atlantic.

Agriculture in other countries was much on the mind of Swiss agronomists, agricultural engineers, and farmers from the mid-nineteenth to the mid-twentieth centuries. A transatlantic crossing to study the conditions and changes in North American agriculture was therefore widely desired by agriculturalists, and few would reject the opportunity to travel to America when they had the chance and the means to do so. Indeed, the scope and diversity of our sources indicate that traveling to countries in Europe and in North America with the aim of studying the specific settings and circumstances of agriculture abroad was a widespread practice since the 1870s.<sup>2</sup> While Germany, Great Britain, Denmark, the Netherlands, Italy, and France all received their share of attention, no other region triggered as much fascination and perplexity as North America.<sup>3</sup> Especially as the first globalization enfolded its transformative forces in the last third of the nineteenth century, Swiss observers like Victor Fehr gradually shifted their attention from British and German agriculture to the newly emerging agricultural competitor across the Atlantic Ocean.<sup>4</sup> The United States became, as Sven Beckert put it, “an important and consequential presence in the European political imaginary.”<sup>5</sup> And American farming epitomized more than most of the European phenomena what Swiss contemporaries regarded as “modern” agriculture with all its promises and dangers, its lures and perils.

Thus the accounts produced by Swiss travelers to America reveal a great deal not only about the expectations, anxieties, perceptions, and prejudices that they expressed in their encounter with agricultural institutions, mentalities, and practices on the other side of the Atlantic, but, in a much broader sense, also about the contested visions of agriculture in the new industrial age.<sup>6</sup> The years between the 1870s and the mid-twentieth century marked a period of agricultural change that sparked an increasing interest among Swiss agriculturalists in the experiences of societies that were shaped in similar ways by the forces of industrial capitalism and its manifold repercussions and ramifications in agriculture. Moreover, an intense transnational and transatlantic traffic of ideas, knowledge, and technologies accompanied

these developments. The challenges were obviously not contained to national frameworks or to Europe but operated in many regards “between, above and beyond national polities and societies” in the Western world.<sup>7</sup> As historian Daniel T. Rodgers has shown, a historical exploration of the tight connections between the industrializing countries of the late nineteenth and early twentieth centuries opens “a largely forgotten world of transnational borrowings and imitation, adaptation and transformation” in which rural reform and agricultural restructuring had a prominent place.<sup>8</sup> Indeed, in exploring North American farming, in debating the structural transformations of agriculture in the New World, and in speculating about the “potentialities of development” that unfolded on the other side of the Atlantic, visitors always mediated about the conditions and the future of European agriculture in the age of modern industrial capitalism as well.<sup>9</sup> Yet, beyond critical reasoning on their experiences in America, travelers like Hans Moos, Franz Müller, and Eduard Bally brought not only new knowledge, practices, organizational ideas, and technologies but also living animals and plants back across the Atlantic. Their encounter with American agriculture thus often turned into an impetus for change back home.<sup>10</sup>

Seen in this light, the emergence and institutionalization of explorations into other countries’ agriculture in the late nineteenth and early twentieth centuries were an integral part of what we have called elsewhere an agrarian-industrial knowledge society.<sup>11</sup> This concept denotes an ensemble of actors, institutions, discourses, and practices that emerged in the last third of the nineteenth century and emphasizes the social and economic importance of contested forms of knowledge in shaping agriculture’s transformation in industrial-capitalist societies. This approach takes seriously the knowledge and experiences of those who actually worked with animals, plants, and the soil without underrating the cultural and material force of what Wendell Berry has called the “industrial ideal” that began to shape the expectations of agricultural progress and modernity in the mid-nineteenth century in the Western world.<sup>12</sup> From these interactions emerged a hybrid, dynamic, and ambivalent knowledge regime that permeated the interpretations of the travelers and, as we assume, created a common ground for the encounters with North American agriculturalists between the late nineteenth and the mid-twentieth century. While the imperatives of industrial progress remained the most important “horizon of expectation” for the visitors and the visited, it was exactly the diverse, uneven, and multifaceted effects of industrial progress on agriculture that captured the gaze of these visitors to North America.<sup>13</sup> As they tried to grasp the complexity and interrelatedness of these developments

on both sides of the Atlantic, they increasingly became aware that they were facing a “fractured modernity.”<sup>14</sup> Moreover, the resource-based differences between agricultural production and industrial manufacturing that left their marks on European and American agriculture alike opened up an epistemic space to think of the place and role of agriculture in industrial societies in a broader and comparative perspective.<sup>15</sup>

In this contribution, we explore the transnational and transatlantic entanglements of the agrarian-industrial knowledge society by following some of this society’s exponents from Switzerland on their trips to and sojourns in America and by analyzing how they made sense of their cross-cultural encounters with American agriculture that furnished, in many ways, a laboratory for studying what contemporaries perceived as modernity. As Mary Nolan noted in her study of Americanism in interwar Germany, “America, Americanism, and Fordism provided not only a model to emulate or modify, but a vivid, colorful, and controversial language in which to debate modernity.”<sup>16</sup> Indeed, that holds true for the preoccupations of Swiss farmers and agronomists with North American agriculture as well. What “modern” agriculture was or should become, to what extent the organization and practices of farming in America actually disclosed the essence of “modernity” in agriculture, and whether these features were worth emulating under the conditions in Switzerland—these were all profoundly discussed and contested issues.

In what follows, we will explore several key themes that structured the discourse on American agriculture in Swiss travel writing, ranging from the metaphor of *Raubwirtschaft* and capitalist mentality, across the role of the state and agricultural science, to the work ethic and agricultural technology. By focusing on these five themes, we do not mean to suggest that they represent uncontested, homogeneous, and unchanging modes of perception and problematization. Quite to the contrary, these issues not only triggered debates among travelers themselves and in the agronomist community back in Switzerland, but their relevance and content also shifted in time. Before discussing them in more detail, however, it seems appropriate to first give an impression of the trajectories, motives, and itineraries of the transatlantic brokers who shaped the discussion of American agriculture in Switzerland in decisive ways.

### Visiting American Agriculture: Trajectories, Motives, and Itineraries

It is not surprising that the preoccupation with North American agriculture intensified in the last decades of the nineteenth century. The transport

and communications revolution—the new and expanding interconnections between railroads, steamships, and telegraph lines—contributed not only to the perception of a “time-space-compression” but also to a profound increase and reconfiguration of the transatlantic trade with agricultural goods and food.<sup>17</sup> It accelerated the international division of agricultural production, led to dramatic price volatilities, and had far-reaching repercussions for the producers and consumers on both sides of the Atlantic.<sup>18</sup> Now, the European peasantry and farmers increasingly had to face competition from American farmers, who produced within markedly different natural, economic, and cultural conditions in the New World.<sup>19</sup> While agricultural trade before the steam age was constrained by the limited reach of transports and the perishability of most agricultural goods, the global agricultural markets were profoundly transformed in the face of what Karl Marx called “the annihilation of space by time,” the tendency of capitalism’s technologies and markets to drive “beyond every spatial barrier.”<sup>20</sup> The eminent German economist Gustav Schmoller wrote in 1882 that the world was witnessing a “revolutionizing of the world market” with agricultural produce and that this constituted a “profound turning point in our agricultural conditions.”<sup>21</sup> The first globalization created a new and mighty rival on the other side of the Atlantic when it came to grain growing and, on the other hand, a new purchaser of manufactured dairy products like cheese. These complex interactions not only sparked the fears of a new “American danger” in Europe, but they also triggered a fierce intellectual interest in North American agriculture and consumer habits alike.<sup>22</sup>

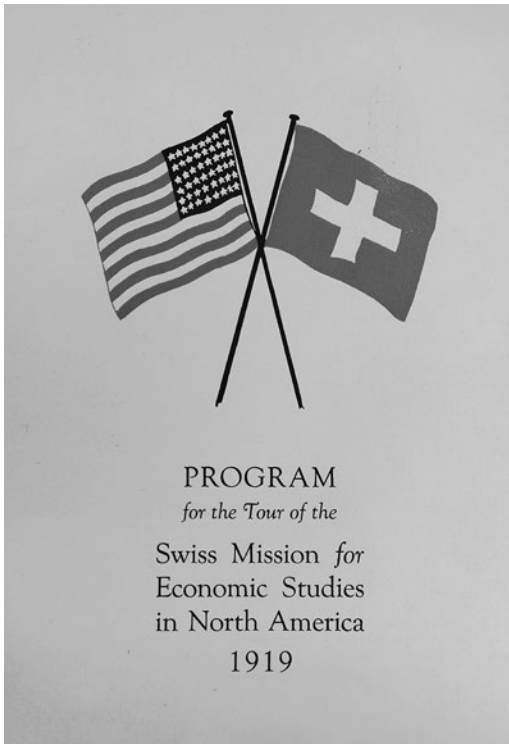
Against the backdrop of these disruptive changes, a feeling of a crisis of competitiveness spread rapidly among the Swiss agronomist community in the 1870s, and farmers, agricultural reformers, scientists, and politicians sought for explanations and remedies. For some of them, the crisis in the second half of the 1870s provided an opportunity, if not a necessity, to consider new and other ways of organizing agricultural production and trade, and to learn from other societies’ experiences. It comes as no surprise, then, that America was one of the most popular places that agronomists and farmers turned to in order to better understand their crisis-shaken present in the last quarter of the nineteenth century.<sup>23</sup>

