

Producing Bulgarian yoghurt : manufacturing and exporting authenticity

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Producing Bulgarian Yoghurt

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Producing Bulgarian Yoghurt

Manufacturing and Exporting Authenticity

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Introduction

On February 1, 2002, Bulgarian delegates at the World Trade Organization (WTO) session in Geneva demanded protection on yoghurt labeling to prevent producers in other countries naming their products “Bulgarian” or “Bulgarian-style” yoghurt. Bulgarian officials claimed that the Trade-Related Aspects of Intellectual Property Rights (TRIPS) Agreement incorrectly allowed the labeling Bulgarian or Bulgarian style yoghurt by any producer.¹ Producers using the label “Bulgarian yoghurt” without the qualities of that region would damage the product’s reputation, the Bulgarian delegates stated.² The officials also argued that Bulgaria was losing revenue and demanded international protection for its producers by amending the internationally sanctioned label “geographical indication.”³ Other WTO countries, confronted with a similar lack of legal protection for their regional products, agreed with the Bulgarians.⁴ The applicants suggested that TRIPS article 23 protecting wines and spirits should be extended to other products such as yoghurt.⁵

France opposed the Bulgarian efforts to benefit from an extension of Article 23 because French producers already routinely used the labels Bulgarian yoghurt and Bulgarian style yoghurt as generic terms and therefore believed that their practice was justifiably excluded under the TRIPS agreement.⁶ In the view of opposing WTO members, Bulgarian “as country name might not be eligible for protection as geographical indication.”⁷ The ongoing political struggle over geographical indications suggested that the category was not so much based on traditions and protection of indigenous knowledge but more a case of national and international politics, negotiations, and regulations.

Eight years after this failure to protect what Bulgarians considered their national product on the global market, another case directed international attention to yoghurt. In April 2010, BBC Athens correspondent Malcolm Brabant reported on a Greek man suing the Swedish dairy Lindahl for almost seven million dollars for offending Greek national pride and identity.⁸ Athanasios Varzanakos, a Greek immigrant who lived in Stockholm, was shocked when he recognized a Greek fellow countryman he knew in the mustachioed face featured on the containers of a product named Turkish Yoghurt.⁹ In an interview for Swedish Radio, Varzanakos explained: “I could not believe my eyes. It was a shock to see him [Greek fellow countryman] there suddenly, someone I knew.” He didn’t like it, he was upset

and wondered how it had happened. The British journalist managed to track down the man in question, a 75 year-old Greek named Minas Karatzoglou from Delphi. The BBC produced a short movie and several articles reporting on the legal case.¹⁰ When interviewed, Karatzoglou confirmed that his image had indeed been used without his authorization. Yet, what the patriot found most shocking was not the infringement, but that the Swedish dairy Lindahl had advertised the yoghurt as Turkish.¹¹ Expressing his indignation, he explained: "I am Greek. I feel Greek. I am from Delphi, which is an internationally renowned location for Greek history."¹² His lawyer Dimitris Dimitriou also pointed to the long-term political struggles between Greece and Turkey as the reason for the legal proceedings: "This is not a frivolous case. It is very serious. I think there is no bigger insult for a Greek than to be called a Turk."¹³ In defending the company, Lindahl chose to comment only on the intellectual property issue instead of responding to the patriotic argument. The Chief Executive of the company Anders Lindahl asserted: "We bought it [the photograph] from a photo agency, so assumed that everything was in order." Company officials did not deny the firm's use of a Turkish recipe for its yoghurt without explaining why it used a traditionally dressed Greek to promote the Turkish style product.¹⁴ Lindahl delegated a Turkish identity to a man with a distinctively long moustache, red hat and traditional costume, in an attempt to associate the Swedish company's yoghurt with an authentic Balkan product.

The two legal disputes show how much the national origin of a seemingly ordinary food like yoghurt has been challenged. Both reveal that food is not just nutrition but is also culturally and politically contested. The cases beg the question why an ordinary Greek felt compelled to sue a Swedish dairy company for patriotic reasons; why Bulgarians have insisted on international recognition of their Bulgarian yoghurt; and why the national identity of food has generated such strong politics, national conflicts, and patriotic sentiments. Once an unknown and exotic food in the western diet, over the past century yoghurt has become a globalized and highly standardized product which, like it or not, shows how popular yoghurt has become. Multinational dairy companies like Danone, Nestlé, Yoplait, Meggle, and others sell tons of yoghurt all over the world. Producers and nutritionists promote yoghurt not only as an ethnically-based product, but also as a nutritious foodstuff for a healthy modern diet.

To understand the socio-economic, political, and historical evolution of yoghurt as a national symbol, this research explores how Bulgarian yoghurt has come to signify authentic foodstuff. By studying how the authenticity has been created over time, this book aims to identify how food and culture shape each other. First of all I will explore how yoghurt was produced both in Bulgaria and abroad; then trace

how the transfer, diffusion, and appropriation of Bulgarian yoghurt's technology and know-how developed in what social actors defined as Western Europe.¹⁵ In particular, I examine how a food product can be construed as typically Bulgarian with unique characteristics distinguishing it from Greek or Turkish and how creating yoghurt's authenticity and national identity has helped to shape the processes of innovation, manufacturing, export, and consumption. This study examines these processes of authentication and self-stereotypization through the main social actors involved, from Bulgarian producers and scientists, to politicians and consumers.

The long-standing traditions in producing and consuming yoghurt, together with the Balkans' complicated political past, made the labeling of yoghurt a sensitive national issue. It became crucial when yoghurt travelled from the Balkans to the world market, first in the 1920s and later in the 1960s. Bulgaria, Greece, and Turkey have all claimed they produce and consume the only genuine, respectively Bulgarian, Greek, and Turkish yoghurt.¹⁶ Since then, each of these countries has fought to be recognized on the international food market as the true homeland of yoghurt. How can we explain these claims? How have they been embedded in historical, material, and cultural contexts? How has authenticity been created, especially in the case of Bulgarian yoghurt?

To explore these issues, this book concentrates on the following questions: 1) How, when, and why did yoghurt come to be perceived as "Bulgarian?" 2) How were "traditional" or "national" food products involved in creating a local, national, and European identity? 3) Which actors were driving those processes? The analysis focuses on the authentication of Bulgarian yoghurt by addressing its various political, economic, social, cultural, and symbolic dimensions. Bulgarian yoghurt's globalized production and distribution caused cultural adjustments to various new cultural contexts. Moreover, this book seeks to understand if and how the exchange of food across national borders contributed to a process of European integration that occurred not only on the political stage of the European Union (EU), but also under the radar through daily food practices. The case study of yoghurt lets us see what kind of national identity tensions have generated and articulated a broader-based European identity beyond the nation state. These questions of national identity are paired with questions about their material foundations. To do so, the research applies insights from the history of technology in order to trace the material construction and export of authenticity in the process of yoghurt manufacturing, distribution, and consumption. To form this approach, the research shares the analytical perspective of the academic network Tensions of Europe on the role of technology in the making of Europe and combines the tools involved in the history of technology and food studies.¹⁷

In the remainder of this introduction, I first present the relevant research approaches by elaborating on the interrelationship between food, authenticity, and identity before providing an overview of the current state of affairs in the dairy and yoghurt historiography. Next, I will zoom out to a wider focus to present the research dealing with consumption studies relevant for a country like Bulgaria. The last part is an overview of the sources and methodology as well as the overall structure.

Food, Identity, and Authenticity

All over Europe and the United States, dairy producers frequently label their products as Bulgarian, Turkish, or Greek yoghurt, disregarding the thorny question of product authentication or simply falling into the trap of succumbing to the national myths promoted by those countries. The cases with Bulgarian and Greek-Turkish-Swedish yoghurt show that the reference to a certain geographical and cultural locality has turned into a useful marketing strategy, enabling the diversification of yoghurt products, but has also been the focus of national pride. Assigning authenticity to yoghurt became a useful strategy for Western yoghurt producers to direct consumers' choice. American literary scholar bell hooks has theorized about the "commodification of otherness" by suggesting the logic behind the marketing of products, lifestyle, and cultures that are considered exotic: "[w]ithin commodity culture, ethnicity becomes spice, seasoning that can liven up the dull dish that is mainstream white culture."¹⁸ Authenticity generates different meanings for different actors, however. Global consumers might associate Southeast European natural, sugar-free, and fermented yoghurt products with the nutritive traditions of a Southeast European nation like Bulgaria; but this poses the question how the similarity in consumption and production patterns present in other Balkan countries sharing many culinary and cultural traditions might mislead consumers from distinguishing the exact region of yoghurt origin. The producers labeling yoghurt as Bulgarian, Greek, or Turkish, were directing consumers to the origin without questioning the authenticity of the product. While Western producers and consumers considered yoghurt an exotic healthy product, Balkan countries originally attributed different values. Nevertheless, in terms of technology and consumption, the recognition of yoghurt as Bulgarian, Turkish, or Greek has been culturally as well as economically crucial for the respective national identity.

