

Milk and Laboratories in Urban-Rural and State-Society Relations: The Case of Hungary from the Beginning of Wartime Shortages until the Great Depression

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The paper analyses the roles of milk production and milk supply in the changes of the state-society relations and knowledge production in 20th early century Hungary. It places laboratories and the perception of milk as material in the centre of analysis prompting a narrative that takes account of the hybrid nature of milk. Building on arguments that Bruno Latour and Timothy Mitchell formulated, this study reveals key aspects of government, economy and modernity by using the notion that there are no clear boundaries between culture and nature. Hybridity also refers to the impossibility of controlling for all aspects of “nature.” The first part of the paper takes laboratories as junctures of legislation and urban-rural relations. The second part highlights the urban conditions as well as the local political contexts of milk consumption and milk shortage in the World War I and post-World War I period. Overall, the paper is a case for why food history is one of the ways to take research beyond methodological nationalism without having to ignore the realm of politics.

Keywords: Food shortage, urban-rural relations, milk history, history of science, history of cooperatives, interwar Hungary

Introduction: The Political Implications of Milk as a Hybrid in Modernity

This paper is about the ways in which the social meanings of urban milk consumption and the testing of milk in laboratories influenced relations between urban and rural areas, and also between the central state and local society in Hungary during World War I and in the interwar period. Hungary in this period offers a particularly good case for linking political history to the developments of the milk economy, which was a global history.

Largely due to the fall in grain prices in the second half of the nineteenth century, when World War I broke out, the milk economy had already been

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expanding rapidly for more than half a century in Europe.¹ From being a niche market in the early nineteenth century, it grew into one of the major economic activities and markets. It is indicative of the timing of the surge in Hungary that, in 1905, the eminent educationalist László Mócsy (1871–1955) published an educational parable titled “The Good Cow,” in which he offered farmers advice on how to select cows that would have plenty of milk.² Mócsy mentioned the presence of official advisors in rural areas the importance of knowledge about proper stable conditions, and he also noted that there was a state-run breeding campaign.

The history of milk brings together the history of science, agriculture, and agrarian policy. There would be no processed milk without human intervention, and there would be no milk to pasteurize, homogenize, and consume without the animals in the background. Research concerning animal nutrition, the genetic qualities of various breeds, and milk quality were all important aspects of this encounter among the sciences, livestock practices, and state policy over the course of the twentieth century.³ Building on arguments put forward by Timothy Mitchell and Bruno Latour on the historical implications of such hybridity, I show how incessant efforts to draw boundaries between culture and nature and the repeated failures of these ultimately hopeless efforts shaped the perceptions of urban consumers, rural suppliers, the physical constellations of marketplaces, and state presence in the marketplace between the second half of World War I and the onset of the Great Depression ten years later. Summarizing the historical research in biotechnologies, Helen Curry posits that the backbone of experimental biology was the belief in technological control throughout the twentieth century.⁴ Mitchell points out that the idea that control was possible was a grave error. He offers the following somewhat cautionary remark:

Instead of invoking the force and logic of reason, self-interest, science, or capital and attributing what happens in the world to the working of these enchanted powers and processes, we can open up the question [...] of what kinds of hybrid agencies, connections, interactions, and forms of violence are able to portray their actions as history, as human expertise overcoming nature, as the progress of reason and modernity, or as the expansion and development of capitalism.⁵

1 See Kaposi, “Nagybirtok és agrárszegénység”; Orland, “Turbo-Cows.”

2 Mócsy, *A jó tehén*.

3 Orland, “Turbo-Cows.”

4 Curry, *Evolution Made to Order*, 6.

5 Mitchell, *Rule of Experts*, 53.

Focusing on Louis Pasteur's experiments and discoveries, Latour came to a similar conclusion, and he demonstrated that the encounter of germs, scientific experiments and demonstrations, scientists' ambitions, specific agricultural practices, and the culture of public spaces ended up changing many aspects of rural and urban life in France and, then, worldwide.⁶ In the period discussed here, milk traveled through society impacting and triggering responses in many different milieus and power relations. Monographic studies by Peter Atkins and Deborah Valenze on the economy, politics, and knowledge production behind the rise of milk economy and its globalization in the late nineteenth century show that the history of the interaction between the human on the one hand and the material on the other is one of the ways to take research beyond methodological nationalism without having to ignore the realm of politics in a specific state.⁷ As Atkins puts it,

As a commodity, [milk] became a site of politics as different groups vied to have their interests protected or their solutions implemented [...] Milk was never the same materially, socially, culturally, economically, or politically after its entry into the networks that provisioned cities. These were not just systems of delivery but vast engines of transformation. They nourished bodies; they spread disease; they encouraged the make-over of agro-ecosystems and landscapes in the distant countryside; they enabled a re-imagining of cities as spaces without farming; they transformed food economies; and they encouraged a new form of food politics.⁸

Indeed, there are at least four specific contexts in which the realm of high politics and milk met in the period under study. First, there is the impact of wartime food shortages and rationing imposed by the state on citizens, which often pitted urban and rural communities against each other.⁹ Second, the state attempted to bring milk cooperatives within the supply chain that was under its control. Third, one has to consider the regional specificities of the place of milk-cooperatives outside the most developed core of Europe. Fourth, one also needs to take into account the municipal level of politics.

Regarding the first two points, Tiago Saraiva's work on the importance of agriculture in establishing interwar regimes in Europe is immediately relevant

6 Latour, *The Pasteurization of France*, 140–45.

7 Atkins, *Liquid Materialities*; Valenze, *Milk*.

8 Atkins, *Liquid Materialities*, XIX and XX.

9 Richardson, *The Hunger War*; Bódy, "A World Lifted off Its Hinges."

theses.¹⁰ Saraiva shows that there was a close relationship between authoritarian control and agriculture. In Hungary, the central state was not able to alter the shortage economy in the immediate post-World War I period, but by the mid-1930s, it gradually overtook and established control over the network of milk cooperatives.