From then onward and sustained by a long history of Swiss–American emigration patterns, a steady flow of visitors crossed the Atlantic from East to West and an equally steady flow of reports and reflections on American agriculture poured back into the Swiss public sphere.<sup>24</sup> Interest in American agriculture never ceased before World War I, but the interwar years

witnessed another period of intensification. Pivotal in this regard were the dislocations caused by the world war. The experience of food shortages, the breakdown of the international trade in agricultural goods, and the intensification of class conflicts in the last two years of the war led to a widespread feeling of a new crisis. At the same time, however, this perception also led to a search for inspirations to improve agricultural production and recover from the profound social and economic disruptions and conflicts that had haunted Swiss society during and after the war.<sup>25</sup> Again, America attracted interest, but, somewhat ironically, the new interest stemmed from a shift in circumstances compared with the first wave of attention that American agriculture had enjoyed in the late nineteenth century. As Hans Moos put it in 1919, “The country that had, a few decades ago, unleashed a ruinous transatlantic competition against the old civilized countries of Europe, has saved them from hunger during the War and will probably continue to do so for some time to come.”<sup>26</sup> It is, therefore, Moos concluded, comprehensible that Europeans displayed a particular motivation to continue to travel to America. Many others shared this opinion in the interwar years: “Today, the gaze of suffering Europe is directed to the great Union,” declared the dairy specialist Guido Koestler in 1923, because the “World War and all its dreadful consequences” had thrown Europe into a state of crisis and dislocation.<sup>27</sup> Thus the severe economic problems and social conflicts in the aftermath of World War I provided a new impetus for agricultural economists and engineers, professors and intellectuals, and farmers and politicians to make the pilgrimage to America.

Apart from the general interest in American agriculture and the intensified attention that it attracted in moments of crisis and transition, the decision to really make a trip to the United States or Canada usually depended on a set of more contingent and prosaic circumstances. There were study trips sponsored by federal, state, and professional organizations that were usually a mixture of official diplomatic missions and scientific or educational travel. This was the case with the voyage that Moos undertook in 1893 to the World’s Columbian Exposition in Chicago, which he extended to a lengthy trip across the United States or likewise with the Swiss Mission of Economic Studies in North America in 1919 (see fig. 1).<sup>28</sup>

Other decisive factors that turned a general intellectual interest in America into an actual trip to America were academic fellowships, the participation in international scientific congresses, or missions from the League of Nations. The soil scientist Hans Jenny and the bacteriologist Willy Dorner both departed for America in the late 1920s with Rockefeller fellowships in their



**FIGURE 1.** Many farmers and agronomists, among them Franz Müller, came to North America on commissioned tours such as the Swiss Mission for Economic Studies in North America in 1919. © Swiss Federal Archives, Bern, E2200.36-07#1000/1741#67\*: Wirtschaftliche Studienreise von Schweizern nach Nordamerika, 1918–21.

pockets, and both used the opportunity to travel widely across the United States.<sup>29</sup> International scientific congresses allowed for similar, yet usually much shorter journeys. The animal breeder Ambrosi Schmid, for instance, combined his visit to the International Congress of Genetics in Ithaca, New York, in 1932 with an extended trip through the United States, just as Georg Wiegner, professor in agricultural chemistry at the Swiss Institute of Technology in Zurich, had done in 1927 when visiting the first International Congress for Soil Science in Washington, DC. Similarly, Guido Koestler, Robert Burri, and Albin Peter, all specialists in creamery industry and dairy farming at the Swiss Institute of Technology in Zurich and the Agricultural Experiment Station and the School for Dairy and Creamery in Bern, respectively, took the opportunity to travel around the country when visiting the International Dairy Congress that took place in Washington, DC, in October 1923. A few years later, Burri, director of the Milk Experiment Station in Bern, returned to North America to investigate the urban milk distribution systems in cities like New York, Washington, Chicago, and Toronto on a study trip commissioned by the League of Nations.<sup>30</sup>

Another reason for this intensive traveling was that a journey abroad had not only become a key stage in the curriculum of many agronomists and was regarded as an “excellent means of agricultural education,” but that this was, in many ways, also born from necessity.<sup>31</sup> The number of agronomists graduating from the Swiss Institute of Technology rose particularly strongly during World War I and the early 1920s, but there were only limited occasions for them to find work after graduation.<sup>32</sup> Hence, many left the country to pursue their careers at least temporarily elsewhere and many were attracted by the “New World” that had the reputation of being, as one young traveler put it in 1932, “the most progressive country” in the world.<sup>33</sup> Friedrich Traugott Wahlen, an agronomist and specialist in plant production, for example, left for Canada after graduating at the Swiss Institute of Technology in 1920. He became director of the Canadian Agricultural Experiment Stations in Ottawa, before returning to Switzerland in the late 1920s when he was appointed as director of the Agricultural Experiment Station in Zurich. These international experiences also prepared the ground for Wahlen’s later post-World War II career at the Food and Agriculture Organization of the United Nations. During his sojourn in Ottawa, Wahlen was an invaluable source of information and advice for the many colleagues that followed him across the Atlantic Ocean looking for temporary work in Canada or North America.<sup>34</sup> This pattern occurred quite often: farmers, agronomists, and scientists who left for the United States either to farm or to pursue their academic careers became veritable cultural brokers and constituted crucial nodes in the network of Swiss-American travel. They provided visitors with reliable information, a place to stay, new contacts, and transportation facilities as well as an often appreciated opportunity to speak Swiss German for a short while.

Important in this regard were also the alumni clubs of the agricultural colleges in Switzerland that sustained such connections, either by providing potential travelers with contacts in North America or by inviting former pupils to speak in their assemblies on their experiences in America when they visited Switzerland or when they came back from their shorter sojourns. Max Kleiber, for example, an agronomist who had first graduated from the Agricultural College Rütli and then from the Institute of Technology in Zurich and later became professor of animal husbandry at the University of California in Davis in 1929, frequently welcomed travelers from Switzerland, showed them the facilities and laboratories of his institute, endowed them with further contacts, and suggested places to work. To sustain his contacts back in Switzerland, he not only corresponded with many of his friends and colleagues but also kept on publishing in Swiss journals, gave lectures, and



joined the assemblies of his alumni clubs when visiting Switzerland.<sup>35</sup> Such practices essentially contributed to sustaining and perpetuating the intellectual and social exchange across the Atlantic.

In contrast to the more industrial-minded travelers to the United States who often restricted their journeys to America's urban-industrial heartland to see Henry Ford's Highland Park and River Rouge factories or the iron and steel works that stretched from western Pennsylvania through Ohio and Indiana, and into Chicago, visitors interested in agriculture tended to travel more extensively and farther west into the immensely variable American agricultural landscape.<sup>36</sup> While the travelers seldom followed exactly the same route, a comparative analysis of the several travel reports at our disposal displays a recurrent pattern in the itineraries: as almost all ships from Europe docked in New York City (except the ones heading to Canada that docked in Quebec), most trips began and ended here. Travelers then usually headed toward Chicago, the "gateway between East and West,"<sup>37</sup> and then pursued their trip farther to the midwestern states and the northern Great Plains. From there, they either chose to cross the Sierra Nevada and head for San Francisco or to go southward, drive through Nevada, and head for Los Angeles. In California, the Red River Valley or the Central Valley wheat farms and fruit growing areas as well as the poultry farms in Petaluma marked the essential visiting sites. On their way back, they often traversed the southern plains through Kansas and Missouri, heading for St. Louis and Cincinnati and then back to the Atlantic Coast. Only rarely did they spend much time farther down in the middle southern states or in the Deep South.

The decision, what precise itinerary the individual travelers chose, depended, of course, on their specific motives, interests, and contacts. Bacteriologists like Willy Dorner and Koestler who were interested primarily in dairy farming and cheese making tended to go to Wisconsin, Minnesota, and New York, whereas plant breeders like Albert Volkart or specialists in agricultural machinery like Walter Schmid were attracted by the wheat-growing areas of the Midwest. Livestock experts, in contrast, headed primarily toward the western prairies, rarely missing a visit to the awe-inspiring and sometimes shocking stockyards and packing houses in Chicago or Kansas City, and horticulturalists, wine growers, vegetable gardeners, or poultry farmers saw California as the prime site of their travels. Moreover, as most journeys to the United States were dedicated to educational or scientific purposes, most itineraries found essential stops at agricultural colleges, experiment stations, and university departments. American agricultural sciences and education enjoyed an excellent reputation among Swiss agronomists, and many

scholars attempted to get a job in an American research institution or college. Furthermore, visits to farms and factories occurred on a regular basis.