Indeed, food, as shaped by culture, traditions, ethnicity, and geography plays an important role in creating national identity. Recent food studies pay particular

attention to the phenomenon of food authentication. At first glance, historical research on Bulgarian yoghurt might seem an interesting, but limited subject of study. A closer look, however, shows how yoghurt is closely tied to (Bulgarian) national identity, regional history, and daily life. American food historian John C. Super highlights why food should be considered an important issue for historical research: “food is the ideal cultural symbol that allows the historian to uncover hidden levels of meaning in social relationships and arrive at new understandings of the human experience.”¹⁹ Historians Carmen Sarasuà and Peter Scholliers have described how in recent decades, the history of food has adopted a cross-disciplinary analysis that integrates the anthropology of food, economics, sociology, and others disciplines, to understand the complexity that Super identifies. That wider perspective allows us to investigate the interaction among economic, political, institutional, technical, social, and cultural factors.²⁰ Researchers like social anthropologists Virginie Amilien and Jeff Pratt, rural sociologist Stewart Lockie, and sociologist Claude Fischler also explore local foods as a multi-faceted cultural entity and as a network of meanings through which foods are constructed as significant commodities.²¹ Those studies show that food is an ideal cultural symbol for historians to uncover hidden levels in the meaning of social relationships. The study of the history of food provides a unique research avenue into cultural patterns of consumer societies.²²

The Bulgarian anthropologist Evgenija Krāsteva-Blagoeva captures the recent trends in food studies by saying that at first glance, the connection between food and identity may seem “a bit strange,” but “food as a material, tangible phenomenon and nutrition as a specific mixture of biology and culture appear rather alien to the prevailing concept of identity.... Yet food has proved crucial for the formation and maintenance both of individual and collective identities.”²³ She elaborates on the first researcher to highlight the importance of food for forming a collective identity, the anthropologist Arjun Appadurai. Already in the 1980s, Appadurai and the Israeli sociologist Erik Cohen demonstrated that authenticity is a creation of modernity, related to the modernist concepts of uniqueness and individualism.²⁴ In 1981, he advanced the idea of food as “a highly condensed social fact” that acts as “a marvelously plastic kind of collective representation.”²⁵ The French sociologist Pierre Bourdieu, using sociological tools, also pointed to the distinctive function of taste and food in forming collective identities: “[t]aste classifies, and it classifies the classifier. Social subjects, classified by their classifications, distinguish themselves by the distinctions they make...”²⁶ Since the 1990s, the interrelationship between food, identity, and authenticity has been a hotly debated topic. The sociologist Gary Alan Fine provides a passionate explanation: “food reveals our souls”

because food not only plays a “central role in the connection of community” but that we also use “our diet to convey images of public identity.”²⁷ Pioneering food historians Sidney W. Mintz and Christine M. Du Bois conclude that research studies on food “have illuminated broad societal processes such as political-economic value-creation, symbolic value-creation, and the social construction of memory.”²⁸ Assessing the trends, the authors reflect on the values embodied in food, presenting them as both constructed and constructing.

The idea of the meaning of food being socially constructed has been raised by many scholars. So has the issue of authenticity in relationship to food. Israeli sociologist Uri Ram has boldly claimed that “nothing is ‘really’ authentic; everything is socially constructed.”²⁹ American sociologist Sharon Zukin has elaborated on the statement, seeing authenticity as “generated through perception of how a cultural object negotiates a set of standards and values, instead of emerging from a cultural object’s qualities.”³⁰ These standards and values differ from time to time and from place to place. Italian food historian Fabio Parasecoli emphasizes that the authentication of foods is connected to local identity through interaction: local identity is generated by the exchange when the differences are defined. Gastronomic identity is always related to otherness.³¹ When a social group considers a dish “local” or “typical,” that is a result of the inclusion of a particular good in trade and exchange. His approach shows that “until a product is consumed exclusively in its place of origin, it is not perceived as unique or specific to that particular location; it is just common food for those who produce it. On the other hand, when it becomes available to travelers or it is distributed elsewhere, its local and traditional traits acquire visibility for other communities.”³² The outcome is that the national actors also acknowledge certain elements of their culinary tradition as a distinctive gastronomic element, transforming them, as Parasecoli describes, into “important economic and commercial pluses.”³³ Thus he highlights the politics behind the food authentication and its economic and symbolic valorization. His contribution is in showing that authentication is a product of interactions.

American sociologists Josée Johnston and Shyon Baumann also agree that authenticity is socially constructed through interaction with others, but insist it should be seen as a rational construct.³⁴ “People understand food as being authentic if it can be characterized in certain ways *in relation to* other food, particularly inauthentic foods,” they write, concluding that these “authentic” foods are constructed through the perceptions of both food producers and consumers.³⁵ The sociologists suggest that to recognize and approve something as authentic food, there should be a connection between the actually existing and desired characteristics of geographic specificity, “simplicity,” personal connection, history,

traditions, and ethnicity. Food claiming authenticity should meet most of those expectations because one recognizes the authentic version of something by “comparing it to a set of established standards, conventions, or traditions.”³⁶ Building on earlier research, Johnston and Baumann offer a useful summary of the signifiers of authenticity.³⁷ The authors explain that nowadays authentic food “is distinguished as ‘quality’ artful food, and distant from industrial foods’ faceless, mass-produced lineage.”³⁸ Such signifiers of authenticity combine to create and recognize food authenticity.

Those advocating authentic food routinely point to tradition, as Parasecoli, Ashley, and Johnston and Baumann show.³⁹ Parasecoli insists the concepts of “tradition” and “authenticity” work in tandem, because “both play a crucial role in constructing what is ‘typical’ and in defining local, regional, or even national identities.”⁴⁰ He emphasizes that place generates concepts connected with rootedness, yields the concept of origin, and exemplifies this with idea of *terroir*, which includes traits not just like soil, climate, and other geographical elements but also the regional history, the traditions, and the legal definition of “geographical indication.”⁴¹ Social anthropologist Virginie Amilien’s analysis of the “*produits de terroir*” also shows the complexity of relationships between the local as a particular place as well as a domain of traditional knowledge.⁴² Amilien believes that local space is determined both by a geopolitical boundary and sociocultural divisions. Such studies show that the connection between the food and a specific place is a crucial characteristic in defining food as authentic. That connection is also built into the name of foods, ranging from Bulgarian yoghurt to Parmigiano di Parma.⁴³ According to Zukin, the authenticity differentiates a product from its competitors because it “confers an aura of moral superiority.”⁴⁴ All these authors discuss the meanings linked to authentic products, showing diverse semiotic levels on which authentic food interacts.

For Peter Scholliers, the process of food identification is “more than just sharing the common characteristics of a group or an ideal; it is a never-ending process of construction or even a ‘fantasy of incorporation.’”⁴⁵ The identification of food operates because of the interconnection between the language and practice, occurring “through discourse (as used by M. Foucault) and narratives (in the sense of how people think, tell and write about [their] lives),” he states.⁴⁶ Scholliers is also one of the leading historians in the International Commission for Research into European Food History (ICREFH), a group bringing together scholars working on the history of food and nutrition, and founded in 1989 on the initiative of Hans-Jürgen Teuteberg in Münster. The network aims to combine various disciplines and approaches to study the history of food in Europe since the late eighteenth

century. In this community, Europe is represented as an entity built on cultural, culinary, technological, ideological, historical, and political interactions. Their topics include the European diet, development of food policies and diffusion of food culture in Europe, health implications of eating and drinking as well as relationships between food, material culture, technology, science, and marketing.⁴⁷ Another important institution that applies a historical perspective to the study of food is the Institut Européen d'Histoire et des Cultures de l'Alimentation founded in 2002. Based in Tours, the organization has contributed to the food scholarship with a number of major international conferences, summers schools, and a journal *Food and History*. Scholars from disciplines like anthropology, sociology, and history are contributing to the emerging field.

Few food study scholars have discussed technology in depth.⁴⁸ While not taking it for granted, these scholars understand technology as a field of conflict and present the processes of consumer responses and negotiations at various levels, from food production, packaging, and transportation to storing and selling.⁴⁹ Acknowledging the historiographical gap in the literature, Sarasuà and Scholliers suggest that “technology may be welcomed as a common ground that brings together the time-spaces of the food chain.”⁵⁰ They find that “retailers and consumers have always influenced production in many ways: consumers’ preferences, snob effects, retailers’ sales techniques, advertisement et cetera, which makes it impossible to consider agriculture, retailing and consumption as a separate matter.”⁵¹ Historians studying technology often deal mainly with large technological (food) systems, neglecting the importance of everyday food technology. However, in the past decade, they have more openly focused on the mutual relationship between food and technology.⁵² Indeed, historians of technology have contributed to food studies, offering insights into how food technologies, specialized education, retailing, distribution and other material factors shape the social perception of food. What might be considered as authentic food is not just a symbolic construct but simultaneously a material object shaped by specific local and national technologies. Yoghurt is not only a symbol of national identity, but also a distinct technology. The connection between food studies and the history of technology is being driven by recent trends that present technology as both an artifact and a dynamic relationship between (human and non-human) actors.⁵³ Studying both the symbolic and technological dimension of food, this book applies the latest insights in food history combined with the tools of the history of technology.

Users and Consumption

The brief overview of the literature dealing with food authenticity shows that what might be considered as authentic food is shaped by diverse economic, technological, cultural, and other factors. The complexity of food as national symbol, but also as commercial good, makes the “cultural turn” in food studies often regard food from a consumer perspective without combining production and consumption in one analysis. Material studies and the user perspective of the history of technology offer an avenue to do so. While consumers are not ignored entirely, they are usually considered in isolation or separate from production. The manufacturing of yoghurt as national Bulgarian product will be studied not only as a scientific, political, and commercial construct. I question the role of national and international consumers in the process of authentication by studying how national and non-Bulgarian consumers’ concepts shaped the international translation of what was viewed as authentic Bulgarian yoghurt. In investigating the process, the research follows the new generation of scholars and historians of technology, who through their science and technology studies (STS) look at users and technology not as separate objects of research but as part and parcel of the process.⁵⁴ Nelly Oudshoorn and Trevor Pinch, reviewing the social construction of technology (SCOT) approach of users as a social group, show that users can construe radically different meanings of technology thanks to technology’s interpretative flexibility. That approach enables us to understand how the transfer of technology can affect meanings embodied in it. They insist that different social groups need to be taken into consideration in order to understand the shaping of technology. Oudshoorn and Pinch refer to such processes as “co-construction” or “mutual shaping” of social groups and technology.⁵⁵ Considering users as a “relevant social group” clarifies their role in yoghurt domestication because they modified its technology, giving the artifact a specific meaning.