While there is a rich secondary literature on milk cooperatives in Europe, there is hardly any work discussing Central Europe. Most of the existing studies foreground the political aspects of the realm of cooperatives in general and of milk-cooperatives in particular. Csekő Ernő offers a skeptical view and casts doubt on the notion that the milk market was beneficial for inhabitants of rural communities.¹¹ With regards to Estonia and Greece, which, like Hungary, were also semi-peripheral countries, Johan Eellend, Dimitris Angelis-Dimakis, and Catherine Bregianni emphasize that access to credit was the main factor when it came to the potential success of the milk cooperative movements, and that comparatively easy access to capital gave leverage to states and prevented an autonomous cooperative realm from emerging. Eellend suggests that this influence of states was in tension with another defining feature of cooperatives. As he observes,

By demanding participation and responsibility from the members and demanding that the farmers put a great portion of their production in the hands of the cooperatives, the cooperatives had a comprehensive impact on the farmer's life and the local community. This created an alternative rural public, which ideals were based in economic efficiency and cooperation within the community.¹²

In his discussion of various cooperative networks in Hungary, Attila Hunyadi places the cooperative movements of the late nineteenth century in the context of nationalism, and he characterizes them as venues for learning and developing political culture in terms of attitudes towards the state and the act of voting. Attila Vári frames the cooperative movement in Hungary quite differently, situating it within Agrarian politics and the struggle for primacy within or control over the National Hungarian Economic Association (Országos Magyar Gazdasági Egyesület, OMGE) and influence over its membership. Agrarians in Hungary promoted the modernization of machinery and tools as well as the cooperative movement. At the same time, they were hostile to trade unions and

10 Saraiva, *Fascist Pigs*.

11 Csekő, "A tejszövetkezetek kedvezőtlen hatása."

12 Eellend, "Community Resting on Butter," 85.

other nations in the region. Many Agrarians held various anti-Semitic views, seeing land-owning Jews and the alleged mass immigration of Jews as one of the elements that went against the formation of a wealthy Hungarian class of landowners. OMGE and the Alliance of Farmers formed within it in 1896 were the major force behind the cooperative movement in Hungary.

At least one contemporary popular didactic short story made it clear that the relationship between anti-Semitism and OMGE's support for the spread of cooperatives was strong at the local level already in the early 1900s. László Salgó told a fable about how activists from Budapest used the influence of the local Church personnel to trick local wealthy farmers into forming a cooperative shop in order to get rid of the local grocery shop, which was run by a Jewish couple.¹³ Salgó's story ended with a scene of farmers going bankrupt due to the cooperative's irresponsible business practices. The ending even suggested that the activists from Budapest and big time Jewish traders eventually benefited and perhaps even planned the whole trap together. This association between cooperatives and anti-Semitic thought is potentially relevant to the milk economy. For example, based on contemporary municipal business directories of Debrecen published in the interwar period, most milk sellers in the city were likely to be persons who had Jewish backgrounds (Sándor Lefkovich, Klára Schenk, Manó Gottlieb, Mózes Steinmetz, József Glück, Mrs. József Popper, and Erzsébet Werner).¹⁴ Krisztián Ungváry suggests that anti-Semitism is a key to any nuanced understanding of economic policy in interwar Hungary, while other overviews of the period see the character of these policies differently.¹⁵ No one has yet offered substantial support for the hypothesis according to which there were anti-Semitic motives behind the formation of milk cooperatives or behind state intervention in this area. An analysis of the withdrawal of permits for milk trade in 1938 and thereafter would likely indicate political motives behind this form of state intervention in the field in the post-Depression period. The data about the issuance and withdrawal of permits to sell milk would also tell a great deal about the roles of women in the milk economy.

13 Salgó, *Egy fogyasztási szövetkezet története*. Interestingly, statistics published about the social composition of officials in Hangya consumer cooperatives in 1920 and 1921 confirm that Church representatives played a key role. See *A "Hangya" Termelő-, Értékesítő- és Fogyasztási Szövetkezet*.

14 See Diczig, *Debrecen címháza*, 289 and 441.

15 Ungváry, *A Horthy-rendszer mérlege*. See different views emphasizing aspects of modernization in Zsombor Bódy, "Társadalomtörténeti észrevételek" and Béla Tomka, "A Horthy-korszak társadalom- és gazdaságtörténetének kutatása." See also Szuhay, *Az állami beavatkozás és a magyar mezőgazdaság az 1930-as években*, 262–65.

In any discussion of the milk economy, one needs to include the municipal level, too. Laura Umbrai's research on the milk market of Budapest shows the importance of municipal institutions and decisions in establishing a balance between the demand for milk on the one hand and the public health risks of permitting milk to be sold on the market on the other.¹⁶ This will come up in more detail in a later section of this paper. Miklós Szuhay was the first agrarian historian to explore the background to the attempt of the central government to reorganize the supply chain of milk in the Budapest market in the early 1930s. Since the goal of governmental decrees was to eliminate small producers and make price depend on agreement reached between large stakeholders who would negotiate within a board chaired by the Ministry of Agriculture, the episode points out the growing ambition for direct state control over the economy as well towards corporatism.¹⁷

In order to address the implications of the various contemporary understandings of the milk trade for urban-rural and state-society relations, I have broken up my discussion into four sections. The first section introduces state authorized quality testing of milk in laboratories in Hungary. It outlines how the laboratory environments interacted with various practices of rural and urban communities. It shows how, furthermore, as a result of these intersections, laboratory testing was the meeting point of top-down and bottom-up understandings of a modern economy. The second and third sections turn to a selected region in western Hungary. By focusing on tensions and discourses caused by the shortage of milk in an urban context (that of the city of Szombathely) and on the history of the milk cooperatives that were to supply this city, I show how the shift from low to high food prices and the history of food control are essential factors if one wishes to arrive at an adequately nuanced understanding of the relationship between rural and urban areas as well as between state and society. The choice of a border area as a case study (specifically, Vas County in western Hungary) means putting some emphasis on the role of smuggling in the post-World War I economy. This does not mean, however, that this case is so particular that it is not relevant to the broader discussion. Rather, this case shows that the presence of a regulatory state should not be taken for granted, and it also integrates geographical concerns into the picture. Milk cooperatives in the region enter the

16 Umbrai, "A fővárosi tejüzem."

17 Szuhay, *Az állami beavatkozás és a magyar mezőgazdaság az 1930-as években*, 129–36. For the political importance of municipal food policy, see also Tarnai, "Lesz mivel berántani a levest, egy kis tészta is lehetnek már."

framework as scapegoats for shortages, but their story is also about the emerging agenda of the expanding state in the interwar period in Hungary.