Quite different in this respect were the experiences made by those who did not travel the country on a commissioned and organized tour or pursued scientific interests, but temporarily tried to combine their intellectual curiosity with making a living in North America. The nineteen-year-old Eugen Lenggenhager, for instance, headed for the United States in the late 1900s to learn the art of poultry keeping, a trade one could not formally acquire in Switzerland until the mid-thirties. Lenggenhager worked for two years on chicken farms around the country and visited poultry science courses at the University of Pittsburgh. After returning to Switzerland, he founded his own “American Poultry Farm Lenggenhager” near Zurich, which became famous in the interwar period as the first “real” poultry farm in Switzerland and lured innumerable visitors.<sup>38</sup> Another example of young practitioners’ exploring American agriculture were Gottlieb Lüthi and three of his colleagues who had just graduated from the Swiss Institute of Technology in Zurich. They toured Canada and the United States in the late 1920s for almost two years by milking cows on a farm around Ottawa, picking apples in Ontario, harvesting wheat in North Dakota, and working as cattle ranchers in California. One of Lüthi’s friends went through similar experiences, working as a harvester on a wheat farm in North Dakota, traveling together with hobos on trains through the Midwest, and toiling in the woods of British Columbia in the lumber business. Curt Blome, a German farmer and graduate student at the University of Göttingen, who traveled through America at the same time as Lüthi and his colleagues, reported that he tried to make the best of his experiences “whether as a tramp in a working coat, as a tourist in a Ford car or as manager on a mid-sized farm.”<sup>39</sup> Such travelers therefore escaped the tendency of others to visit luxurious and well-run model farms; instead they gained insights into the harsh world of small family farms in remote areas and of the rural labor classes and, as Lüthi put it, threw them into the “zone of economic battles.”<sup>40</sup>

### **Exploring American Agriculture: Observations, Interpretations, and Criticisms**

As already mentioned in the introduction, the repercussions of industrialization on agriculture were of particular interest to travelers to North America. The reason for this focus lay not in the novelty of this phenomenon in America but in the fact that this provided a common ground for comparative observations. In the eyes of Swiss visitors, American agriculture seemed to

display a comparable, if often more pronounced and advanced, tendency toward industrializing production, processing, and marketing of agricultural products, a tendency that these observers had detected in their own country since the mid-nineteenth century.<sup>41</sup> With one eye turned toward America and the other toward Europe, an engineer and inventor of motorized agricultural machines, Konrad von Meyenburg, wrote in 1909 that the “industrialization of agriculture” had become a “burning question” in all Western societies. Only a detailed comparative analysis of the conditions of production and the diverse patterns of agricultural development would prove, he maintained, whether the often heard assumption that the “New World reveals to the Old World” the “new rational ways” of agricultural production really holds true.<sup>42</sup> It was the emergence and unfolding of an “industrial logic”<sup>43</sup> in agricultural production that connected Swiss and American experiences and that provided the *tertium comparationis* for analyzing the developments of agriculture in industrial capitalism on both sides of the Atlantic.

### *Raubwirtschaft*

The pronounced interest in the repercussions of industrialization on agricultural production and in the experiences of the farming population in North America turned the often kaleidoscopic observations into more coherent patterns of perception and interpretation. One of the most pertinent metaphors that travelers from Switzerland used in their attempts to come to grips with what they saw in America was the concept of *Raubwirtschaft*, a concept that we use here in the German original because its semantic range is almost impossible to render in an English translation.<sup>44</sup> The concept was initially coined in the European discourse of human geography in the late nineteenth century, soon trickled into agronomic debates, and developed a considerable explanatory power in America in the context of the Dust Bowl of the 1930s.<sup>45</sup> In this context, economists like Lewis Cecil Gray of the United States Department of Agriculture (USDA) or geographers like Carl O. Sauer made use of it to criticize the “destructive exploitation” and the “reckless glutting of resources for quick ‘profit’” that characterized in the latter’s view commercial agriculture tangled up in the “modern industrial mood.”<sup>46</sup> The ecological devastations of the Dust Bowl did not escape the attention of Swiss observers, moreover. In 1937, for example, the widely read *Swiss Agricultural Journal* published an illustrated account on the “natural calamity” of the dust storms in the southern plains that stemmed, as the article emphasized, from human “shortsightedness and greed for profit” as well as from turning the soil into a commodity and “object of speculation” (see fig. 2).<sup>47</sup>



Fig. 2. Die gute Erde ist bis zu einer Tiefe von über 80 cm vom Winde weggefegt. Nur wo der Rasen noch fest war, sind kleine Inselchen stehen geblieben.

FIGURE 2. Visualizing *Raubwirtschaft*. Swiss agricultural journals reported on the Dust Bowl in the 1930s, using photographs to illustrate the consequences of soil erosion and the massive devastation of natural resources. © Archives of Rural History, Bern, Photo Collection.

The appeal of the metaphor of *Raubwirtschaft* for observers from Europe stemmed from its capacity to amalgamate myriad impressions in a single concept. Whether they observed the treatment of soils, plants, animals, and machines; whether the lack of interest in the potential of organic manure caused irritation; whether they were astonished at the extent of the tendency toward specialization and simplification and at the partial abandonment of mixed farming; whether they mused about the unfortunate position of migrant farmworkers; or whether they reasoned about the hard-nosed business mentality and the audacious entrepreneurial ambitions they thought they detected among farmers in America—all these phenomena were linked to the sweeping metaphor of *Raubwirtschaft*.

As early as 1893, Moos expressed his amazement about the expansionary thrust with which the flatlands in the Great Plains were taken under the plow and the sod was broken up. In his view, these practices not only accounted for the remarkable growth in production of American agriculture

that put European grain production under severe pressure, but they also displayed an exploitative relationship to the land that would rather sooner than later undermine the reproductive powers of the soil. “The *Raubwirtschaft* not only undermines the rich stocks in mineral plant nutrient matter,” Moos remarked, “but as long as the land is kept incessantly under the plow, the humus content will, as a matter of course, constantly be depleted and the black, fertile and inexhaustible prairie soil will be significantly changed twenty years from now.”<sup>48</sup>

Not twenty but forty years later, in 1933, the soil scientist Hans Jenny, who had come to the United States in 1926 on a Rockefeller fellowship and worked at the time at the Agricultural Experiment Station of the University of Missouri, registered among the farmers in this region an uneasy sense of the impoverishment of their soils that echoed in many ways Moos’s gloomy predictions. As he explained in an article simultaneously published in a bulletin of the Agricultural Experiment Station of the University of Missouri and, refined for a Swiss audience, in the leading agricultural journal in Switzerland, the farmers’ uncomfortable experience of soil impoverishment stemmed from an exploitative agricultural system that disregarded the metabolic flows between soils, plants, animals, and humans: “Under the present system of exploitative soil management the amount of plant food in the soil is certain to be reduced because the crops are removed and little is returned. Few people realize how much plant food is annually removed from the soil by the major crops grown.”<sup>49</sup> Thus the situation was destined to be further aggravated if this “typical *Raubwirtschaft*” would be left in place.<sup>50</sup> A shift away from “continued grain farming” that resulted “in an unnecessary and excessive loss of soil fertility” toward “rotation systems” that, “supplied with manure,” would “successfully maintain a relatively high nitrogen content” was, in Jenny’s eyes, a matter of necessity.<sup>51</sup> In retrospect, Jenny saw the interwar years marked by a “radical change from viewing soil as merely a cog in the agricultural production machine” to viewing it as “a natural body that deserves scientific study and contemplation,” a view that he himself has expanded further by thinking of the soil in “the context of a living, dynamic ecosystem” as most farmers and other representatives of the agrarian-industrial knowledge society did.<sup>52</sup>

### *The Ambiguities of Capitalist Mentality*

That the “farmer in the New World lacks the close connection to the soil that he cultivates” and that he tended to regard the soil solely as a “means of profit,” as the plant breeder Albert Volkart remarked in 1930, was perceived by many visitors as the driving force behind the “unscrupulous prog-

ress” toward “industrial agriculture” and an abusive relationship to the land.<sup>53</sup> Furthermore, it also mirrored an economic mentality that caused ambivalent feelings. When the farmer Victor Fehr traveled through the American landscape in the early 1880s thinking about the business-minded behavior of the many farmers he met on his way, he wrestled with two souls in his chest. On the one hand, he was greatly impressed by what he termed the “systematic and goal-oriented mind of the American farmer,” his “systematic work,” and his open-mindedness toward technological improvements and labor-saving techniques. These characteristics revealed the shortcomings of the work ethic of Swiss peasants and farmers who clung, in his view, too much to the “tried-and-true manners and customs of our fathers.”<sup>54</sup> On the other hand, Fehr displayed a rather skeptical attitude toward the “one-sidedness of putting all one’s eggs in the basket,” the hazardous, “boom-and-bust” business mentality that he observed among American farmers, as well as the “reckless chase of the dollar” that, in his view, permeated American culture: “In America, I very much disliked the assessment of everything in terms of the Dollar. ‘How much is he worth’—that’s the assessment of men in terms of Dollars, a very mean way of thinking.”<sup>55</sup>