The case study of Bulgarian yoghurt follows the history of technology approach by including the role of users as crucial in understanding the relationship between technological and social change. These user-orientated studies are significant because they show a different side to the conceptualization of what constitutes innovation and how users react. In the new scholarship, users are no longer seen as passive actors but as active participants in technological change by their interaction with technology.⁵⁶ Drawing on feminist scholarship, in 1982 already, historian Ruth Schwartz Cowan proposed the consumer-focused approach for understanding innovations, suggesting that users play a central role in influencing technological developments and change in technology.⁵⁷ Cowan introduced

the term “consumption junction” as “the place and time at which the consumers make choices between competing technologies” and identified this as a starting point for a user-centered history of technology.⁵⁸ Such a place lies in the middle of a “network of social relations that limits and controls the technological choices that he or she is capable of making.”⁵⁹ The Dutch research group on household technology, built environment, and food technologies, under the auspices of Ruth Oldenziel, Liesbeth Bervoets, and Anneke van Otterloo, sought to extend Cowan’s research for gender relations, publishing their findings in the Dutch language before translating them into English.⁶⁰ Building on these discussions, historian Johan Schot and social scientist Adri A. de la Bruhèze further elaborated on the consumption-orientated approach by focusing “on the mediation process between production (supply) and consumption (demand).”⁶¹ Exploring the role of mediation in technology development, they introduced the notion of “mediation junction” as “forums where mediators, consumers, and producers co-design new products.”⁶² By examining the mediation process between producers and consumers, the authors saw how to close the gap between production and consumption. Using this process of negotiation, producers and consumers could co-develop the product, incorporating users’ needs. Mediators are thus actors operating between actual consumers and producers.⁶³

Oldenziel and de la Bruhèze further theorized the concept of mediation junction for European history.⁶⁴ In two articles, “Europe’s Mediation Junction: Technology and Consumer Society in the 20th Century” and “Theorizing the Mediation Junction for Technology and Consumption,” they maintain that the mediation junction was not only ruled by the free market but by the triangle of the state, market, and civil society in various configurations throughout time. They believe that the interaction between all three has played a key role “in determining the nature and scope of mediation between production and consumption in Europe.”⁶⁵ Their interrelationship determined the room for negotiation. The authors insist that a specific historical context determines the complexity of mediation junction specific to Europe, and is thus nation-based, shaping national consumer interaction between the state, the market, and civil society. “If the state found consumers crucial for national goals, and civil society groups were active on behalf of consumers, the room for consumers to negotiate would be larger vis-à-vis the market than if the state had no interest in, or was even hostile to, the issue of consumption,” according to the authors.⁶⁶

In this vein, Oldenziel and de la Bruhèze contended that the planned economy was a specific configuration of state, market, and civil society. In that economic and social reality, the mediation practices differed as mediation was officially

sanctioned, but geared towards collective consumption. They indicate that despite the restrictions, citizens resisted the centrally organized economic policy: “in a sense to cope with shortages, they relied on the black market, barter, and their own inventiveness.”⁶⁷ Following their insights, Karin Zachmann, writing on the mechanization of housework, applied the notion “socialist consumption junction” to the situation in East Germany in the late 1950s. She concludes that communication between consumers and producers was “institutionalized in an attempt to construct, deliberately and in an orderly manner, a state-socialist consumption junction.”⁶⁸ The communist government used its state apparatus to incorporate (and shape) the mediation between producers and consumers. This contrasted with the western model, where mediation was realized through civil society organizations in collaboration with (but also outside) the state and the market.⁶⁹ The concept of a European, or even a socialist, consumption junction helps us understand the interplay between the Bulgarian state, national and international yoghurt producers, Bulgarian, and non-Bulgarian consumers.

Historian Małgorzata Mazurek seeks to understand, on the basis of the Polish case, the diffusion of technology and patterns of consumption and their “translation” by local actors.⁷⁰ In another contribution, she develops her ideas in collaboration with the British social historian Matthew Hilton. The discrepancy between the communist regime’s public promises and the impossibility to meet the material needs of its citizens, resulted, according to the authors, in questioning the political legitimacy of socialism on a daily basis.⁷¹ Many scholars have characterized socialism as a society where the desired goods were missing. Based on consumers’ personal memories, Slovenian social scholar Breda Luthar examined how in the 1950s and 1960s people in Yugoslavia experienced “shopping trips to Italy” against a backdrop of experiencing an economy of shortages. She analyzes the symbolic value and the public meaning of goods and the various practices to acquire material goods.⁷²

Dutch anthropologist Milena Veenis exposes other aspects of acquiring material goods. In the case of East Germany, she illustrates the enormous gap between the attractive promises of socialist ideology related to (material) growth, improvement and success, alongside the harsh everyday reality. The gap resulted in perceiving Western consumer-goods as attractive in an almost irresistible way.⁷³ Even though Veenis does not express it as such, the response to that appeal of Western goods was informal networks, which offered alternative ways to acquire consumer goods from the West. The absence of the logic of the free market, together with the restricted political freedom, prevented the formation of officially sanctioned mediators among the producers, the state, and the consumers. Their place

was taken by the traders' informal networks. Veenis and Mazurek remind us of the strong appeal of Western goods as powerful mechanism to establish informal networks or mediation to obtain the desirable goods, strategies so prevalent among Bulgarians and other East European consumers living under communism. Construing yoghurt as a national product actually represented an inverse process, offering a national product as superior to Western dairy products, a superiority formed by official networks of mediation between state representatives, dairy producers, scientist, and consumers.

The research traces the actors in technological innovations and the various configurations of mediation junction through three different historical and economic periods: early agricultural industrialization, communist planned economy, and the post-communist era of free market. Indeed consumers and producers under a planned economy were defined by the main characteristics of their regimes. Using all these historiographical insights, the thesis looks at users, technology and authenticity not as separate objects of research but as vital aspects in creating a national food product. The role of national and international consumers in building the image of yoghurt as Bulgarian, as well as their role for yoghurt technology development will be addressed.

Dairy Industry Scholarship

Bulgarian yoghurt has represented both a specific technology and a cultural, national symbol. In researching the importance of milk, Peter Atkins' recently published book entitled *Liquid Materialities: A History of Milk, Science and the Law*, is an excellent guide that takes on these broader developments in the dairy industry. Atkins refers to his work as "a history of the material that we call milk," an innovative approach to what he calls "the stuff in foodstuffs."⁷⁴ His argument is that "looking at material paths and entanglements of food is more fruitful than attempting an historical meta-narrative."⁷⁵ He describes the introduction of milk into people's daily diet and the kind of network that provisioned cities in the nineteenth century as the key factors for milk transformation, claiming it was not only a system of delivery but a vast transformative engine of social change. He traces the impact of social processes like urbanization, agricultural modernization, and food regulations on milk production, distribution, and consumption.⁷⁶ Atkins analyzes the role scientists and politicians played in those processes: scientists manipulated raw milk's characteristics in order to eliminate dirt and disease by introducing quality and health regulations together with policy makers.⁷⁷ Notions

of quality, natural, pure, dirty, and disease were not inherent but construed categories. He exhaustively shows how food, science, and culture became intertwined. The struggles leading to current production are presented in Anne Mendelson's *Milk: The Surprising Story of Milk through the Ages* and also in Hannah Valten *Milk: A Global History*, which partially analyzes the social and political forces driving the industrialization of milk and changes in consumption in cities and farming areas.⁷⁸ Indeed, most scholarly work focusing on milk undervalues consumers' role.

Barbara Orland's chapter, "Milky Ways. Dairy, Landscape and National Building until 1930," is one of the few contributions to dairy history that analyzes food as an aspect of identity formation.⁷⁹ Orland focuses on the development of specific regional dairy practices (referred to as local foodways), being socially construed. Regional identity became a commercial protection mechanism against innovative market changes, especially in the early twentieth century. According to Orland, food is simultaneously a means for authenticating national identity and a useful marketing strategy for a globalizing market. She concludes that dairy products claiming regional exclusivity are relicts of regional marginalization processes that destroyed the variety of products. She pays particular attention to the process of creating local and national products relating to the late nineteenth-century industrialization of the European dairy industry.⁸⁰ The internationalization of scientific and technological developments shaped dairy production and the establishment of a global dairy market.⁸¹ By studying butter, she analyzes how products considered local were made popular in new localities elsewhere. Thus, the development of local modern dairy industries and the rising international markets were connected processes. Moreover, she analyzes the modernization of agriculture as a shared European process because agricultural innovative ideas had been circulating beyond national borders since the 1870s. The rising consumption and milk production in Europe also redefined the national dairy industries. The consumption of milk generated new institutional structures and technical expertise while the demand for milk in expanding European cities also required the establishment of new structures and governmental regulations.