Milk Testing in Laboratories as the Meeting Point of Top-down and Bottom-up Understandings of Modernity

As the secondary literature has shown, milk was a prime target of control and was something beyond control at the same time. Contemporaries attempted to commodify a hybrid: milk was a natural-cultural phenomena with which both people with medical and engineering expertise and administrative bodies struggled. This section examines the ways in which laboratories can be seen as sites which yield insights into the ways in which local rural society responded to the rise of milk consumption and new institutions it brought with it.

Research on the history of the emergence of scientific institutions in late nineteenth and early twentieth-century Hungary makes it clear that the idea that the state needed to control food quality and develop food items for the international market was a large part of the motivation for the establishment of laboratories and the justification for providing them with funding.¹⁸ However, laboratories are not neutral sites of scientific inquiry and experiment: they transform the materials with which they work and, in turn, influence the outer world. Milk products had several social meanings, each of which was influenced by the state, scientists, and local communities. First, as urban poverty and the vision of a demographic crisis arising from the (alleged) waning capacity of women to be good mothers caused moral panic, milk became a key commodity of urban economy and urban governance.¹⁹ In an article published in *Orvosi Hetilap* (Medical Weekly) in 1890, Ede Egán, the inspector general of the milk industry, who had British origins and a well-functioning estate in Vas County, emphasized the importance of milk as a commodity in increasing demand.²⁰ He claimed that ensuring safe milk at affordable prices had motivated him to set up a milk cooperative structure (Budapesti Központi Tejcsarnok Szövetkezet or Budapest Central Dairy Cooperative) in Budapest.²¹ Outstanding contemporary

18 Fehér, *A mezőgazdasági kísérletügyi állomások*, 28–40, and 90–95.

19 On moral panic over urban conditions, see Bender, *American Abyss*. On the issue of breastfeeding around the turn of the century, see Smith-Howard, *Pure and modern milk*, 12–35.

20 Egán, *A tej a fővárosban*. For Ede Egán's views, see also, Vörös, "A tejgazdaságok kialakulása a Dunántúlon 1880–1895."

21 Egán, *A tejgazdaság terén*, 1887.

researchers, such as Ernő Deutsch (1875–1944) and Salamon Székely (1860–1936), focused their efforts on making cow milk safe for consumption by newborns.²² According to Székely, the main challenge was to reduce the proportion of casein, and he believed that carbonic acid was the key to this. Infant mortality due to the inability of young babies to digest milk substitutes indicated that cow milk could save or kill children. In the interwar period, as eugenics continued to gain sway among some circles of scientists and in the public mind, the political meaning of children gained a new significance: national revival. Accordingly, several national-level organizations (such as Magyar Asszonyok és Nők Nemzeti Szövetsége, or the National League of Hungarian Wives and Women, Országos Stefánia Szövetség, or Stefánia League, which was named after Rudolf Habsburg's widow, and the Zöldkereszt Mozgalom, or Green Cross Movement) disseminated knowledge about the importance of breastfeeding and the feeding of small children.²³

As historian Peter Atkins and veterinarian Ottó Fettick (1875–1954) amply demonstrated, milk was both a potential carrier of deadly diseases and a key to feeding urban populations. In 1931, Fettick and another leading researcher, Lajos Szélyes (1885–1963), wrote a paper about the possible causal relations between anthrax in cattle and human illness. Referring to a case from 1928, the paper contained a passage about the potential economic impact of the decisions of scientists concerning the existence of links between disease in humans and milk produced by sick cows: “This question was not fully clarified, thus, the expert is puzzled when having to give an opinion as to whether milk produced during an anthrax infestation in stables should be offered to the public. With regards to such questions, interests of public health confront economic interests.”²⁴

The social implications of the quality of milk also shifted in part because, by the 1910s, scientists had rediscovered cow milk as a nearly perfect food that contained enough calories and minerals to sustain a human being even if nothing else were available. It seemed especially advisable for children and sick adults to consume milk. As medical researchers and chiefly American biochemist Elmer V. McCollum began to discover the role of vitamins as an important part of a healthy diet, cow milk looked even more essential.²⁵ This knowledge became common in the Western World and began to spread to areas known as

22 Székely, *A gyermektej*, 1903.

23 Kelbert, “Társadalmi anyaság”

24 Fettick and Szélyes, “Tejgazdaságokban észlelt lépfenejárványok.”

25 Valenze, *Milk*, 235–50.

colonies. In Hungary, the most spectacular example of the campaign to spread this new understanding of milk as an essential part of a nutritious diet was the poster emblazoned with the words “Milk is Life, Power, and Health” (A tej élet, erő, egészség), which was designed by Greek-born Hungarian athlete and artist Miltiades Manno in 1927.²⁶ The poster was part of the efforts of the government to increase demand for milk, which was such an important policy objective that a specialized committee, the Milk Propaganda Committee (Tejpropaganda Bizottság), was set up in 1927 to achieve it.²⁷

Finally, dairy products, especially butter, emerged as an important item of international trade. The international congresses of various experts taking part in the milk economy were important sites of standardization of procedures, quality, and required stable conditions. These meetings had been taking place since 1903 under the umbrella of the International Dairy Federation. The aforementioned Fettick published a detailed report about one such congress in 1907.²⁸ The key point in this transnational commodification of milk and dairy products came in 1925, when the standards for butter were accepted and *márkázott vaj* (branded butter) appeared in Hungary. Indeed, as Fettick’s report demonstrates, scientific research on the health effects of permissible and non-permissible technologies of milk processing fed into the ongoing process of international standardization. Prospectively, becoming part of the international supply chain of butter was one of the ways to achieve prosperity in rural settings. Archival sources indicate the importance of the British market for Hungary in the post-Depression period.²⁹ How such prospective markets influenced rural milk producers in the 1920s or in the prewar period remains to be answered.