That American culture was permeated by the values of risk-taking, reckless capitalist entrepreneurship was a much-expressed opinion in late nineteenth- and early twentieth-century Europe, closely at the edge of a worn-out stereotype.<sup>56</sup> Yet, in the eyes of Swiss agronomists, the image of the business-minded American farmer was only a symbolic embodiment that pointed to the dissimilar structural conditions created by transformative forces of industrial capitalism in America and Switzerland and that mediated these forces in decisive and obviously uneven ways. While the culture of peasant agriculture in many regions of Switzerland with its emphasis on mixed farming, risk-spreading diversification, labor intensity, and the balancing of subsistence and market orientation, as well as production and consumption on the farm offered the farming population a means to come to terms with the capitalist transformation of agriculture, visitors from Switzerland thought that American farmers were caught within the power networks of industrial-capitalist society in a much tighter way.<sup>57</sup> As Gottlieb Lüthi observed, “The continuing conquest of arable land and virgin soil by the motor” in America created strong dependencies on banks, “the machine manufacturer and the gas supplier.” Moreover, the thrust toward extension and specialization of production also increasingly exposed American farmers to the vagaries of the markets, caused overproduction, created technological and economic path dependencies, and narrowed the scope of making decisions.<sup>58</sup> Walter Riegg,

a farmer who visited the United States in 1929, came to similar conclusions. “Our Swiss agriculture is grounded on diversity, it provides labor and spreads risks,” he maintained. American agriculture, in contrast, tended in his eyes to “uniformity,” “concentration,” and a “simpler type of farming” that led necessarily to a risk-prone, machine-affine, and capital-intensive approach that had the potential of remarkable capital accumulation for the chosen few but also left the bulk of farmers with little means of resilience when facing a crisis or price volatilities.<sup>59</sup>

### *The Role of the State and the Politics of Agricultural Research*

As Swiss travelers noticed, the “modernizing state” played an important role, not only in this drive toward more “uniformity” in the production processes and the “standardization” of the agricultural products but also in supporting agricultural research and education at experiment stations and agricultural colleges as well as in bringing farmers into the associational realm of USDA policies.<sup>60</sup> That rural America was such an important location for the construction of the modern American state and that it provided a testing ground for what historian David E. Hamilton called a “modernizing associationalism” came somewhat as a surprise for many Swiss travelers.<sup>61</sup> The crucial and visible role of the state in regulating and administering agriculture and rural society as well as in promoting agricultural science and in diffusing scientific knowledge among the farming communities contradicted the widely shared assumption that the American farmer was the symbolic embodiment of an autonomous individualism allegedly so characteristic of American culture.<sup>62</sup> In the mid-1920s, Friedrich T. Wahlen, then director of the Canadian Agricultural Experiment Stations in Ottawa, noted that the interventions into the grading and marketing of agricultural products by both the US and the Canadian governments “smacked of state socialism” for Europeans.<sup>63</sup> His teacher and predecessor as professor of plant breeding at the Swiss Institute of Technology in Zurich, Albert Volkart, was equally surprised by the influential role of the administration in Canada and the United States in the field of agricultural research and the control of auxiliary materials (artificial manure, feeding stuff, etc.). During his sojourn Volkart became convinced that “the American” was “at heart much less an individualist” than “one normally assumed.” The “paternalism” of the state in North America goes, he concluded, “in many things much further” than in Europe.<sup>64</sup>

For Swiss visitors, the visible hand of the state was especially pertinent in fostering scientific research and in building and sustaining an impressive infrastructure in agricultural sciences and education. As they ventured into

the land-grant college system; visited experiment stations, agricultural colleges, and university institutes; and studied the role of the USDA in promoting scientific research and in collecting data on diverse aspects of agricultural production and rural life, many of them began to revise the stereotypical views that populated European debates on agricultural science in America. As Volkart put it, the widely shared opinion among his European colleagues that agricultural science in North America lacked theoretical depth and remained superficial painted an entirely “wrong picture”: “We should remind ourselves of the importance of the research that Thomas Morgan and his collaborators have contributed to the science of breeding and our understanding of inheritance,” he cautioned. Moreover, every visitor to universities and experimental stations in Canada and the United States will see the importance of what American scholars call the “dual purpose” of their work, namely, to contribute to both the progress of practical agriculture and the theory of agricultural science.<sup>65</sup> This rejection of a depreciative view of American agricultural science is one of the key themes that appeared again and again in the travel reports, and hardly one observer failed to point to the crucial role of the federal and state governments in supporting scientific research in agriculture and in carrying this knowledge into the farming communities.

While this state-led support of agricultural research had provoked admiration among agronomists since the late nineteenth century, Franklin D. Roosevelt’s New Deal made visible another side of the “modernizing state” that unleashed a wave of curiosity well beyond the agronomist community. The proclamation of the agrarian New Deal—with its emphasis on long-range planning and control of production, its resettlement and education programs, its fight against soil erosion, its attempts in cooperative land use, and participatory social research—aroused the interest of many leftist observers, progressives, and representatives of the European labor movement.<sup>66</sup> In 1936 the *Union Review* in Switzerland published an article by its Washington, DC, correspondent under the title “The American Agriculture under State Control.” In the agricultural sector, the economist Wladimir Woytinsky argued, the Americans have attempted to establish “a planned economy in a peculiar form.” In his view, the agrarian New Deal not only provided an interesting attempt “to steer agriculture” but also was proof that a planned economy was achievable by “democratic means.” The American experiment thus merited the attention of all those who were interested in transforming the modern economy according to plan.<sup>67</sup> Interestingly, this view resonated deeply within a Swiss society that was struggling with the aftermath of the Great Depression and in which comparable ideas to the ones put into practice in the agricultural New Deal shaped public debates in the 1930s.<sup>68</sup>



But the preoccupation with agricultural research, the modernizing state, and agricultural policy did not remain solely an intellectual exercise. Comparisons between North American and Swiss realities led to the detection of remarkable divergences that often turned into impulses to change conditions back in Switzerland along the lines observed on the other side of the Atlantic. Franz Müller, for instance, who traveled through America on a commissioned economic study tour in 1919, emphasized that poultry breeding was taught at the agricultural colleges of the universities and therefore represented a flowering “branch of agricultural industry.” In Switzerland, in contrast, it remained a “sideline business” on farms and was also entirely neglected as a scientific discipline. In Müller’s view, poultry keeping in Switzerland was taught only in a superficial way at home economics schools—a situation he was eager to change after having studied the situation in North America. “Whoever had the opportunity to study American poultry breeding will come to the conclusion that this system is entirely introducible in our country,” he proclaimed.<sup>69</sup> And indeed, Müller worked hard to use his American lessons to build up a scientific, organizational, and commercial infrastructure in the Swiss poultry sector: he studied meticulous stalling systems, compound feedstuffs, and laying performances on a Californian poultry farm in Petaluma and examined advertising and marketing strategies. Müller and his friend, the industrialist Eduard Bally, even brought back a flock of American chickens for use in breeding experiments. Back in Switzerland, Müller founded a successful poultry and egg-collecting cooperative, developed and traded standardized chicken feed, engaged himself in a famous poultry-keeping campaign in alpine and other marginal areas in the second half of the 1920s, and pushed hard for the establishment of the first poultry breeding school that finally emerged in 1935 in Zollikofen near Bern.<sup>70</sup> While Müller’s engagement certainly contributed to an uplift of poultry farming in Switzerland, the differences in size and resources continued to impress Swiss visitors to American chicken farms and poultry science departments. Harald Ebbell, one of the most renowned poultry breeders in Switzerland, noted in the 1950s that the poultry department at the University of California in Davis alone was as big and well staffed as the whole Department of Agriculture at the Swiss Institute of Technology in Zurich.<sup>71</sup>

### *Labor and Work Ethic*

Another recurrent issue that caught the eye of visitors from Switzerland and that was linked to the specific economic culture in America was the cultural valuation and the practical organization of labor. Not only Fehr, as we have mentioned already, admired the Americans’ pragmatic and sober

approach to useful work; virtually all visitors were greatly impressed by the high esteem that work enjoyed in American society and by the work ethic that seemed to permeate American culture.<sup>72</sup> “What struck me right away in America is the generous and benevolent appreciation of every form of work and every worker whatsoever,” exclaimed Georg Wiegner; and Walter Riegg seconded: “There’s no doubt about the superiority of the American spirit of work. Labor is more esteemed over there than with us; whether rich or poor, whoever performs useful work is respected. Everyone is proud to improve his work.”<sup>73</sup>