Historical research shows the flourishing interdisciplinary approach to milk studies. Following Atkins' example, I seek to trace the raw material for yoghurt production to understand how the industrialization of milk production shaped yoghurt production and consumption. Orland's skepticism of dairy products claiming regional exclusivity uncovers the marginalization processes of regional or national food. Her approach helps to better situate Bulgarian yoghurt as construct and present the processes and actors involved in its creation as a Bulgarian

national product. Likewise this thesis establishes the Bulgarian yoghurt story in international dairy history. Such a perspective traces the process of authentication of Bulgarian yoghurt as a global and national phenomenon, where the circulation of ideas, technologies, artifacts, knowledge, and people were crucial. The research asks what role did well-known actors in the yoghurt story like Elie Metchnikoff play. It does not focus exclusively on them, but also on actors who have remained unknown until now. I will also pay particular attention to dairy producers as key actors in the history of yoghurt making, as Yavuz Köse's research suggests. While he builds a Western centered yoghurt history like other scholars, this book presents the story of Bulgaria, where yoghurt is said to originate, as well as the Bulgarian and non-Bulgarian actors involved in yoghurt technology and transfer. In seeking to identify what stereotypes, myths, and symbols were attributed to Bulgarian yoghurt and the main actors, this thesis integrates consumer studies, the history of technology, rural sociology, microbiology, agrarian history and economy, and general history.

The current literature on yoghurt, while providing crucial information, does not offer the same level of insight. My book aims to understand the production, consumption, and export of yoghurt through the prism provided by milk studies. In particular, I will explore the links between food consumption and production practices and the symbolic construction of a food product claimed to be authentic (Bulgarian yoghurt). The small and specialized historiography of yoghurt, although useful, is however underdeveloped in applying a broader social analysis to the historical facts. A few publications briefly describe the history of yoghurt production, but from a microbiologist's perspective, thus deal technically with the scientific achievements in yoghurt production.⁸² Microbiologists Adnan Tamime and Richard Robinson discuss the biochemical changes and production models of yoghurt manufacturing, but they exclude the social and cultural understanding of yoghurt production and consumption. Similarly, dairy specialists Ramesh C. Chandan, Charles H. White, Arun Kilara, and Y. H. Hui in their chapter on yoghurt history, while providing useful data on the development of yoghurt consumption and its growth worldwide, state that "the popularity of yoghurt has increased due to its perceived health benefits," but omit to explain how yoghurt gained such popularity.⁸³ They fail to problematize the notion of yoghurt's therapeutic and health benefits by ignoring the processes that led to that assertion among scientists and consumers in the first place. Their evidence is limited to the statement that the "health-promoting attributes of consuming yoghurt containing live and active cultures are well documented."⁸⁴ What they do contribute to the

yoghurt scholarship is explain the role of milk fermentation, industrial yoghurt starter cultures, and the new industrial technologies for yoghurt production.⁸⁵

The few historians, sociologists, and anthropologists who have researched yoghurt from an analytical viewpoint, often repeat the story about the ancient origin of the product and the importance of the eminent French-Russian biologist and Nobel prize-winner Elie Metchnikoff (1845-1916) in popularizing yoghurt worldwide.⁸⁶ Metchnikoff was a distinguished biologist affiliated with the Pasteur Institute in Paris, whose research and theories on the health benefits of yoghurt consumption generated excitement in the public arena, prompting laboratories, chemists, and doctors to introduce numerous yoghurt products in France, Germany, the Netherlands, and Switzerland in the 1910s and 1920s. The historical narrative on Metchnikoff is a Western orientated approach that explains how yoghurt became part of the European and American diet, but neglects the product's national variations. It also disregards the meanings of national identity and the politics of yoghurt authentication. In most cases, the history of yoghurt is not treated as a central topic, but only in relation to the history of medicine, the development of a healthy lifestyle, healthy nutrition movements, and dairy history.

Historian of medicine Scott H. Podolsky addresses the popularization of yoghurt at length. Yoghurt introduction in Europe and America was not only a success story, but also the outcome of the many negotiations that led to the acceptance of this new dietary and therapeutic product. He, just like other historians in general, reports on the success of introducing yoghurt as a medicine and later as nutritious food in Western Europe. Podolsky traces the various stages of Metchnikoff's yoghurt theories: firstly the scholar's work with yoghurt preventing the infirmities of old age in the context of the living organism as intrinsically disharmonious, followed by the rejection of Metchnikoff's basic theories in Britain, and subsequent development from the 1920s to the 1930s.⁸⁷ Podolsky sees "the differences between the underlying philosophy of the theory and the philosophical expectations of its recipients" also as a factors influencing yoghurt acceptance or rejection.⁸⁸ His work thankfully shows the intellectual support of medical research in the 1900s, which provided the hidden meanings and thus a more comprehensive view of yoghurt popularization beyond the Balkan Peninsula.

Social historian Yavuz Köse goes beyond an exclusive focus on Metchnikoff by highlighting the commercial dairy producers' role in popularizing yoghurt. Between 1870 and 1927, the Anglo-Swiss milk company Nestlé developed a successful marketing strategy for its yoghurt on the European market and tried to adapt it to the Ottoman Empire market around 1915.⁸⁹ What the company neglected was the considerable differences between the Ottoman political, social,

and cultural context and the European context.⁹⁰ The article explores how local differences created a complex marketing environment for Nestlé, in which its success depended on the “ability to connect with different strata of society” and develop an adaptive global marketing strategy.⁹¹ Nestlé appropriated the technology of yoghurt production by studying the local practices before transferring the knowledge to a new context of Western Europe and by promoting starter cultures for its production as “oriental.”⁹² Köse’s article demonstrates how the international market was linked to the transfer of yoghurt-making practices from the Balkans to Central and Western Europe. He shows how the growing popularity of yoghurt in the 1910s and 1920s did not just depend on scientists, but also on producers and their successful marketing. None of these articles look at Southeastern Europe.

Thus far, Bulgarian-language publications on yoghurt have been written mainly by dairy specialists and microbiologists. With the exception of a short historical overview, they lack any in-depth social or historical analysis. Moreover, the historical account of yoghurt manufacturing suffers from a national bias as the authors study the history of yoghurt in the context of the nation state and national pride. The first Bulgarian handbook on yoghurt manufacture by Bulgarian veterinary surgeon K. Popdimitrov published in 1938 claimed that Bulgarians produced and consumed yoghurt from time immemorial. He presented the historical roots of Bulgarian yoghurt, reinforcing the notion that yoghurt was an indispensable component of Bulgarian nutrition and identity.⁹³ His historical overview was based on prominent historians such as Konstantin Jireček, Vasil Zlatarski, and Petar Nikov and on legends and myths at the time. Popdimitrov was using historical arguments to justify the “Bulgarianness” of yoghurt. That nationalist approach also characterized the works of other prominent Bulgarian dairy specialists like Nikola Dimov (1967) and Maria Kondratenko (1985, 2003). While informative, these works fail to study yoghurt from either an international or European perspective. We need such a perspective in historical research on the authentication of Bulgarian yoghurt to appreciate the mutual shaping of it as a global and a national product. It is necessary to concentrate on the circulation of ideas, artifacts, knowledge, and people.⁹⁴

The focus on the material and technological aspects of manufacturing yoghurt has not been entirely absent. For example, Georgi Atanasov and Ivan Masharov conducted technology-centered research in their retrospective on the state-governed dairy plant Serdika.⁹⁵ The authors provide a useful overview of the company’s problems in the 1950s and 1960s related to manufacturing the traditional home-made product and the dairy plant workers’ resistance to the introduction of new technology. The historical works, *Bulgarian Sour Milk*, *The Bulgarian Name*

of *Longevity* (2006) and *Museum Collection of Bulgarian Sour Milk* (2007), seek a broader understanding of yoghurt manufacturing and consumption, introducing important actors in Bulgarian yoghurt production and standardization. Unfortunately, both avoid further analysis of the connection between historical processes and actors. A good example of a social approach to the history of Bulgarian yoghurt is the book published to celebrate the 100th anniversary of the discovery of *Lactobacillus bulgaricus* (2005).⁹⁶ The book introduces the most significant figures in the history of Bulgarian yoghurt and offers biographical sketches in chronological order, enabling readers to trace the connections and mutual impact among the relevant social actors.⁹⁷

Bulgarian literature on yoghurt highlighting national pride, tends to exclude the non-Bulgarian actors, international scientific innovations, and social processes involved in creating a national product. The omission is glaring because the transformation of yoghurt production and consumption modes has been part of a larger process of industrialization and modernization of ongoing dairy processing throughout Europe and America in the nineteenth and twentieth centuries. Since milk was the raw material for yoghurt production, the transformation in milk production, distribution, and consumption had an effect on yoghurt. Therefore, examining Bulgarian yoghurt as part of international dairy history establishes this national product in a broader international perspective, allowing us to see how raw material is connected to product transformation, as well as the international processes, politics, and actors at work.

Sources, Methodology, and Structure

To respond to the question how Bulgarian yoghurt became “Bulgarian,” I have used various sources. As the book addresses many different time periods and processes, the various perspectives create a diachronic approach. The research follows the process of yoghurt production and the various changes in its technology, transportation, packaging, and distribution from the 1900s to the present. As the problems of identity and image creation were central for my research, I have concentrated on qualitative methods combined with a data analysis of visual and textual sources whenever possible.⁹⁸

For the period of pre-industrial yoghurt production (1930-1940), the main sources of information were the local and international newspapers and agricultural, dairy and meat trade journals. They were invaluable sources especially for understanding modernization, industrialization, and yoghurt standardization

from the 1920s until the 1940s. Agricultural, dairy, and meat trade journals were selected because they offer the best insights into how professionals discussed the problems of their day. That was especially true for the period of the 1930s to 1940s, when key figures, pressing problems, national policies, and international comparisons were publicized.