Laboratories and stable inspections were junctures for revealing and altering the social meanings of milk, and they also provided insights into the daily workings of the milk economy in rural and urban contexts. The Permanent Supervisory Council (Állandó Felülbíráló Tanács), which was one of the key institutional bodies of the milk economy of the first half of the twentieth century, relied on the results provided by local laboratories. The council was one of the agents of continuity between the interwar and postwar periods. This committee had the right to overrule decisions of first-level authorities about the quality of food items and refer decisions to the minister of agriculture. The surviving resolutions of

26 See the poster “Élet, erő, egészség,” National Széchényi Library: PKG.1927/123.

27 Papers of the Milk Propaganda Committee (Tejpropaganda Bizottság), MNL OL K 208.

28 Fettick, “A III. Nemzetközi Tejgazdasági Kongresszus.”

29 MNL OL Z.41.10730

the committee are held at the archives of the University of Veterinary Medicine, Budapest.³⁰ The documents show the criteria used, the testing procedures, and the uncertainties surrounding these procedures, and they contain some indications about the provenance of samples, despite general anonymity. Most reports date from the years between 1911 and 1914, thus they took the 1896 regulatory provisions as their basis. The cases that came to the attention of the council due to appeals mainly concerned small-scale sellers who brought the milk from a single cow to the market and other retailers who sold the milk from three or four cows. In each case, the suspicion was that the milk which had been brought to the market by these vendors was mixed with water and/or at least partially skimmed. The appeals show that the local authorities who did the testing often claimed to have found proof that these suspicions were founded even when several uncertainties remained unresolved. The most common problem with their testing method was that they did not control the stables or did not test milk milked in the morning and milked in the evening separately for fat content. In one of its decisions, the council also remarked that there was no single decree regulating the method to be used during stable inspections, though there were in fact several circulars regarding the issue. Moreover, the variance of chemical qualities of the samples that were compared to standards was sometimes so small that it might have been due to local specificities and not any process of dilution, as the first level authorities assumed. Overall, the number of cases in which the council felt it was not possible to make a statement about whether the milk had been diluted is remarkable and shows that the precise definition of milk as material and hybrid often defied scientific expertise. Unfortunately, only three milk related appeals are documented for the period after 1920. The first of these appeals was lodged in 1921. This appeal may offer a good introduction, for us, to a typical profession related to the production and sale of milk in the early twentieth century. It concerned a young woman bringing a family milk that had been diluted with water. The young woman who brought the milk and her mother had only one cow. The council ruled that the decision concerning the milk, according to which it had indeed been diluted with water, was not valid, since the cow's milk had not been tested on two separate occasions that day and the environment in which it had been produced had not been inspected. The description in the appeal of the circumstances make it clear that the women were so-called "milimári." This word is no longer in everyday use in Hungarian.

30 HU-ÁOTKLM III.075.a box no. 2.

In the first half of the twentieth century, it referred to milkmaids who brought milk to Budapest in small quantities, often directly supplying certain families or selling milk on Budapest markets.³¹

The University of Veterinary Medicine in Budapest was home to the Milk Hygiene Laboratory, which was one of the major laboratories for milk testing in the early twentieth century. The registry of the laboratory shows that the institution was a center from which knowledge and technologies were disseminated across the country.³² Despite the diversity of themes on which the various surviving documents touch, the bulk of entries in the registry of the laboratory concerning testing milk produced in or transported to Budapest. According to the registry, most of the samples came from a very limited number of places. The private company called Central Milk Market-Hall Co. (Központi Tejcsarnok Rt., hereafter KT) frequently asked the lab to test whether its products were sterile. The results show that the company often experienced quality issues during milk processing in the years from which records related to the interwar period survived, that is, 1921–1929 and 1935–1937. Another milk-processing firm that often turned to the laboratory was Count Imre Károlyi's private company, which was located in the northeastern fringes of the city. In addition to these companies, the National Child Shelter was the most frequent client. In their case, there were hardly any occasions when the milk that was tested proved problematic. These records suggest that most milk processing enterprises outside the capital were not interested in having the quality of their milk monitored by the laboratory at the university. The firms that sprung up during the 1920s, such as the ones in the towns of Eger and Nyíregyháza, were monitored by another institution, the Royal Milk Product Testing Station, which was set up in 1928.³³ This institution was the only one authorized to allow firms to use state authorized stamps on their products. Due to the international standardization of butter in the mid-1920s, without such certification, export was no longer possible.³⁴

The Milk Hygiene Laboratory frequently provided advice on issues concerning the handling of milk, suggested reasons why milk went bad, and

31 Bednárík, "A budakeszi milimárik."

32 HU HU-ÁOTKLM III.075a. vol. no.1.

33 See Balatoni, *A magyar élelmiszeripar története*.

34 See Löcherer, "A tejtermékek m. kir. Ellenőrző Állomása létesítése és működési jelentése 1929–1930," and Géza Pazár's summary of the International Milk Congress in Rome, Italy, 1934. MNL OL K 184-16-15050.

offered guidance concerning how to stop contagious disease in stables. In doing so, it came into contact with local veterinary doctors and inspectors of agricultural establishments and also with managers. Thus, the laboratory was a key agent in identifying sites infected with forms of animal tuberculosis. Moreover, through quality testing, it indirectly defined who had done their job well locally. In fact, at times, science became a direct part of labor relations. When the management of one estate suspected that one of the maids had been pouring water into the milk on a regular basis, for example, it asked the laboratory to test a sample. The result of the test, however, was negative,³⁵ the maid presumably kept her job. The documents offer no further details, but it was presumably the maid who asked for the test to be carried out. It is remarkable that the manager of the estate did not make a decision without certification from the laboratory at a time when labor was no longer a scarcity.

Indeed, the milk industry was a field in which women could have careers. The career of Lídia Nagy is a case in point. She managed one of the small Transdanubian centers of Count Pál Eszterházy's Milk Firm.³⁶ When she was about to be promoted, she recommended, as a potential replacement, another woman who had completed the same specialized school as she had, probably the one in Sárvár (a town in Vas County). Besides keeping track of the amount and provenance of milk that reached the skimming station in Középbogárd (a village in Fejér County), Nagy was in charge of taking measurements with thermometers and butyroimeters, and she also monitored and adjusted butter production to meet demand and to address complaints about quality. She submitted reports in writing on a weekly basis and sometimes more frequently. Although her manager scolded her at times for not keeping proper count of the milk cans used for transportation, she had considerable responsibilities. The manager entrusted her with assessing possibilities for the expansion of the range of the station and attracting vendors from the nearby milk cooperative.