These judgments reflected at least in part a growing uneasiness with the persistent labor conflicts and strikes that tore Switzerland in the late nineteenth and early twentieth centuries and were thus also intended to compare the troubled and conflict-shaken world of labor in Switzerland with an allegedly more harmonious labor situation in America based on a deeper veneration of work ideals. However, their recurrent appearance points to a distinctive experience of labor in American society in general and in American agriculture in particular.<sup>74</sup> That there was more at stake in these ponderings on labor than just a lamenting of Swiss conditions by referring to American otherness is underscored by the accounts of those who worked on farms in North America and not just observed working Americans. Lüthi, for one, not only was stunned by the zeal with which government agencies, schools, and universities in North America hammered the principles of “efficiency” in the heads of students and farmers, but he also experienced the consequences of these attempts in everyday life on farms. “One works on American farms incessantly,” Lüthi remarked, adding, “Whoever pauses to lean for a short moment on his mattock and to watch what the weather might bring, as we sometimes do in Switzerland, immediately attracts attention. The farmer is used to work from morning to noon and from noon to the evening in *one* pace.”<sup>75</sup>

Some observers linked the “efficiency craze” and the rigid organization of labor on American farms to the influence of “scientific management” and Taylorism that shaped the debates on “Americanism” in interwar Europe.<sup>76</sup> Indeed, the 1920s witnessed an increasing preoccupation with the rationalizing of work on farms, and some of the leading Swiss agronomists contributed decisively to the institutionalization of a science of agricultural work in interwar Europe.<sup>77</sup> Ironically, however, the efforts to apply the “Taylor System” to agriculture were much more intense in Europe than in the country where it had originated. As Asher Hobson, the American delegate at the International Institute of Agriculture in Rome observed in 1927: “In

America the Taylor System is accorded little importance in its application to agriculture. It is exclusively of interest to industry.” But among European agronomists and agricultural economists, Hobson registered with some astonishment, there were “enthusiastic followers of Taylor.”<sup>78</sup> Their attempts to fuse Taylorist methods and practices with the diverse older strands of the European science of work contributed to a European-wide network of scientific institutions that were devoted to the study of work in agriculture, whereas such endeavors were strikingly absent from the American scene. When Swiss observers made a connection between the conditions of farm work and Taylorism, therefore, this owed more to the interpretative framework they brought with them from Europe than it stemmed from the realities on American farms. The thrust toward labor discipline, the efforts to intensify the workday and increase work productivity, might have been characteristic features of American farms, but they did not originate in an orchestrated attempt to apply Taylorism to agriculture as some Swiss visitors assumed.

In some ways, however, Taylorism and its obsession with productivity and efficiency fitted aptly into the metaphoric paradigm of *Raubwirtschaft*, an economy geared toward the exploitation of the labor-force of the human body, instead of the resources of the soil. It comes as no surprise then, that Müller evoked *Raubwirtschaft* to describe the situation of the American rural working class. Just as the industrial workforce in a factory governed by Taylor’s methods, Müller wrote, rural laborers were equally depreciated “to a number on the list of the employers” and were seen as an exploitable “living machine.”<sup>79</sup>

### *Mechanization and Motorization*

Closely related to this search for efficiency of labor that revealed in the eyes of some a marvelous rational organization of labor, while it amounted in the eyes of others to nothing short of exploitation, was the extensive use of agricultural machinery in American agriculture. In fact, the high degree of mechanization and, after World War I, motorization of agricultural production was maybe the most obvious symbol of the industrializing thrust in American agriculture.<sup>80</sup> “Whenever possible, the Yankee uses machines instead of the expensive and arduous manual labor,” reported Moos in the early 1890s, “there is not one farmer who would think about doing a task with horny hands when he could possibly assign it to a machine.”<sup>81</sup> Fascinated by the labor-saving effects of a hay elevator that Moos had examined on his tour, he decided to bring back such machinery to Switzerland. After his return he successfully negotiated with the machine manufacturer Fritz Marti

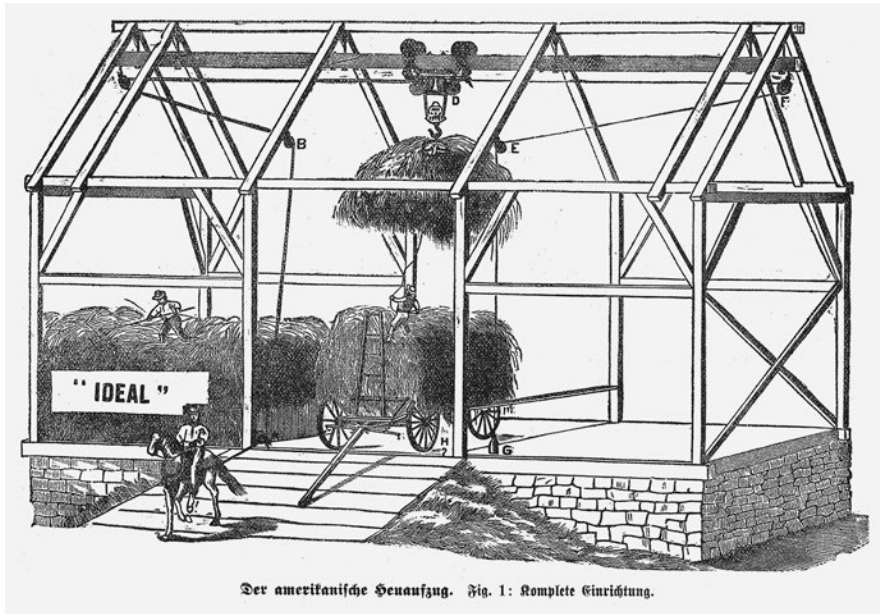


FIGURE 3. “The American Hay Elevator.” This widely reprinted advertisement used the symbolic meaning of technological progress associated with American farm machinery to promote a hay elevator that Hans Moos had initially imported from the United States in 1893. © Archives of Rural History, Bern, Photo Collection.

in Winterthur on the possibilities of constructing and adapting American hay elevators for Swiss farm buildings and promoted their advantages in the agricultural press (see fig. 3).<sup>82</sup>

Significantly, it was farm machinery that became the symbol for technological innovation in agriculture and was widely advertised in journals read by the farming population throughout the late nineteenth and early twentieth centuries. In the early 1930s, for instance, an article on the progress of motorization in American farming marveled at the sight of tractors and combines in the American landscape: “It is as though a small factory were moving over the ground. The soil is, of course, an immovable object and cannot be ‘fed to’ a machine; but by dint of moving the machine itself a sort of factory process is induced.”<sup>83</sup> The horny hands of the farmer that Moos had still evoked as a symbol of manual farm labor, despite the widespread use of machines, were now replaced by an imaginary of machine logics that turned agriculture into something close to the “automatic machine of the factory workshop” and the farmer into an overseer of machinery, out of danger of getting blisters on his hands.<sup>84</sup> When the anonymous author of this piece drew a picture of an American agriculture in which “human labour does nothing but start



**FIGURE 4.** Capturing American agriculture on celluloid. Walter Schmid, the foreman of the home farm of the Agricultural College Strickhof in Zurich, documented his trip to the United States in 1935 with his film camera. © Archives of Rural History, Bern, Photo Collection.

and supervise,” he evoked a future the farmer and agronomist Albert von Fellenberg-Ziegler had been predicting in Switzerland seven decades earlier.<sup>85</sup> From the middle of the nineteenth century on, the awe- and sometimes dream-inspiring sight of agricultural machinery infused many observers with a heavy dose of exaggerative rhetoric in Europe as well as in America. Yet others like the farmer Walter Schmid, who documented his insights by making a film that he subsequently showed to generations of graduates at the Agricultural College Strickhof in Zurich, tended to take a closer and more sober look at the patterns of mechanization and motorization (see fig. 4).<sup>86</sup> They explored the roots of these phenomena, grasping the culture of technology at work and speculating about the prospects that the American experience embodied for Swiss agriculture.<sup>87</sup> As they did so, they assembled some of the evidence that another Swiss, the architect Siegfried Giedion, later synthesized in his influential book *Mechanization Takes Command*.<sup>88</sup>

As some visitors to America detected, the widespread use of motorized technology stood in relation to the early sod-busting enterprises of the farmers in the West and the tendency toward specialized agricultural production systems.<sup>89</sup> Machinery manufacturers in America found a flowering market as long as heavy, expensive, and highly powered plows were needed to break up the soil of the Western prairies, but they were forced to change their out-

look toward engineering smaller, lighter, and more versatile machines as soon as this land was under cultivation by the mid-1910s. And thus they began to fabricate machines that tended to be more suitable for the conditions of European agriculture as well.<sup>90</sup>