To study the transition from home-made to industrial production, it proved to be essential to examine the technical and scientific literature as well as the Bulgarian and international standards and legislation regulating the quality and safety of dairy and milk production. The European Commission's regulatory legislation on quality and safety control in the agricultural and food sectors was also a useful source.⁹⁹ Such sources also show the international and local actors and organizations for dairy, sanitary, health, and quality control. These materials provided valuable information on the transformation of national and international dairy regulatory mechanisms and how they influenced technological changes and innovations in yoghurt manufacturing.

The specialist journals, an invaluable source for the interwar period, proved ineffective for the post-Second World War period, especially when dealing with the political transformation in Bulgaria and the industrialization of the dairy industry. Dairy and trade journals, like other published material, were subject to censorship and Communist party propaganda. They are valuable sources for charting the official discourse and specificity of socialistic, social, scientific, and political life, but for a more elaborate study of dairy industrialization, yoghurt production and export, they provided unreliable and insufficient information. The State Archives in Sofia and Plovdiv, and the Archive of the Ministry of Foreign Affairs contained documentation on the development of Bulgarian agriculture and milk production as well as the export of expertise and technology. Thus archival materials became a predominant source for studying the development of industrial dairy production and yoghurt export policies. The Archives in Sofia had files on the state governed dairy plant Serdica (nowadays LB Bulgaricum Ltd), the major dairy producer in the Balkans from the 1970s until the 1990s. The Serdica Sofia dairy plant's official company documentation contained valuable information such as trade and sales statistics, technological processes, innovation activities, official and annual reports, and details of the export and import of technology and products.

The documents on the negotiations and contracts between the Bulgarian state and foreign firms reveal that the export policies and appropriation of Bulgarian yoghurt abroad were located in the economic enterprise Rodopaimpex's funds kept at the Central State Archive in Sofia. The export of yoghurt was both a process

of identity manufacturing and export, but also an example of a state embarking on international trade politics. In that sense, the Central State Archives have not been sufficiently investigated either by Bulgarian or foreign scholars. The specific policies and the way trade organizations and companies functioned abroad have been insufficiently explored, with one exception. In a book published in 2009, *The Empire of the Communist Interventional Trade Companies* (Империята на задграничните фирми), Bulgarian investigative journalist Hristo Hristov offers an analysis of communist trading companies based on archival research. Unfortunately, Hristov's study is a general overview of Bulgarian trade organizations but does not go into details. His analysis concentrates on the smuggling of goods and weapons through case studies of internationally based Bulgarian trade organizations. His analysis aims to present the international trading organizations' role in socialist Bulgaria, but only describes how these structures were used for illegal purposes. Concentrating mostly on the "dark side" of Bulgaria's communist regime, Hristov does not discuss why the international trade enterprises (ITEs) not only had exclusive rights to represent Bulgarian firms abroad, but were also the sole form of official trade communication between Bulgaria and the non-communist world.

My work concentrates particularly on the role those organizations played in exporting technology and know-how for the production of Bulgarian type yoghurt. The organizations responsible for the international trade in dairy products acted as mediators between two different political and economic systems. In that sense, locating and researching "Rodopaimpex" files was crucial for my research. The dual character of the ITEs – functioning abroad and subordinated to the Party-state regime in Bulgaria – shaped the trade organization as a hybrid form that appropriated the characteristics of both systems. That specific feature of the ITEs enabled the transfer of goods, people and knowledge between the power blocs and thus re-connected them.

While this study focuses on the specific industrial technology for yoghurt production in the late 1960s, documents relating to the period 1920-1940 proved to be extremely valuable. Through these primary sources, I reconstruct the different stages in the history of yoghurt production: home-made, pre-industrial, industrial, and post-socialist manufacturing. The major limitation of the above described sources is that they represent the official discourse and underestimate users' individual perspective on yoghurt production. The oral history methodology as well as the interviews with contemporaries of most periods were used as background source to make the story more vivid, but were also useful in a sense to verify my own material. Following the official line implied in journals and archival

sources, you encounter a consumer narrative repressed by producers and the state. My research does not merely center on the experts but also relies on the life stories and memoirs of “ordinary” people who remember early industrialization in the 1930s and 1940s, who have lived through the socialist period of forced industrialization, and who are experiencing Bulgaria’s performance in the EU. Their reflections on those changes are of particular interest. In order to present the full picture, I have included a collection of interviews, life stories, and biographies of ordinary people as well as leading figures in yoghurt manufacturing at the time.

Significant biographies are those of scientists Elie Metchnikoff, who popularized yoghurt beyond the Balkans to the rest of the world including countries like France, Germany, Great Britain, Spain, Italy, and to the United States; and Stamen Grigoroff, the discoverer of *Lactobacillus bulgaricus* in 1905; also entrepreneurs Isaak Carasso, the founder of Danone in 1919 and his son Daniel Carasso, who turned the firm into an international dairy leader, and many others provided a different perspective to the history of yoghurt.

All the interviews were conducted according to the methodology of the unstructured interview.¹⁰⁰ Furthermore, the records and analysis of personal experiences enabled an in-depth investigation of the processes of identity formation and self-reflection along with the stereotypes that producers, consumers, politicians, and citizens have created. Unstructured interviews were especially valuable if documents and journals published nothing on issues such as consumers’ perspectives or daily routines. Julia Grigorova from the Dr. Stamen Grigoroff Foundation helped by providing the contact details of key actors involved in yoghurt production and export. Thanks to these respondents, I have gained a deeper understanding of the process of producing, export, and consumption of Bulgarian type yoghurt. Two interviewees, Maria Kondratenko and Todor Minkov, were “insiders” from the State Governed Dairy Plant Serdika and major actors in industrial yoghurt making, particularly in the creation of innovative technologies and starter cultures. Kondratenko is a leading figure in Bulgarian industrial microbiology, as Head of the Laboratory for Clear Cultures from its establishment in 1965 to 1992. She led the research to select specific cultures for Bulgarian yoghurt. Since then, she has been in charge of a private laboratory for yoghurt and dairy starters “Genesis.” From 2007 to 2009, I conducted six in-depth interviews with her. The opportunity to talk to Todor Minkov, who worked in Bulgarian yoghurt export, was equally valuable. In the same years, I conducted two in-depth interviews with him. Minkov first worked as an engineer in Milk Industry Sofia before becoming its director from 1970 till 1982. He was one of the main actors in the export of starter cultures and technology in the 1970s and 1980s. As representative of the Bulgarian

Dairy Plant, he was involved in many negotiation processes relating to the export of Bulgarian starters and technology.

Of the actors who have helped create the image of Bulgarian yoghurt in recent years, I interviewed Zdravko Nikolov, Svetlana Minkova, and Julya Grigorova. The first two are managers at the leading Bulgarian dairy company LB Bulgaricum, the plant that after the political changes in 1989 was excluded from privatization because it was considered the preserver of Bulgarian know-how and traditions in dairy production. Zdravko Nikolov is the manager of the Research Laboratory and has lengthy experience in the dairy industry, and perfect knowledge of the EU standards for quality and safety control. Minkova is Deputy Executive Manager of licensing and R&D, responsible for the development of new products and involved in many international negotiations. Grigorova, although not involved in the yoghurt production process, remains one of the Bulgarian activists who is promoting Bulgarian yoghurt both at home and abroad as grand-daughter of a main actor in the story of yoghurt Bulgarization, Dr Stamen Grigoroff, who discovered *Lactobacillus bulgaricus*. In his honor, she founded the “Dr Stamen Grigoroff Foundation” in 1996 and also established the Bulgarian Sour Milk Museum in her grandfather’s home village.

As an auxiliary source, by applying the snow ball method, ten unstructured interviews were conducted with ordinary Bulgarians who had kept alive their memories of pre-industrial yoghurt production and consumption (1930-1940). Bulgarian yoghurt consumers (1960s-present), and contemporary producers of home-made yoghurt shared their yoghurt related stories and experience; these have particular value as user perspective on yoghurt’s transformation in the various research periods.

As the research concentrates on *how* and *what* is communicated about food, yoghurt advertisements popularizing and appropriating common and uncommon products and culinary practices are a valuable source. Commercial video clips and promotional material helped with my academic inquiries. Interpreting commercials as historical evidence has shed light on social and cultural patterns that influenced the circulation of meanings and practices embedded in yoghurt consumption. New social media like internet forums and blogs also form part of my research as a new means of construing meanings and practices adopted by consumers.

The use of qualitative methods does not exclude quantitative analysis. I used statistical data to trace the economic aspect of yoghurt manufacturing. This revealed market developments, changes in yoghurt production as well as consumer

preferences from a commercial viewpoint. However, I have embedded the statistical data in the overall qualitative design.

The book is structured chronologically and thematically. It starts with two chapters dedicated to the introduction of yoghurt by scientists in France and Great Britain around the early twentieth century. The first chapter focuses on the transfer, diffusion, and appropriation of yoghurt technology and know-how to France and Great Britain in the 1900s. Two scientists played major roles in attributing a Bulgarian origin to yoghurt, the scientist Elie Metchnikoff and the PhD student Stamen Grigoroff. Metchnikoff's interest in the beneficial effects of yoghurt started in the 1900s. Bulgarian student Grigoroff isolated the strain of *Lactobacillus* responsible for milk fermentation in 1905. His discovery established the connection between the place Bulgaria and the product yoghurt, but also facilitated a new market for yoghurt ferments. Metchnikoff generated excitement in members of the public interested in health issues and the world of science.¹⁰¹ As a result of yoghurt's popularity, laboratories, chemists, and doctors distributed yoghurt and *Lactobacilli* as medicine in the 1910s. The second chapter discusses the cultural adjustments and technological result of yoghurt transfer in a new cultural context of industrial dairy production. The adaptation to the new market, consumers, and nutritive habits went hand in hand with the attribution of Oriental and Bulgarian authenticity to yoghurt. This study maps the process of creating an image of Bulgarian yoghurt outside Bulgaria as a successful marketing strategy, adjusting this traditional product to broader consumer patterns.