The laboratory was an agent of changing tastes. In 1932, at one of the meetings of the National Milk Economy Committee, Lajos Gerlei, general manager of the Budapest General Central Dairy Hall (Budapesti Általános Központi Tejcsarnok Rt.), which at the time was the major producer of milk products alongside the large state-run network known as the National Hungarian Center of Milk Cooperatives (Országos Magyar Tejszövetkezeti Központ,

35 HU-ÁOTKLM III.075a box 1, 1929.

36 MNL OL Z 1307. item no. 6. vol. no. 2.

OMTK), remarked that Hungarians were not willing to eat real yoghurt because they could not digest it.³⁷ Letters exchanged between the laboratory and other institutions disprove this point. The Milk Hygiene Laboratory provided cultures necessary for yoghurt production to various parts of the country and even beyond the borders. This was the case, for instance, with the so-called milk bar at the Central Hotel in Kolozsvár (today Cluj, Romania. Before 1919 it was located within Hungary. In the later 1920s, it still had a significant Hungarian population), which was run by nuns.³⁸ The milk hygiene laboratory played a role in influencing customs among the Jewish community of Szerencs, a town in northeastern Hungary. In February 1934, the local milk producer was eager to convince the Orthodox rabbi about the compatibility of the organic culture required for producing Kosher butter. In his reply, the head of the laboratory indicated that the Orthodox rabbi of Budapest had already accepted the recipe.³⁹

Milk testing laboratories were not simply state agents entrusted with the task of ferreting out illicit economic activities or pointing out failures and impurities. Rather, the daily activities of laboratories were interwoven with the ways in which the different types of milk producers responded to the emerging milk market, including work relations, new ventures, social care, and tastes.

Milk Shortages and the Dysfunctions of Modern Institutions: Szombathely in Vas County

The milk shortages in post-World War I Szombathely, the seat of Vas County in western Hungary (close to the interwar border with Austria), offer a telling case of how urban-rural exchanges intertwined with state-society relations and the role that laboratories played in these relations. The case also offers insights into local, urban perceptions of the essence of a modern economy and a modern state.

Just before World War I, Vas County and its seat were in a state of transition. The northern areas of the county were among the developed regions of Hungary, so much so that Szombathely was seen as the model of the emerging modern city. At the same time, the southern areas were closer to neighboring Zala County in their outlook, and they were among the markedly underdeveloped zones of the country. The developed parts of Vas County along with the areas neighboring

37 MNL OL K 551 vol. 2. 30 May 1930.

38 HU-ÁOTKLM III.075a box 1, 1929.

39 HU-ÁOTKLM III.075a box 1, 1934.

it to the north were the first centers of the milk economy in Hungary. This had to do with the closeness of Vienna as a large market, but this factor would not have been sufficient for the first milk cooperatives to emerge. As agrarian historian Antal Vörös has pointed out, Vas County was among the first areas where a rural economy based on the practice of keeping livestock in stables and fodder production replaced the previous system of three-year agriculture. One of the main conditions of this shift was an adequate output of cereals so that there would be land available for fodder to grow. In this regard, it is important that in Vas County fertilizers came into the picture as early as the 1880s.⁴⁰ While before the 1920s the impact of fertilizers in Hungary was overall not comparable to what was seen, for instance, in the Alps, in this particular region, manuring coupled with fertilizers brought about significant changes.⁴¹

After World War I, western Hungary and Vas County within it remained an area with distinct characteristics in terms of its economy. Smuggling became one of the key activities at a time when food shortage was a major political factor. The geographical proximity of Vienna was yet again a decisive factor. Several recent studies have pointed to the importance of food in interwar international politics between Austria and Hungary as well as between Austria and the Western Powers.⁴² Having studied nearly a thousand cases of smuggling, Adrienn Nagy concluded that, in a few years, smuggling became a part of everyday livelihood locally and regionally. Moreover, these kinds of activities were not stigmatized by local communities and at times received forms of support from the authorities, including the police.⁴³ Nagy did not mention dairy products among the prevalent items in terms of volume, but in times of shortages, even small amounts of butter were of high value.

To assess the position of Szombathely and its inhabitants within the context described above I relied on news reports in dailies. This type of source is biased in terms of the voice to which it gives space. It reflects the point of view of mainstream urban society and of the authorities. News reports dwelt on vendors in the market and milk producers, but they did not report the points of view of these actors in a direct form, if at all. Documents about actual cases of alleged

40 Vörös, "A tejgazdaságok kialakulása."

41 See Gingrich, S. et al, "Changes in Energy and Livestock Systems Largely Explain the Forest Transition in Austria (1830–1910)."

42 Murber, "Az osztrák–magyar határvíta gazdasági aspektusai az első világháború után."

43 Nagy, "A feketézés évtizede (1916–1926)."

infringements might counterbalance this bias, but I have not yet managed to locate the reports on infringements in any of the archives I have consulted.

As the fluctuations in the numbers of news reports published in any given year indicate, the social and political importance of milk was at its height during moments of shortage. In 1916, dailies operating in Szombathely published 19 news items related to milk, compared to 28 in 1917, 13 in 1918, 18 in 1921, 37 in 1922, and 31 in 1923. These figures then dropped drastically. Between 1916 and 1924, most of the news reports concerning milk focused on the question of dilution, processes used to monitor the quality of milk, the punishments meted out for infringements. They also touched on instabilities in the supply chain of milk and dairy products.