These developments prepared the ground for more intense exchanges regarding the experiences and prospects of motorization in agriculture on both sides of the Atlantic. For observers like the Swiss engineer Konrad von Meyenburg, the days of the huge and highly powered specialized machines of American manufacturers were over. They were never in tune with the “structure of European agriculture,” he maintained, and were, once the sod had been broken up and was tilled regularly, gradually becoming obsolete in North American farming as well. American and European agricultural engineers were thus facing the challenge of constructing a “small and universal machine” that brought the technological versatility that many farmers were longing for.<sup>91</sup> Interestingly, Meyenburg’s plea did not escape the attention of American agricultural engineers, and his inventions became the subject of debate among the members of the American Society of Agricultural Engineers. When the society discussed the prospects of using soil-tilling machines in 1914, its vice president, Lynn Webster Ellis, enthusiastically claimed that Meyenburg’s rotary cultivating machine represented “the forecast of the universal soil working tool of the future.” Ellis not only thought that Meyenburg was “the best posted man on tractors and power farming it has been my pleasure to meet,” but he also praised his soil-milling machine as “without question the most perfect instrument yet devised by the mind and hand of a man for preparing a perfect seed bed in one operation.”<sup>92</sup>

Despite this common ground that brought Swiss and American agricultural engineers in closer contact and fostered their discussions on the challenges of motorized technology in agriculture, there was one crucial difference that captured the attention of more than one traveler. American agriculture was shaped by more specialized and simplified production systems than the ones prevailing in Switzerland, and this tendency toward simplified farming structures was heavily bolstered, according to observers from Switzerland, by the now possible motorization. In their eyes, the development of American agriculture seemed to confirm that motorization and specialization engendered each other.

As American engineers proved to be successful in motorizing wheat farms, they emulated these engineering principles to develop machines to harvest other grains, vegetables, and fruits, extending their enthusiasm for agricultural machinery further to the development of machines dedicated to plant-

ing and cultivating. In the analysis of Swiss observers, American farmers tended to reinforce the trend toward specialization of production because the purchasing and maintenance costs of such machinery were indeed more economical than employing labor, but still remarkably high. Therefore farmers were induced to use their machines to the utmost by enlarging the relatively easily accessible acreage “to one crop as exclusively as possible.”<sup>93</sup> In contrast, farmers in relatively densely populated Switzerland wrestled with the problem of limited access to large tracts of land and thus held on to their diversified farming structures, which, in turn, discouraged them from buying motorized machinery as long as a versatile, multipurpose tractor was still missing. Working animals were, up to the 1940s, generally speaking, more flexible and better adjusted to the diverse power requirements of their mixed farming operations.<sup>94</sup>

The differing conditions under which agricultural machinery and, increasingly after World War I, motorized technology had to function adequately had consequences for the general assessment of machines in agriculture, but also for the culture of technology and the conceptualization of farm work that surrounded these debates. According to Lüthi’s observations, American farmers perceived machines first and foremost as liberating, freeing them from drudgery and redirecting their work toward guiding, repairing, adjusting, and overseeing their mechanical “servants.” Yet this enthusiasm for the “progress of the power farm” and the “longing for the new” that was bolstered by what Lüthi perceived as a “boosterish praise” on the part of manufacturers also concealed the new dependencies that the farmers were entering by purchasing and using the machines that ran off the factories of the manufacturers. The “‘progressive’ young farmer loves the noise of the machine in his ears,” Lüthi wrote. He continued, “In the coaxing numbness that the machine provokes, he does not realize that he is deprived of his most important economic weapon, the self-sufficiency of horse power.”<sup>95</sup> In a telling conversation that Lüthi had with Sam McOmie, a Californian farmer in Los Alamitos on whose farm Lüthi worked as a milker for a couple of months, these contested views on mechanization and motorization and its repercussions on work culture clearly came to the fore. After having read a report titled *Harvest in Switzerland* that was illustrated with photography showing farm women carrying hay bales down a slope, McOmie expressed his astonishment that Lüthi wanted to go back to a country in which such work practices were obviously still observable. From this emerged a dialogue on labor and motorization that is worth quoting at some length because it reveals the contested perspectives on these issues:

**Lüthi:** Only in the first moment you feel the alleviation that the machine provides, but as soon as you are used to it, you begin to grow weary of your handiwork which always has to be done beside the machine and begin to see it as a burden.

**McOmie:** But the people can hardly accomplish anything by working this way, I wonder how they earn a living.

**Lüthi:** Indeed, but over here we are dealing with the very reverse. The farmers here produce too much with their machines. Overproduction has grown to terrifying heights in this country. Despite the vast arable lands that you cultivate, despite the huge herds that you maintain and the best methods that you use, you earn next to nothing, because you mechanize just too much of a good thing out of the soil.

**McOmie:** But you surely don't want to advocate the return to manual labor?

**Lüthi:** No, I don't, but a partial return to manual and animal labor would at least save the farmer from his complete surrender to the industry.<sup>96</sup>

Lüthi reported that McOmie like others remained skeptical of his argument that “machines were not only the self-evident pioneers of human progress, but, when excessively used, tend to disturb the equilibrium between production and consumption.”<sup>97</sup> Lüthi clearly saw the systemic dimension of agricultural technologies that not only had a transforming impact on farming practices but also threw farmers into a whole network of new social relations, expert cultures, financial arrangements, and providers of fossil fuels and repair parts. “The moment when horses are replaced by mobile motors (tractors, trucks, automobiles),” he wrote, marked a “certain limit of motorization” beyond which “a complete surrender to the industry” began.<sup>98</sup> That farmers in America wrestled with the twin forces of overproduction and an increasing dependency on fossil fuels and industrial manufacturers was also part of the interpretation that Schmid gave in his report on the state of motorization in America. The foreman of the home farm of the Agricultural College Strickhof in Zurich, who visited former pupils of the college in 1935, pointed out in his report that the replacement of working animals by motorized tractors not only set 15 to 20 million acres free for wheat production but also increased the demand for fuel by over 100 percent.<sup>99</sup>

These arguments, deeply embedded in the knowledge regime of the agrarian-industrial knowledge society, held out a promise that was somewhat at odds with the expansionist thrust and the motorizing fervor that McOmie and other farmers saw as the powerful and merciless forces that they had to cope with to stay in business in the American surroundings. But despite



the balanced and sometimes even restrained judgments of motorization by observers like Lüthi, the progress of technology and the expanding use of motorized machinery were generally perceived as more or less inevitable. In this sense, America only foreshadowed what the future would bring for Swiss agriculture. And indeed, just as McCormick's harvesters were dragged by horses and cows across the fields of farms in Switzerland up to the middle of the twentieth century, so were Allis-Chalmers' and Fordson's tractors slowly appearing in the interwar years. Moreover, Swiss machine manufacturers like Johann Ulrich Aebi began already in the second half of the nineteenth century to import, test, and modify American machines in order to adapt them to the conditions prevailing in Swiss agriculture, while American companies like International Harvester established branch offices in Switzerland and placed their ads in farmers' journals.

### Conclusions

To be sure, when Swiss agriculturalists came to America, their observations and interpretations of the patterns of agricultural change and rural life were always shaped by the expectations, prejudices, and visions of American agriculture that they brought with them from Switzerland. On the other hand, their American experiences also changed and modified these presumptions and raised new questions that would most probably have remained unuttered without these cross-cultural encounters. As the soil scientist, agricultural chemist, and frequent writer of travelogues Georg Wiegner cautioned in 1928, travel reports tended to be either excessively enthusiastic or unduly pessimistic.<sup>100</sup> In his view, both versions were usually the result of a lack of time and working experience among the observed society that bedeviled visitors, and he judged it exceedingly difficult to leave one's own cultural prejudices and habits of thought behind. European visitors were especially haunted by their binary conceptions when encountering America, he warned: "In their view, the ideals live in Europe, dollarism reigns in America. In Europe, men are free, individualistic, reflective; in America they are cramped in mass-suggestion, stereotyped, uncritical. In Europe there is art, in America kitsch; Europe has a profound and theoretical science, in America science is limited to chemical synthesis and physical measurements solely for industrial and business purposes. In most travel reports, the neat, intensive, sophisticated European agriculture is confronted with a sloppy, extensive American *Raubwirtschaft*." Wiegner, like most of his colleagues who were conscious of the stereotypes they carried with them, deemed it necessary to get beyond those binary views to find the right "middle way," as he put it, between a naive

optimism and a wrongful skepticism, and especially to allow one's own presumptions to be modified and adjusted by new experiences and unexpected insights.<sup>101</sup> It was exactly the limited insights of the countless but often rather stereotypical travel reports written mainly by journalists that induced agronomists like Moos to travel to North America themselves and to observe the developments in American agriculture with their own eyes.<sup>102</sup>

While not all agricultural visitors from Switzerland were as reflective as Wiegner and Moos, most of them were candidly interested in unraveling the key factors for the agricultural circumstances in America and in connecting their observations to their knowledge about agriculture at home. In so doing, they engaged in an intellectual process that the historian Dominick LaCapra once called "defamiliarizing the familiar and familiarizing the unfamiliar."<sup>103</sup> The experience of traveling through the American agricultural landscape and of debating similarities and differences between American and Swiss conditions challenged inherited assumptions; the interactions between the "familiar" and the "unfamiliar" questioned old wisdoms and encouraged a quest for new conceptual syntheses. This dynamic nature makes these accounts an instructive source for transnational perspectives on agricultural history.<sup>104</sup> Moreover, many travelers not only reasoned about American agriculture and its significance in their written accounts, but they also brought with them new ideas, technologies, plants, and animals across the Atlantic Ocean and used their American experiences as an impetus to change things back home.