The second thematic and chronological focus (chapter 3) turns our attention to how Bulgaria's dairy sector was modernized in the 1930s and 1940s. This meant reorganizing the basic ingredient for yoghurt production: milk, in itself a part of the general transformation of Europe's industrializing dairy sector. Chapter three takes us to the appropriation of new scientific practices and technology for milk production, distribution and quality control, which all had a significant effect on yoghurt manufacturing. The growing urban population required standardized, mass produced yoghurt. To guarantee yogurt quality for the cities, scientists established characteristics which private dairies upheld as "typical Bulgarian yoghurt." The modern scientific approach generated its own knowledge and practices for yoghurt production but also transformed yoghurt from a typical home-made into a commercial product thanks to the adaptation of scientific knowledge. Instead of regional variants, the standardization of mass produced yoghurt led to one universal "ideal type" of yoghurt. The label said "good-quality, real Bulgarian soured milk," embodying a nationalistic policy of authenticating the product.

The third focus centers around Bulgarian yoghurt technology, starter cultures and know-how in the 1960s, and their export from the 1970s on. Chapter four looks at the large-scale, highly mechanized, state-governed dairy plants following the communist regime's industrialization efforts. The newly established scientific and R&D centers developed Bulgarian starters while new technology for export became a subject of national pride. The politics of that export, notwithstanding the limitations of the Cold War, are analyzed in chapter five (1970s-1980s). Bulgarian producers exported not only yoghurt or the technology for its production, but also stereotypes, myths, and symbols. On their part, by appropriating yoghurt which was considered a traditional Bulgarian product, dairy companies in industrializing countries like France, Germany, and Finland further reinforced the image. The appearance of Bulgarian type yoghurt on foreign markets changed the context of yoghurt consumption and adapted it to the specificity of the local markets.

Finally, chapter six sums up the transition from a centrally planned to a market-driven economy that went hand in hand with the parallel process of adaptation and application of EU directives. The diversification of the Bulgarian market after the collapse of communism in 1989 made, for the first time, the image of yoghurt an emblematic national product that became increasingly contested. Decentralization, international players, and the fluctuating quality of yoghurt characterized in the 1990s and 2000s made identifying the product problematic. Among Bulgarian consumers, it raised questions about the "authenticity" and "naturalness" of those industrial yoghurts. That crisis in yoghurt identification led to a transformation of the evaluation of what was genuine Bulgarian yoghurt. Those recent processes show once more the dynamic of symbolic values attributed to an authentic food, a dynamic that the thesis will follow through four historical periods to discover why and how the national identity of food generates strong political and patriotic views. That deconstruction of Bulgarian yoghurt authenticity is a journey through the socio-economic, political, and historical evolution of yoghurt as a national symbol.



Chapter 1

Bacillus of Long Life around 1900

To understand how Bulgarian yoghurt acquired its identity, we first need to examine the transfer, diffusion, and appropriation of yoghurt technology and know-how to France around 1900. As the transfer of technology and knowledge played a significant role in the authentication of food products, this chapter traces how and why yoghurt attracted the attention of European scientists in the early twentieth century. French-Russian biologist Elie Metchnikoff, working in Paris, played a major role in introducing and generating excitement in Bulgarian yoghurt both within a Western transnational scholarly community and the public at large. Metchnikoff's ideas on longevity were presented in popular national and local newspapers dealing with politics and economics as well as issues on health and culture. The readers of such media were mostly urban educated people.¹⁰²

His fascination with yoghurt was influenced by Bulgarian graduate student Stamen Grigoroff, who had identified a lacto bacillus in home-made yoghurt brought from Bulgaria that caused milk to ferment and turn into yoghurt. Metchnikoff theorized that the lactic acid bacilli were responsible for the beneficial effects of yoghurt on the intestinal bacterial flora. Based on Grigoroff's findings and others' conjectures, Metchnikoff took the first steps to establishing an almost mythical connection between Bulgarians, yoghurt, and longevity.

Metchnikoff's Recipe for Longevity

Ilya Ilych Metchnikov (1845-1916), more popularly known as Elie Metchnikoff, was a Russian biologist and founder of the scientific field of immunity. He had many research interests including the nutritious benefits of yoghurt, which he explored in the first decade of the twentieth century. His reputation as a distinguished bacteriologist, affiliated with the Pasteur Institute in Paris, one of the most important science centers in Europe, shaped the public response and the impact of his theories. In 1915 already, the prominent British journalist Charles Dawbarn dedicated a celebratory chapter to Metchnikoff's impact on French and

international science in his book *Makers of New France*.¹⁰³ Not since Pasteur, had there been a “scientific figure of quite the eminence of Elie Metchnikoff ... He is not merely a biologist and bacteriologist, but a great philosopher as well...”¹⁰⁴ The praise for the scientist did not stop here: “[h]is fame is tremendous” because of his immense popularity in France, England, America and Germany with the reading public.¹⁰⁵ Because of his research on the effects of nutrition on ageing and achieving a long life, the popular press called him “the apostle of longevity,” a pseudonym originally coined by Dawbarn.¹⁰⁶ Thanks to his wide ranging interests and research projects, Metchnikoff became a key player in the modern fields of immunity, bacteriology, and zoology. He developed the theories of cellular immunity, the applications of phagocytic theory, and the biological doctrine of inflammation.¹⁰⁷ In recognition of their work, Metchnikoff and German bacteriologist Paul Ehrlich shared the Nobel Prize for Physiology of Medicine in 1908.

Metchnikoff began his studies at the University of Kharkiv in Russia and the Universities of Giessen, Göttingen, and Munich in Germany. Between the 1870s and the 1880s, he lectured at the University of Odessa and worked in Italy and France. In 1888, following his collaboration with Louis Pasteur, Metchnikoff was invited to the Pasteur Institute, where he remained for the rest of his life.¹⁰⁸ In further acknowledgment of his achievements, he was appointed deputy director of this Institute in 1904.¹⁰⁹ He passed on his knowledge by surrounding himself and mentoring young researchers of various nationalities like Michael Cohendy, Georg Belonowsky, Alan Michelson, and David Leva.

Although Metchnikoff pioneered various scientific fields, what made him popular well beyond the world of science, were his studies on aging and, as he named it, intestinal putrefaction. After 1900, he studied how the human body destroys harmful microorganisms. His work on phagocytosis, which had won him the Nobel Prize, uncovered some answers, but many questions remained. Having developed his theory of immunity, he focused on the scientific understanding of the aging process in order to discover how one might influence or postpone the effect of aging in the human body. His research and philosophical musings on aging and intestinal decomposition resulted in two popular science books written for a larger audience: *Etude sur la nature humaine, Essai de philosophie optimiste* (*Nature of Man, Studies in Optimistic Philosophy*) published in 1903 and *La Vieillesse* (*Old Age*) a year later.¹¹⁰ In *Old Age*, he wrote: “it has often been said that old age is a kind of disease. In fact, the great resemblance between these states is incontestable.”¹¹¹ The idea of human death as a disease had become popular in the nineteenth century. One particular study of the mortality rate of various social classes by French surgeon Louis René Villermé had led to the conclusion that

“death was an economic and social disease.”¹¹² In exploring aging, Metchnikoff borrowed Villermé’s notion of physiological changes as a social disease.

Such a social approach to studying human disease influenced Metchnikoff’s theories of how to prolong human life. Indeed, according to sociologists Kevin Fitzpatrick and Mark La Gory, the key belief of scientists of Metchnikoff’s generation was that “health and behavior are intimately connected and that improvements in health require changing people’s patterns of behavior.”¹¹³ Metchnikoff expanded on these beliefs in his *Essais optimistes* (translated into English in Europe in 1907 and the following year in the USA as *The Prolongation of Life*). Similarly, he applied medical insights to human behavior, reinforcing the idea that following a better lifestyle might prevent certain health problems, a scientific notion still with us today. Metchnikoff lent scientific support to social ideas from the nineteenth century when public health movements first promoted the idea that there was a relationship between health and social behavior.¹¹⁴ Many hygienists or naturalists, as they called themselves, in professions ranging from physicians to pharmacists, chemists, engineers, and veterinarians to administrators, promoted a regime of ascetics and life close to nature.¹¹⁵ Sanatoria and natural treatments like naturopathy, therapeutic nudity, heliotherapy, hydrotherapy, nutritive diets (such as vegetarianism), and special exercises became all the rage.¹¹⁶ Metchnikoff suggested: “a change in nutrition and a different lifestyle would contribute to healthy life: a specific lifestyle could delay the signs of aging.”¹¹⁷

Based on his laboratory work in 1905-1906, Metchnikoff hypothesized that decomposition in the human gastrointestinal tract generated a secretion of toxic components. He believed that the intestinal lumen absorbed those components, thus causing major changes in the body, such as the alterations that we refer to as aging and, ultimately, death.¹¹⁸ After 1907, he devoted his studies to finding agents that might arrest the intestinal disintegration and thus postpone the aging of the human organism.¹¹⁹ His research reinforced the idea of “autointoxication,” the process of the body’s continued self-poisoning resulting from the decomposition of toxins in the colon. The term had been popularized and promoted by French pathologist Charles-Joseph Bouchard in the late eighteenth century.¹²⁰ What the Russian scientist added to the theory, was a study of the causes and possible treatment of that physiological phenomenon.