In Szombathely, milk shortages reached a critical level almost three years into the war, in April 1917. From that date, it was prohibited to serve milk in the restaurants and cafes that were still open. A few days before the ban, the deputy head of the county administration (*alispán*) made an exception for businesses serving coffee, which were able to offer 100 liters of milk for public consumption daily, but even these enterprises failed to manage to set aside this relatively meager quantity, and this clearly reflected the extent of the shortage. Rationing of milk at the municipal level only began in early 1918 and lasted until September 1919. By the spring of 1920, news reports concerning milk lamented the outflow of dairy products to Vienna and Budapest, where significantly higher prices were offered. It was at this time that the state secretary for public supply, Rezső József Temple, toured the region. The accompanying public events reflected the gravity of the situation. Temple announced a large-scale plan to resolve the milk question, but the situation became even worse in the winter. In January 1921, *Vasvármegye* (Vas County), the leading daily, published a lengthy report on how butter was allegedly being smuggled across the Austrian border, which according to the article was the main cause of milk shortage. The proposals that appeared in the news centered around regulating the price and establishing a well-controlled milk market hall under municipal supervision. Indeed, the idea of such a market hall was first raised in the summer of 1916, but in May 1920, it began to reappear more and more frequently in the news. Yet, in July 1922 it suddenly seemed as if the plan, which had almost been accomplished, was going to fall apart. The article published in *Vasvármegye* on July 13, 1922 offers insights into perceptions of the working of the economy:

The value of the *korona* [the legal currency in Hungary until 1926] is falling, and prices are rising. Let's just take one item from the horrible complex: milk. It is the food of the sick and children. It is indispensable. Today, it costs twenty to twenty-two *koronas* per liter. Some months ago, when the price of milk was just half what it is today, we were shocked, and we hoped that eventually they would create the municipal milk market hall that has been on the table for so long... [but] given the current monetary situation, all hopes are in vain... It is so difficult to buy milk, we actually need to know someone who has some influence to get some... If authorities began controlling the market today, even the most reliable milk traders would leave Szombathely for good.

Contemporaries believed that, in addition to the depreciation of the *korona*, the cause of the milk shortage was that milk suppliers would not be willing to submit themselves to quality control. Let us look at the latter part of the equation and focus on the reasons for the behavior of suppliers and the processes used to try to control the market.

According to news published in the dailies, the main actors on the milk market in Vas County were the Milk Cooperative of Sopron (Soproni Tejszövetkezet) and the Milk Business Co. of Sopron County (Sopronmegyei Tejgazdasági Rt.). Since the demand for dairy products in Vienna was virtually unlimited given the production capacity of western Hungary, these entities were primarily interested in exporting dairy products to Austria. Thus, they offered a higher price to cattle owners in villages of Vas County than the price cap used on the markets in Hungary. In the spring of 1923, one of the actual responses of the farmers of Vas County was to form their own county-level cooperative business, and they allowed the cooperative in Sopron County to buy a large share. However, this did not alter the export-oriented strategy of the existing companies, and prices soon began to rise. Eventually, a solution was reached thanks to a merger of a milk processing firm with a large enough consumer base (that of the public servants) and another local milk processing business in Szombathely, so-called Dömötör's. As a result, milk became accessible at four different market points of the city, and by 1924, the issue of milk shortages had disappeared from the news.

As Laura Umbrai has demonstrated in her discussion of the milk market in prewar Budapest, quality control and testing were essential and decisive preconditions for the creation of a viable milk market hall. Umbrai added, however, that testing mostly did not go beyond finding out how much water

had been added to the milk.⁴⁴ This was also true of wartime and interwar Szombathely. Despite the legal channels that the Law on Food Adulteration created in 1895 and concerns about communicable diseases that can spread via milk and the diversity of chemicals that milk suppliers sometimes added to dairy products to make them look fresh, the testing determined only whether milk had been diluted with water. This is clear from the reports that were published in dailies following so-called milk raids. Milk that was regarded as suspicious had to be transported to the testing station in Mosonmagyaróvár (more than 100 kilometers to the north), as Szombathely did not have its own laboratory until 1930. Testing itself was carried out by a chemist from the laboratory station in Mosonmagyaróvár, which had gradually reached independence from the prestigious Academy of Agriculture operating in the same town. Based on the reports published in the dailies, there were at least 14 such raids in Szombathely between early 1916 and the end of 1923. The raids did not take place at equal intervals. Seven were held in the first year, between January 1916 and March 1917, but we know of only one more that was definitely held before the end of the war. There were four testing operations between April 1921 and October 1922 and two more in 1923. Generally, the reports noted that some 4,000 to 5,000 liters of milk were tested, which must have meant hundreds of barrels. In comparison, very little milk was found to have been diluted: between three and 15 barrels. This is surprising in light of newspaper accounts, according to which virtually all the milk on the market contained added water, sometimes (allegedly) as much as 50 percent.⁴⁵ The punishment for dilution was usually a fine, though it was legally possible to send perpetrators to prison for half a year. Thus, we can conclude that there was a large variation of milk quality on the market over time, and shortages were continuous for at least seven years. During this period, the business behavior of milk cooperatives remained in the spotlight.⁴⁶

44 Umbrai, “A fővárosi tejmizéria.”

45 *Vasvármegye*, April 28, 1923.

46 In terms of supply, there were relatively few independent retailers involved in the milk economy in the 1930s. Szombathely’s directory published in 1937 lists nine of them, although the questionnaire mentioned above noted 16 license holders. Apart from retailers, István Csere had a small milk processing factory handling 200 liters per day, and OMTK had a major firm in Szombathely which processed about 14,000 liters of milk, most of it in the form of cream, daily. The report listed the estates that sent milk to Szombathely but did not list the cooperatives that supplied the city with milk.

Milk-cooperatives between Autonomy and Centralization

Despite the fact that milk cooperatives had something of a dubious reputation in interwar Szombathely, around the turn of the nineteenth and twentieth century, many economic thinkers believed that these cooperatives could serve as adequate vehicles for improving welfare in rural areas in Europe and, more narrowly, Hungary.⁴⁷ Moreover, processes of testing, certification, and centralization of the milk economy brought distant rural localities into the national economy. In Hungary, yet another factor should be added: the expansion of the role of state in the supply chain of milk.

Vas County was one of the first centers of the milk cooperative movement in Hungary. Szombathely (as noted above, the seat of the county) was the site of the very first milk cooperative in 1881. Two decades later, the county bore witness to a second wave of establishing cooperatives. According to the registry of businesses in the county, there were at least 80 cooperatives registered that operated for various lengths of time.⁴⁸ Reports in the local dailies also indicate that the number of cooperatives underwent a boom in the first years of the twentieth century, although the numbers reported differ from the registry.⁴⁹ After World War I, the Kingdom of Hungary had to cede more than 70 percent of its prewar territory to the newly established or considerably enlarged neighboring countries, including ten of its biggest cities and millions of inhabitants, not to mention human and natural resources. Due to the accompanying economic crisis, many of the milk cooperatives ceased to operate. There was a new wave of establishing such entities in the early 1930s.