As we have illustrated, visitors from Switzerland to America were particularly interested in the unfolding of industrial logics in agricultural production and their obviously varying effects and ramifications in the rural societies of America and Switzerland. On both sides of the Atlantic, this thrust toward industrializing agriculture provoked as much fascination and enthusiasm as it triggered repudiation and unease. It is, therefore, not surprising that Swiss and American observers chose comparable language to capture the ambiguities of this transformation of agriculture in the industrial age. When the Swiss writer Felix Moeschlin drove through Kansas in the late 1920s, he felt he was encountering "the highest stage of agricultural industrialization." "The peasant is dead," he announced. The people working the land on threshing machines were in his eyes "nomadic industrial workers," whereas the owners of the land had become "merchants" more interested in the stock exchange prices of the wheat than in the cultivation of the land on which it grew in the first place (see fig. 5).<sup>105</sup> A few years later, John Steinbeck chose a similar metaphoric language of alienation, commercialization, and modern rural



117. Ein „Fruit Tramp“ in Kalifornien mit Auto, Kind und Kegel

**FIGURE 5.** Photographing the “Grapes of Wrath” for a Swiss public. The writer Felix Moeschlin and the photographer Kurt Richter perceived the phenomenon of American “fruit tramps” as an indicator of a society in the “highest stage of agricultural industrialization.” © Archives of Rural History, Bern, Photo Collection.

nomadism when he spoke of the “highly organized industrial farming” in America that depended on “migrant workers, that shifting group of nomadic, poverty-stricken harvesters.” These exploited farmworkers, Steinbeck maintained, “have jumped with no transition from the old agrarian, self-containing farm where nearly everything used was raised and manufactured, to a system of agriculture so industrialized that the man who plants a crop does not often see, let alone harvest, the fruit of his planting, where the migrant has no contact with the growth cycle.”<sup>106</sup> The resemblances between the judgments of these two observers highlight the fact that the attempts to industrialize agriculture connected Swiss and American experiences in a tight way.

At the same time, however, these critical perspectives reveal a particular temporal structure that shaped many of the accounts that Swiss visitors wrote on American agriculture. When Moeschlin proclaimed a “capitalist industrialization” of agriculture and the death of the peasant in America to an imagined Swiss public, he conjured developments that Swiss society would face rather sooner than later. For Steinbeck, in contrast, writing for an American public, these developments were already firmly in place

and left their mark on the present state of American society. Thus in the eyes of Swiss travelers, the observation of America's present seemed to reveal something about the European future. American agriculture seemed to display a pattern that Swiss agriculture would most probably face in the near future as well. The similarities and differences between American and Swiss agriculture, therefore, merited a more thoroughgoing reflection. For as powerfully as the thrust toward industrialization seemed to shape Swiss and American agriculture alike, it nevertheless hit different historically grown structures of production and patterns of thought that mediated these industrializing forces in specific ways.

Thus Swiss farmers and agronomists who departed across the Atlantic to explore American agriculture indeed encountered phenomena that were new, thrilling, and inspiring and often induced an eagerness to change things in Switzerland along American models. But this was predominantly true for marginal or neglected domains in the overall structure of Swiss agriculture, such as poultry farming or the marketing of agricultural goods. In these sectors, the explorations into American agriculture had visible effects on practical, institutional, educational, and scientific processes back in Switzerland, as the examples of Lenggenhager and Müller illustrate. In domains in which Swiss agronomists and farmers had developed expertise comparable to that of their American colleagues, such as in mechanization and motorization, animal and plant breeding, or soil science, however, the study of American conditions did not translate into attempts to copy American models but instead helped the visitors to identify the ambiguities and problems agricultural reproduction faced in the age of industrial capitalism. For travelers such as Jenny, Volkart, Meyenburg, Lüthi, and Schmid, the encounter with American agricultural practices provided an experience that sharpened their view of how industrial logics lured and forced farmers into a culture of efficiency, competitiveness, standardization, specialization, and productivism that were at least partially at odds with their visions of "good farming." For them, the study of American agriculture was crucial insofar as it helped to discover that the enhancement of agricultural production in Switzerland required different measures than the ones observed on the other side of the Atlantic. In a certain sense, then, they shared the perspective that the eminent agronomist and agricultural economist Ernst Laur articulated in 1933 after having visited Denmark: "We can and we want to admire Danish agriculture, but we have to cultivate the Swiss soil according to substantially different considerations."<sup>107</sup>

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## Notes

1. Dorner, *Eindrücke aus Amerika*, 5. All translations from German and French sources are by the authors. Concomitantly with the publication of this article we have produced a video essay on the same issue, see Juri Auderset, Peter Moser, and Andreas Wigger, *Exploring American Agriculture. Walter Schmid's Journey, 1935*, Video Essays on Rural History, no. 2, ed. European Rural History Film Association, <https://www.ruralfilms.eu>.

2. We have been looking more closely at a selection of these sources ranging from unpublished manuscripts to articles in periodicals, books, and reports for governments and agricultural institutions. Walter Schmid, foreman at the Agricultural College Strickhof in Zurich, documented his three-month journey in 1935 by making a film. See Walter Schmid, "Amerikafilm," in Archivbestand Walter Schmid, AfA-Nr. 776, Archives of Rural History, Bern (hereafter ARH). A digitized version of the film is accessible on the European Rural History Film Association Online Portal at [ruralfilms.eu](http://ruralfilms.eu).

3. Historical research on such travels by agronomists and farmers is scarce. Frank Uekötter has recently pointed out that "transatlantic exchanges" in the field of agricultural science have thus far received only scant attention. See Uekötter, "Yeoman, Farmer und Ökopianier," 274. On German, French, Italian, and Russian agronomists and their perceptions of US agriculture, see Aldenhoff-Hübinger, *Agrarpolitik und Protektionismus*, 32–41; Bruisch, "Ich habe gesehen." Much more attention has been devoted to attempts to export American agriculture: see, for example, Fitzgerald, "Exporting American Agriculture"; Fitzgerald, "Blinded by Technology"; Olsson, *Agrarian Crossings*.

4. Victor Fehr, "Lebenserinnerungen," in Archivbestand Victor Fehr, AfA-Nr. 752, ARH.

5. Beckert, "American Danger," 1143.

6. On the particular challenges of using travel reports as historical sources, see Pratt, *Imperial Eyes*, 1–11; Brenner, "Die Erfahrung der Fremde"; Maurer, "Reiseberichte"; Bitterli, "Der Reisebericht als Kulturdokument."

7. Iriye and Saunier, introduction, xvii–xviii.

8. Rodgers, *Atlantic Crossings*, 7, 318–66.

9. Moos, *Die Landwirtschaft*, 4.

10. Archivbestand Franz Müller (AfA-Nr. 1607), ARH. On the importance of transnational perspectives and transcultural contact in the history of science in particular, see the contributions in Krige, *How Knowledge Moves*; and Hock and Mackenthun, *Entangled Knowledge*.

11. Auderset and Moser, *Die Agrarfrage in der Industriegesellschaft*.

12. Berry, "Whose Head Is the Farmer Using?," 21. For the twentieth-century American case, see Fitzgerald, *Every Farm a Factory*.