Historian of medicine Scott H. Podolsky describes how definitions of wellness and harmony often overlapped in the late nineteenth and early twentieth century. Healthiness was conceived as an expression of harmony, while pathology

represented “a temporary deviation from such an underlying state.”¹²¹ Like his contemporaries, Metchnikoff based his ideas about health on the theory of the disharmonies of the human constitution, but he was the first to believe there was a rich source of harmful microbes, intestinal flora in particular, inhabiting the body.¹²² He argued that the large intestine was a large waste reservoir in the process of digestion, suggesting that the organ was useless to humans.¹²³ This interpretation was based on the theories and practices of Scottish surgeon William Arbuthnot-Lane, who believed that the colon was unnecessary, and advised colectomy, an expensive and risky procedure, as a solution for autointoxication. While supporting the removal of the bowel to prevent toxins decomposing in the colon, Metchnikoff suggested another treatment: fighting the harmful putrefactive microbes inhabiting the intestines.¹²⁴ To guarantee better functioning of the human intestinal flora, Metchnikoff recommended introducing microorganisms to the colon to fight those causing intoxication, thus achieving a balance or harmony in the “large reservoir for waste.” He reinforced the popular notion that the food people consumed affected their intestinal flora and therefore the regulation of food intake would influence the microbes in the intestines. Metchnikoff focused on analyzing nutriments that had anti-putrescent effects.¹²⁵ As preventive measures against disintegration, he warned people not to consume raw food, recommended reducing their intake of meat, and prescribed regular physical exercise.¹²⁶ He believed man’s normal diet was slowly poisoning the body and weakening its defense.

The popular interest in Metchnikoff’s research on autointoxication occurred around the same time as European citizens in the rapidly growing and overcrowded cities as London, Paris, Berlin, and Vienna were experiencing widespread intestinal problems such as diarrhea, constipation, and infections. In 1921, American bacteriologists Leo F. Rettger and Harry A. Cheplin observed that in their time, “[n]o phase of the subject has been given more attention by investigators than the bacteriology of the digestive tract.”¹²⁷ Historian of medicine James C. Whorton confirms their observation: the constant fear of infections was feeding the anxiety of the people and encouraging studies and therapies for their prevention.¹²⁸ He explains that those concerns were connected to “urban filth, pollution, and dirt as the cause of epidemic disease.”¹²⁹ Health reformers and social critics in the late nineteenth and early twentieth century believed that intestinal problems resulted from the changed lifestyle in urban centers: “constipation was caused by the unnatural pressures associated with modern life in crowded, industrialized cities.”¹³⁰ To fight these infections, scientists promoted strict hygiene measures and specific diets; alternative medical treatments were booming: “patent medicines, laxatives,

mineral waters, bran cereals, yogurt, electrotherapy, calisthenics, abdominal exercises, enemas, intestinal irrigation, rectal dilation devices, even surgery to remove intestinal kinks.”¹³¹

Metchnikoff took a special interest in yoghurt consumption as an alternative treatment for intestinal discomfort. In his *Essais optimistes* (1907), he stated that the lactic acid bacteria introduced to the human intestines produced a lactic acid that stopped the growth of putrefactive microorganisms. He developed the hypothesis that the regular consumption of yoghurt and fermented milk had an anti-putrescent and antiseptic effect due to lactic fermentation.¹³² Regular consumption of fermented milk would affect the intestinal micro-flora positively and save the human organism from autointoxication by reducing or even eliminating decomposition, he believed. That conclusion was based on the assumption that if lactic fermentation had been used for centuries to preserve various foodstuffs, it might affect the harmful intestinal micro-flora. Metchnikoff felt that although the consumption of any kind of fermented milk was desirable, sour milk was the most preferable. In his opinion, “*kephir* was not recommended for regular long-term use,” because it combined lactic and alcoholic fermentation, and contained almost one per cent alcohol.¹³³ As alcoholic fermentation was deemed undesirable, Metchnikoff focused his research on the other product based on lactic fermentation: “soured milk.” In his quest to unlock the mystery of what made people age and how life could be prolonged, he became interested in fermented milk and in the work of one young researcher, Stamen Grigoroff, in particular. Like other researchers of fermented milk, Metchnikoff used “soured milk” and “yoghurt” interchangeably.¹³⁴

Metchnikoff’s promotion of yoghurt as treatment for a number of intestinal problems generated interest among scientists and the reading public of popular science. What made his theories unique was that he connected the therapy of intestinal problems to the idea of longevity. The magical cure that would improve health and prolong life was soured milk, and in 1907, Metchnikoff published specific details relating soured milk to longevity and locality.¹³⁵ He used data from German scientist Bernhard Ornstein and demographer M. Chemin, who proved the existence of many extremely old people in Greece, Serbia, Bulgaria and Rumania.¹³⁶ The numbers in Chemin’s unpublished work showed that “in 1896, there were more than five thousand centenarians (5,345).”¹³⁷ Metchnikoff assumed that these numbers were probably exaggerated.¹³⁸ Although Ornstein’s and Chemin’s research focused on the entire Balkan region, Metchnikoff restricted his focus to Bulgaria and excluded the other regions, claiming that the Bulgarian scientist Stamen Grigoroff had intrigued him with the phenomenon of Bulgarian

centenarians and their habits.¹³⁹ When Metchnikoff published concrete data on the number of centenarians in Bulgaria, he singled out their simple lifestyle and consumption of large amounts of yoghurt on a daily basis.¹⁴⁰ Unfortunately, neither of his studies explains how he collected the information on Bulgarians' habits. Perhaps more significantly, Metchnikoff established an almost mythical connection between Bulgarians – people who lived healthily and attained a ripe old age – and their diet, without examining other Balkan regions.

Metchnikoff advised the regular consumption of fermented milk products, maintaining that the lactic acid bacilli had a beneficial effect on the intestinal bacterial flora; this became popular as the “soured milk” or “*bacillus bulgaricus*” treatment. His theories were widely adapted between the 1910s and 1920s by those interested in health issues. By 1915, Dawbarn referred to the encounter of lactic acid bacilli and intestinal bacteria as a fight between good and bad microorganisms and wrote: “His [Metchnikoff's] diet is a matter of definite calculation; he balances one kind of microbe against another, and takes care that the right side wins in the intestinal battle.”¹⁴¹ People who followed Metchnikoff's work with great passion became interested in getting the “elixir of long life,” as yoghurt was now called. The claim helped lactobacillus cultures to become popular widely and quickly. Yoghurt combined the cultural authority of a scientific discovery with people's desire for longevity. That gave birth to a new European fashion, but also to a new European myth: the special place and role of Bulgarian yoghurt in Europeans' healthy lifestyle. We now turn to the young scholar Stamen Grigoroff, and the part he played in popularizing Bulgarian yoghurt as the elixir of long life.

Metchnikoff, Stamen Grigoroff, and the Bulgarian Bacillus

In 1905, twenty-nine year old Bulgarian physician Stamen Grigoroff (1878-1945) was involved in conducting experiments at the Medical University of Geneva. His research led to the discovery of the lactic acid bacillus, a component transforming milk into yoghurt. The young scholar belonged to the generation of Bulgarian scientists of the late nineteenth and early twentieth century who were European in their education and orientation. The newly established independent Bulgarian state (1878) lacked institutions of higher education and therefore encouraged young Bulgarians to pursue their education abroad. When they returned, that generation became an important factor in the political and industrial modernization of Bulgaria. Grigoroff was one of those young patriots, who chose to return home rather than stay at prestigious institutions in Austria, Switzerland, France,

Russia, Italy, Germany, Great Britain, and others. Inspired by nationalist feelings, they were eager to build up a powerful Bulgarian state that had been fashioned out of a power game between Russia and Great Britain in 1878. Grigoroff first graduated from the Faculty of Natural Sciences at the University of Montpellier in France.¹⁴² Finishing his studies there a year early, Grigoroff followed his passion and decided to become a doctor. His biography, *In the Beginning Was the Family Memory*, includes a fragment of a letter he wrote to his father, just after graduating. It illustrates Grigoroff's passion to study medicine: "I had dreamed about it ever since my childhood and now it has come true. I am so grateful that you made this possible. ... Nevertheless, something keeps me awake at night. I have nurtured a desire and it has entirely overwhelmed me, I wish to get a degree in medicine." The letter also expressed his nationalist passions: "I believe it is medicine that will make me useful to all who are ill or suffering in my beloved native land."¹⁴³

To study medicine, Grigoroff moved to the university in Geneva, where in 1903 he became an assistant of the prominent French bacteriologist Vincent Massol. A year later, his work focused on isolating the microorganism that caused the fermentation of Bulgarian soured milk. Grigoroff worked with samples of soured milk which he had brought from his native village, Studen Izvor, near the town of Trun.¹⁴⁴ According to his biography, in 1904, a year before finishing his medical studies, his father could no longer finance his son's education. This forced Grigoroff to return to Bulgaria, where he married a woman named Darinka from Trun. His wife, however, insisted that Stamen should finish his studies and convinced her family to support him financially. Several weeks after the wedding, Grigoroff returned to Geneva with home-made Bulgarian yoghurt preserved in the region's traditional container called a *rukafka*. In 1905, after a year of experiments, Grigoroff discovered three different microorganisms and named them *Bacille A*, *Microcoque B*, and *Streptobacille C*.¹⁴⁵ *Bacille A* was a small rod, which caused milk to curdle and turn into yoghurt. Grigoroff referred to this microorganism as *lactic acid bacillus*.¹⁴⁶ The other crucial bacterium was categorized as *streptococcus*, later named by the scientific community *Streptococcus thermophilus*. In the same year, Grigoroff published a full description of his discovery in the scientific journal *Revue Medical de la Suisse Romande*.¹⁴⁷