According to an economic historian, in Hungary, in 1935, there were 429 cooperatives operating as members of the aforementioned OMTK, which had been established in 1922. In addition to the cooperatives in the OMTK network, there were around 100 independent ones in Hungary.⁵⁰ In the state-centered structure that emerged in the early 1930s, it seemed necessary to bring every local cooperative into a state-controlled network to ensure a well-functioning milk economy.⁵¹ The idea of cooperatives gained a new meaning

47 See for example "A tejszövetkezetek 1900-ban," *Közlekek*, March 9, 1901.

48 MNL VaML VII-1/h.

49 See related articles in the dailies: *Vasvármegye*, June 21, 1900; *Vasvármegye*, July 5, 1900; *Vas*, April 7, 1901; *Szombathelyi Ujság*, February 9, 1902.

50 Hunyadi, "Az agrártermelés értékesítési láncai Magyarországon és Erdélyben 1945 előtt."

51 Balatoni and Szakály, "Tejipar," 304–5; Surányi, "A hazai korszerű tejgazdaság kialakulása," 36.

and new prominence. 1934 was something of a turning point in the history of milk cooperatives. In that year, OMTK provided a template for the rules and procedures for cooperatives that were to become members of the network. Many cooperatives reestablished or refashioned themselves accordingly. In 1935, Miksa Dűsing, the director of OMTK, boasted about the rate at which the network of cooperatives was growing.⁵² In 1934, the network produced and handled 82 million liters of milk, which constituted 20 percent of the national total. Moreover, by this time OMTK had become part of the administration of the milk market as one of the authorities responsible for issuing new licenses.⁵³ In his talk, Dűsing spoke of the need for a comprehensive law on cooperation and specific regulations for the relationship between the center and members of the network of milk cooperatives. Although such a law was not passed until the end of World War II, the ministerial decree 131.380/1937 FM. about regulating voting rights in OMTK cooperatives issued in December 1937 made it clear that the course of policy was centralization and expansion. According to standardized statutes, as of 1934, OMTK had the right to preview and modify the decisions proposed by the management of local cooperatives to the general assembly. The trajectories of the development of milk cooperatives converged towards a uniform structure between 1934 and 1947 and especially after 1942.

Due to the number of entities, Vas County offers a revealing case study on how milk cooperatives figured in the autonomous economic life of rural communities and how these cooperatives impacted the relationships between the state, society, and the economy in the interwar period. I will focus on the cooperative in Acsád because it formed comparatively early, was reestablished in the early 1930s, and has left enough traces in the archival documents to allow for calculations related to its business ventures. However, before turning to the specific cases, I must offer a few notes concerning the nature and content of the available sources.

Despite the comparatively large number of available sources concerning milk cooperatives in Vas County, it is not easy to interrogate these archival traces. Without analysis of intra- and extra community networks and the statuses of the founding members of cooperatives, there is little to say about the social capital behind them.⁵⁴ The statutes that applied to the milk cooperatives simply stated

52 Dűsing, *A tejszövetkezetek jelentősége és jövője*.

53 See Decrees no. 6860/1935 M.E and no. 8200/1935 F.M.

54 Garrido, “Plenty of trust, not much cooperation”; Beltran-Tapia, “Commons, Social Capital and the Emergence of Agricultural Cooperatives in Early Twentieth Century Spain.”

that members came together to form a cooperative to collect and collectively sell milk produced in individual households. The most important condition was that a member could not sell milk to anyone privately, only to the cooperative. The doors for membership were open both to women and to men. The statutes required respectability and trustworthiness as conditions to join. A board was responsible for taking care of the capital of the cooperative and for negotiating contracts for the sale of milk at reasonable prices. The size of the board varied between three and six people. There were no specific laws regulating the business undertakings of the cooperatives, so the same economic regulations applied to them as to companies. Before standardized OMTK statutes became the order of the day in the 1930s, the scope of milk cooperatives varied significantly. Sometimes clauses about the cooperatives' rights to regulate the composition of fodder or stable conditions appeared in the draft statutes but were removed from the final versions. Most cooperatives had their own hall where basic processing could take place. Milk cooperatives were to submit quarterly reports and lists of members to the court, and they were compelled to hold general meetings each year to authorize the accounts. The call for this meeting had to appear in a newspaper to assure the authorities that it was well-advertised.

The papers of the cooperatives do not allow too much insight into possible conflicts or negotiations within the cooperative. Regarding the political culture within the entities, it is important that through having to fulfil requirements that regulation demanded, and courts enforced, members of the board regularly encountered the rule of law. Office bearers also became acquainted with the link between financial accountability and the rule of law. This experience differed from seeing power and prestige ruling social life that were characteristic features during the interwar period in Hungary. Experiencing the power of abstract notions about rights and obligations carried a democratic potential.

We learn a bit more about the economic aspects of cooperative life even if we need to start with a caveat even in this sense: official documents that cooperatives produced do not tell where they sold milk. However, a questionnaire in the archives of the Ministry of Agriculture informs that in 1935 the authorities of the municipality of Szombathely believed that milk is brought to the city from a range of 25 kilometers. We may add to this figure that the availability of railway transport was an important factor in determining the range.

In fact, part of the reason why the milk cooperative in Acsád was one of the few that existed both in the early years of the twentieth century and during the Great Depression was that it had railway station and that the stop was close

to two other neighboring villages. Acsád is a village of around 600 inhabitants 16 kilometers to the northeast from Szombathely. The milk cooperative began to operate in March 1905. Its statutes did specify that all milk produced shall be offered to the cooperative but did not set any criteria for the quantity. This suggests that the board of the cooperative could estimate the quantity of produce and that it did not expect changes in the varieties that villagers kept.