13. Koselleck, *Futures Past*, 255–75.

14. See on this perspective the contributions in Welskopp and Lessoff, *Fractured Modernity*.

15. Georgescu-Roegen, *Energy and Economic Myths*; Goodman, Sorj, and Wilkinson, *From Farming to Biotechnology*, 6–14; Mann and Dickinson, “Obstacles.”
16. Nolan, *Visions of Modernity*, 9. See also Nolan, *Transatlantic Century*.
17. Harvey, *Condition of Postmodernity*; Kern, *Culture of Time and Space*.
18. Koning, *Failure of Agrarian Capitalism*; O'Rourke, “European Grain Invasion”; Schwartz, “Rail Transport”; Nützenadel, “Green International?”
19. On the challenges of using the terms *farmer* and *peasantry*, see the contemporary reflections by Frauendorfer, “American Farmers and European Peasantry.”
20. Marx, *Grundrisse*, 524.
21. Schmoller, “Die amerikanische Konkurrenz,” 263, 280.
22. Beckert, “American Danger.”
23. Moos, *Die Landwirtschaft*; Fehr, “Lebenserinnerungen,” 9. See also the German account by Sering, *Die landwirtschaftliche Konkurrenz Nordamerikas*. For more biographical information on the authors discussed in this article, see the online portal of the Archives of Rural History in Bern, <https://www.histoierurale.ch/pers>.
24. Schelbert, *America Experienced*.
25. Auderset and Moser, “Krisenerfahrungen, Lernprozesse und Bewältigungsstrategien”; Auderset and Moser, “Eine ‘sperrige’ Klasse.”
26. Moos, “Schweizerische landwirtschaftliche Studienreise.”
27. Koestler, “Amerika und der Milchwirtschaftskongress,” 11.
28. Moos, *Die Landwirtschaft*. For this type of trip see also Müller, *Mit der zweiten schweizerischen Studienkommission*.
29. Jenny, *Soil Scientist, Teacher, and Scholar*; Dorner, *Eindrücke aus Amerika*.
30. Wiegner, “Reiseeindrücke aus Nordamerika”; Koestler, “Amerika und der Milchwirtschaftskongress”; Peter, “Vom Weltkongress für Milchwirtschaft”; Burri, *Die städtische Milchversorgung*.
31. Moos, “Schweizerische landwirtschaftliche Studienreise,” 25.
32. Flückiger, “Mediators.”
33. Lüthi, *Wanderjahre in Amerika*, 5.
34. Wahlen, *Ernste und heitere Erinnerungen*; Lüthi, *Wanderjahre in Amerika*, 26.
35. Visitor's book, box 32, D-030, Max Kleiber Papers, Peter S. Shields Library, Special Collections, University of California, Davis; Archivbestand Max Kleiber, AfA-Nr. 757, ARH.
36. See Nolan, *Visions of Modernity*, 27; Jaun, *Management und Arbeiterschaft*, 88–89.
37. Cronon, *Nature's Metropolis*, 91.
38. Archivbestand Eugen Lenggenhager, AfA-Nr. 1655, ARH.
39. Blome, *Studien über Landarbeit*, 3.
40. Lüthi, *Wanderjahre in Amerika*, 38, 48, 63–64.
41. Auderset and Moser, *Die Agrarfrage in der Industriegesellschaft*, 32.
42. Meyenburg, “Über Motorkultur.”
43. Fitzgerald, *Every Farm a Factory*, 3.
44. Dictionaries usually render the word as “robber economy” or “ravine,” but both suggestions seem too narrow to capture the semantic breadth of the German term coined by the German agricultural chemist Justus von Liebig and denoting an ensemble of human activities that display an exploitative use of natural resources. Significantly, the concept is rendered in German in many early English articles that deal with the problem of resource depletion. See for example Whitaker, “World View of Destruction,” 153.
45. Raumolin, “L'homme et la destruction des ressources naturelles.” For comparative accounts of modern environmentalism in the United States and Germany, see Mauch and Patel, “Environment”; Uekötter, *Age of Smoke*.

46. Sauer, "Theme of Plant and Animal Destruction," 767; Sauer, "Agency of Man," 68; Gray et al., "Causes." On the Dust Bowl, see Worster, *Dust Bowl*.
47. "Farmersnöte in den Vereinigten Staaten von Nordamerika."
48. Moos, *Die Landwirtschaft*, 13.
49. Jenny, "Soil Fertility Losses," 3.
50. Jenny, "Einige praktische Bodenstickstoffprobleme," 245.
51. Jenny, "Soil Fertility Losses," 10.
52. Jenny, "My friend, the Soil," 160. See also Jenny, "Making and Unmaking." See also Bocking, "Visions of Nature and Society."
53. Volkart, "Kanada."
54. Fehr, "Lebenserinnerungen," 16–17.
55. Fehr, "Lebenserinnerungen," 16.
56. Tanner and Linke, "Einleitung"; Nolan, "Varieties of Capitalism."
57. See on this Koning, *Failure of Agrarian Capitalism*.
58. Lüthi, *Wanderjahre in Amerika*, 34, 68.
59. Riegg, "Kritische Gedankenflüge," 53.
60. Fitzgerald, "Accounting for Change," 134.
61. Hamilton, "Building the Associative State," 218. See also Hamilton, *From New Day to New Deal*.
62. When studying the impressive output of USDA publications, the German agronomist and plant breeder Kurt von Rümker even spoke of a "quasi socialization of agricultural scholarly literature" in the United States. See Rümker, *Das landwirtschaftliche Versuchs- und Unterrichtswesen*, 27.
63. Wahlen, "Qualitätsgrade für landwirtschaftliche Produkte," 147.
64. Volkart, "Kanada," 82.
65. Volkart, "Kanada," 83–84. On the history of agricultural sciences in America, see Ros-siter, *Emergence of Agricultural Science*.
66. Gilbert, *Planning Democracy*; Phillips, *This Land, This Nation*, 242–47.
67. Woytinsky, "AAA," 133, 140.
68. Patel, *New Deal*, 61–62; Baumann and Moser, *Bauern im Industriestaat*, 209–28.
69. Müller, *Mit der zweiten schweizerischen Studienkommission*, 247–48.
70. Archivbestand Franz Müller, AfA-Nr. 1607, ARH.
71. Archivbestand Harald Ebbell, AfA-Nr. 1807, ARH. On the development of American poultry science, see Boyd, "Making Meat."
72. See Rodgers, *Work Ethic*.
73. Wiegner, "Reiseindrücke aus Nordamerika," 173; Riegg, "Kritische Gedankenflüge," 60.
74. Tanner, "Industrialisierung, Familienökonomie und Hungererfahrung."
75. Lüthi, *Wanderjahre in Amerika*, 21, 31.
76. Maier, "Between Taylorism and Technocracy."
77. Auderset, "Manufacturing Agricultural Working Knowledge"; Rabinbach, *Human Motor*.
78. Hobson, "Agricultural Economics in Europe," 423.
79. Müller, *Mit der zweiten schweizerischen Studienkommission*, 266.
80. On the analytical necessity to distinguish between mechanization and motorization, see Auderset and Moser, "Mechanisation and Motorisation."
81. Moos, *Die Landwirtschaft*, 164.
82. Moos, "Arbeiterleichternde Einrichtungen."
83. "Further Examination of the Effects of Mechanisation," 527.
84. "Further Examination of the Effects of Mechanisation," 527.

85. Fellenberg-Ziegler, "Die Wood'sche Grasmähmaschine," 62.
86. A digitized version of the film is accessible on the Online Portal of the European Rural History Film Association at ruralfilms.eu.
87. Walter Schmid, "Bericht über Reisebeobachtungen in den Vereinigten Staaten Nordamerikas, 1935," Archivbestand Walter Schmid, AfA-Nr. 776, ARH.
88. Giedion, *Mechanization Takes Command*.
89. Meyenburg, "Über Motorkultur," 7; Bornemann, *Die Motorkultur*; Fischer, *Die soziale Bedeutung*, 55-63.
90. Fitzgerald, *Every Farm a Factory*, 95.
91. Konrad von Meyenburg, "Wiefern kann die Bodenfräskultur die heutige Not der europäischen Kleinbauern beheben oder doch lindern helfen? (1927)," Archivbestand Konrad von Meyenburg, AfA-Nr. 764, ARH; Meyenburg, "Über Motorkultur," 7.
92. *Transactions of the American Society of Agricultural Engineers* 8 (1914): 70-72.
93. Moos, *Die Landwirtschaft*, 51.
94. Moos, *Die Landwirtschaft*, 165. See also Auderset and Moser, "Mechanisation and Motorisation"; Auderset and Schiedt, "Arbeitstiere."
95. Lüthi, *Wanderjahre in Amerika*, 34, 62.
96. Lüthi, *Wanderjahre in Amerika*, 116.
97. Lüthi, *Wanderjahre in Amerika*, 116.
98. Lüthi, *Wanderjahre in Amerika*, 68.
99. Schmid, "Bericht über Reisebeobachtungen in den Vereinigten Staaten Nordamerikas," 10.
100. Wiegner's travel reports were praised and questioned by his colleagues. See, for example, the intervention by Ernst Laur in the context of Wiegner's report on his travels to the Soviet Union, Wiegner, "Reiseeindrücke aus Russland," 133.
101. Wiegner, "Reiseeindrücke aus Nordamerika," 137-38.
102. Moos, *Die Landwirtschaft*, 5, 9.
103. LaCapra, "Rethinking Intellectual History," 247.
104. On the potential of transnational perspectives in agricultural history, see Evans, "International Context for Rural America."
105. Moeschlin, *Amerika vom Auto aus*, 168.
106. Steinbeck, *Grapes of Wrath*, 991-94.
107. Laur, *Die dänische Landwirtschaft*, 23.

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