In the first year of its operation, the cooperative sold 140,000 liters of milk to an unspecified butter making factory, probably the one in Sárvár. They received 11,500 *koronas* in return, meaning a price of eight *fillérs* per liter (one *korona* was 100 *fillérs*). This price is nearly equivalent with the conditions in contemporary Budapest, where producers received 40 percent of the retail price, which was 21 *fillérs* shortly after the turn of the century.⁵⁵ The members of the cooperative received slightly more than the price of the milk. This was possible because the cooperative also sold fodder on the market. In 1907, the price fell to 7.7 *fillérs*, but cooperative members continued to receive as much as they would have had the price remained at eight *fillérs*. In these two years, the butter factory paid an additional 589 and 629 *koronas*, respectively, for low-fat milk it sold consumers. Yearly profits were meager, and it clearly made sense to join the cooperative because it guaranteed a flow of income and not simply for the money received after shares at the end of the financial year. Regarding shares, we know that there were 166 shares for 79 members in 1906. In the first year, 104 members joined the cooperative and four left. In the second year, seven new members joined and five left. In the course of these changes of membership, every member had one or two shares. These figures also mean that one cow provided 860 liters of milk per year on average. If we take 270 as the figure for the number of days in a year when the cows were milked, this means hardly more than three liters per day per cow. Unfortunately, very few records were kept or have survived after these relatively detailed accounts.⁵⁶

Although the cooperative in Acsád continued its activities for some time in the 1920s, it had to be reestablished in 1934. The total number of shareholders in the cooperative rose from 46 to 74 by the end of 1935. These members held 177 shares in total. The cooperative in Acsád was unusual because it had a respectable urban member who was also of Jewish origin. In 1934, the largest shareholder was Dr. Ernő Pető, a medical doctor known as the first director

55 Umbrai, “A fővárosi tejüzem.”

56 MNL VaML VII/1/h T-1037 Papers of the Milk Cooperative in Acsád.

of the hospital in Szombathely and also for his experiments and efforts to rehabilitate disabled veterans of World War I.⁵⁷ Dr. Pető registered as a member of the cooperative in Acsád because he married Georgina, the daughter of the aristocrat Count Szegedy family, which had their base in Acsád. Georgina had 10 shares in the cooperative,⁵⁸ but a list prepared by the Cattle Breeders' Association of Vas County shows that the Mrs. Ernő Pető's herd was large: it was the eighth largest in the county, and she had 69 livestock in total.⁵⁹ In 1936, the cooperative sold 182,240 liters of milk and produced only 48 *pengős* of profit. (On January 1, 1927, the *pengő* replaced the *korona* as the currency in Hungary. In 1936, 1 US dollar was worth 5.2 *pengős*. The *korona* was exchanged at a rate of 1 *pengő* for 12,500 *korona*.) Although there is not enough data to calculate milk prices for the latter period, the basic formula does not seem to have changed: a relatively continuous flow of income and cash were the main advantages of being a member of the Acsád milk cooperative.

Overall, taking the example of the Acsád milk cooperative, these types of entities do not look as frightening as the inhabitants of Szombathely probably imagined them to be. Although we do not have data for the immediate interwar years, neither in the years around 1905 nor in the 1930s does the cooperative seem to have been tremendously profitable. As an institution, the cooperative simply added a new way of ensuring milk-producing households with a relatively steady flow of cash as well as some experience with the rule of law, cooperation, decision making, and the nature of markets.

Conclusions

In this essay, I have examined the political role of the sciences, commodities, and the idea of cooperatives in the local forms of the modern food economy and its supply chain in the interwar period in Hungary. I highlighted the importance of dense networks of both local and central institutions and rules in the milk market. In Vas County, a combination of these networks and the pressures of a shortage economy changed the social and political meanings of milk and dairy products in the immediate aftermath of World War I. Milk became a necessity for those perceived as the most vulnerable groups within the local society, such

57 Kelbert, *Dr. Pető Ernőné Szegedi Georgina*.

58 MNL VaML VII/1/h T-1037.

59 Kelbert, *Dr. Pető Ernőné Szegedi Georgina*. See also MNL OL K 184 issue no. 16, bundle no. 4762, year 1937. Államsegély a szarvasmarhatartó egyesületek részére a törzskönyvezett állomány után.

as mothers and children, and it also became a sign of dysfunctional rural-urban relations, individual behaviors, markets, and administration.

The news reports related to milk that were published in dailies reflect the ways in which a local urban community perceived the shortages and entertained ideas concerning their root causes and possible remedies. The persistence of shortages shows the inability of the post-World War I Hungarian state to intervene effectively and the impact of the behavior of businesses operating in the region, as well as the relevance of popular expectations faced by the municipality to provide a solution locally. In this situation, concerns regarding the stability of the milk market in the interwar years exerted an influence on ideas related to the design of markets and the physical spaces in which milk was produced and sold and even on the international (transboundary) political situation. In these spaces, bottom-up responses proved more significant than the efforts of the state and municipal administrations in determining the local conditions surrounding the supply of milk.

While many news reports suggested that the aggressive business strategy of milk cooperatives were at the heart of milk shortages, in fact these cooperatives were rather humble entities with very limited scope for profit both before World War I and in the years when the state-owned cooperative network began its expansion at the cost of the autonomy of milk cooperatives. Nonetheless, milk cooperatives provided a way to engage rural communities in the emerging milk market, allowing them to experience aspects of modern production and democratic forms of decision making and collaboration.

By the time of the outbreak of World War I, laboratories were junctures which brought top-down and bottom-up notions of modern food production together. They contributed to the emergence of the national economy in the interwar period by bringing the idea of scientific measurement and quality testing to rural areas and by inducing firms to experiment with new tastes. The introduction of scientific knowledge and expertise had the potential to modify local hierarchies, such as the hierarchies in labor and gender relations. Moreover, quality testing was important in redrawing boundaries and channels between localities. However, as the sources concerning laboratory analyses revealed, despite decades of research and practice, there remained uncertainties concerning the quality of the testing processes used to prove dilution.

In terms of its contribution to the secondary literature, this paper offers a case study applying Peter Atkins' notion of milk as material and Timothy Mitchell's thesis concerning the relevance of hybridity. While milk defied

engineering and scientific expertise, the attention given to the viruses that milk might carry dwindled, while sensitivity to the sale of diluted milk increased in the interwar period as a consequence of food shortages. Milk shortages were a cause and vehicle of public dissatisfaction. In line with Tiago Saraiva's point, starting from the early 1930s, the expansion of state control over the food economy was intertwined with the expansion of the supply chain of milk.

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