In his publication, Grigoroff gave details about the local use and home-made preparation of fermented milk in Bulgaria, explaining that in some parts *kiselo mleko* (literally translated as soured milk) was eaten almost exclusively by peasants and by others mostly in summer.¹⁴⁸ Grigoroff also provided the scientific world with a description of the technology, stressing that the crucial elements of yoghurt making were the boiling of the milk and then chilling it to 40-50C° before infusing

a small amount of soured milk from the previous day. “After the introduction of yoghurt making bacteria, the container should be kept as long as possible at a constant temperature.”¹⁴⁹ Grigoroff described the process:

“Au bout de huit à dix heures, suivant la saison, le lait est pris et forme au fond du vase un gâteau blanc assez compact qui, lorsqu’il est intact, ne laisse exsuder qu’une très petite quantité.... Le ferment que l’on garde pour préparer le *kissélo-mléko* et qui provient toujours d’une opération antérieure est désigné en bulgare sous le nom *Podkvassa*.”¹⁵⁰

The article was the first publication of instructions for traditional home-made Bulgarian yoghurt production. The main achievement, however, was that Grigoroff had identified the precise agent responsible for yoghurt production: the organism he called *Bacille A*. The discovery of that microorganism enabled further research of its activity. While Metchnikoff’s research on the prolongation of human life had made yoghurt fashionable, the discovery of the exact agent of milk fermentation was far more interesting and made his theory about disintegration and longevity much more concrete.

After Grigoroff had identified the agent causing milk fermentation, his supervisor Professor Vincent Massol wrote to his colleague Metchnikoff at the Pasteur Institute in Paris in 1905:

My dear friend,
My assistant, Stamen Grigoroff, a Bulgarian Slav, has taken me by surprise with his astonishing perseverance in research. He is no ordinary fellow and it seems that you are the one to benefit from him. Having carried out numerous experiments in my laboratory, he has managed to discover and isolate the agent that causes the fermentation in Bulgarian soured milk. His leavening sample was brought directly from Bulgaria. Your own work is inspired by the ambition to discover the means of prolonging human life. Surrounded by your remarkable phagocytes, as you are, think about Bulgarian soured milk and that rod-like bacillus discovered by Stamen Grigoroff; I have observed it personally under the microscope.¹⁵¹

In response, Metchnikoff invited the PhD student to give a lecture at the Pasteur Institute. Unfortunately, no papers documenting the delivery of such a lecture have been found. Instead, notes kept by Grigoroff’s granddaughter and biographer, Julia Grigorova, remain the only source of information.¹⁵² Based on her father’s recollections, she reconstructed this significant event in her grandfather’s life. Her grandfather reported on the discovery of the lactobacilli in his lecture at

the Pasteur Institute. For the purposes of scientific demonstration, he brought a bowl of Bulgarian yoghurt produced in the laboratory and a microscope to display the isolated microorganisms. Unfortunately he did not bring the home-made yoghurt from Trun because of the product's perishability. Grigoroff sought to preserve the live conditions of the microorganisms contained in the home-made yoghurt from his wife's home region by producing yoghurt in his laboratory in Geneva in the same way it was made in his native country. After his presentation, Grigoroff gave Metchnikoff a present: a traditional yoghurt container *rukotka* (*pykamka*). The present was a token of respect for the famous scientist. The bowl was also a symbolic representation of the Trun rural region, from where the long journey of those yoghurt samples started, first from Bulgaria then through the laboratory in Geneva before arriving in the Paris lab. Transporting the yoghurt prepared in the laboratory from Geneva to the Pasteur Institute in that traditional *rukotka* was clearly also an attempt to turn the sample into a concrete symbol of "authenticity" attributed to the yoghurt in the container. It represented a justification of where the microorganisms originated. Metchnikoff wrote that he obtained "a specimen of the Bulgarian 'yahourth,' through Prof. Massol of Geneva."¹⁵³ Next in the process of scientific authentication, Metchnikoff assigned his lab assistants to confirm independently Grigoroff's discovery, verifying the experiments with the Trun samples prepared in the Geneva lab and to report the results to the Institute's Scientific Council. Metchnikoff discussed these lab procedures in his books *Essais optimistes* and *Quelque Remarques sur le Lait Aigri*, however, without discussing Grigoroff's lecture.¹⁵⁴

Metchnikoff did write about working with samples of Bulgarian soured milk provided by Grigoroff and his mentor Professor Massol and the additional research performed by his junior researchers Michel Cohendy and Alan Michelson.¹⁵⁵ The researchers at the Pasteur Institute named the new microorganism after the country of origin of the samples they had studied. In the scientific world, the bacteria discovered by Grigoroff became routinely known as the Bulgarian bacillus, as a gesture to the PhD student and the young nation state Bulgaria.¹⁵⁶ Probably because Grigoroff's supervisor Massol and his host Metchnikoff were influential scientists, some scholars have referred to the bacillus as their invention: bacillus of Massol (*Bacillus Massol*) and bacillus of Metchnikoff.¹⁵⁷ After all, the systematic laboratory research into the characteristics of the newly discovered lactic bacillus was carried out under their supervision. Metchnikoff's colleague Georg Belonowsky examined the chemical composition of soured milk isolated from Grigoroff's sample.¹⁵⁸ Metchnikoff's assistant Cohendy performed experiments on himself and thirty patients in 1906. He observed a reduction in intestinal disintegration after

seven weeks of taking the same culture studied by Belonowsky, also showing that the lactobacilli acclimated in the human intestine and could be found there several weeks later.¹⁵⁹

Then Metchnikoff and his lab assistants carried out a number of experiments to confirm that not all lactic acid bacteria had the same effect on the intestinal micro-flora. The anti-putrescent action of the lactic fermentation, for example, depended on the production of lactic acid by those microbes.¹⁶⁰ He concluded that the “Bulgarian” bacilli that Grigoroff had brought from Geneva had the most beneficial effect on health.¹⁶¹ Grigoroff’s research reputation was thus confirmed. His Geneva laboratory work established a link between yoghurt and Bulgaria, but more importantly, offered Metchnikoff a suggestive link to the longevity of Bulgarian peasants. Metchnikoff surmised that there was a connection between yoghurt consumption and Bulgarian centenarians. Metchnikoff’s hypothesis that food arresting decomposition in the intestines might postpone the process of aging, was the basis for his research on lactic acid reducing the microorganisms causing the disintegration. Metchnikoff suggested that yoghurt and fermented milks might eventually delay the process of getting older. Grigoroff introduced him to the phenomenon of Bulgarian centenarians; Metchnikoff turned this into a hypothesis about the connection between yoghurt and aging – Bulgaria. Metchnikoff supported the link between longevity, yoghurt, and Bulgaria, despite considering the earlier mentioned figure of more than 5000 centenarians living in the Balkan Peninsula (Serbia, Bulgaria, and Rumania) not entirely reliable. In fact, neither of the two scientists proved the connection between Bulgarian yoghurt consumption and longevity. Metchnikoff’s fascination with the bacillus that Grigoroff had identified led him to ignore the fact that longevity was typical for the entire Balkan region, not just Bulgaria.

At the suggestion of Professor Massol, the University of Geneva awarded Stamen Grigoroff a special certificate for his discovery.¹⁶² Notwithstanding the attractive offers of a scientific career abroad – a position at Geneva University or head of the Pasteur Institute in Sao Paulo, Brazil – Grigoroff decided to return to Bulgaria. Apparently, his patriotic feelings and the ambition to be “useful to all who are ill or suffering” in his “beloved native land,” as he had told his father a few years earlier, were still strong.¹⁶³ In the summer of 1905, after defending his doctoral thesis entitled, “A Contribution to the Pathogenesis of Appendicitis,” Grigoroff moved back and became the only physician in the Trun region of North-West Bulgaria. Alongside caring for his patients, the young doctor continued to conduct scientific research including the development of a vaccine for tuberculosis. Although the lactobacillus he discovered became famous thanks to Metchnikoff’s promotional

efforts, Grigoroff remained almost anonymous to all but the small world of science. He had succeeded in detecting and identifying the exact microorganism that enabled the coagulation of milk, yet he had also defined the exact composition of yoghurt for the first time in the history of microbiology. His discovery enabled the selection, cultivation, and reproduction of particular strains for yoghurt production. Once defined and isolated, the leavening bacteria could potentially be used for mass production beyond home production. Yet reproducing the bacteria for large-scale production outside the controlled environment of a laboratory posed new problems, dilemmas, and choices, not for Grigoroff who spent the rest of his life as a rural doctor, but for Metchnikoff and other scientists and manufacturers ever since.

Metchnikoff presented the customary *maya* introduced to milk as the drawback of the traditional technology of home-made yoghurt described by Grigoroff. *Maya* was the substance used for leavening, to turn milk into soured milk and was prepared by preserving a small amount of soured milk from the previous day to use for preparing yoghurt the next day. While celebrating the Balkan traditions of yoghurt, Metchnikoff proposed introducing a new scientific – and to his mind and that of his generation, a modern and universal – manufacturing method that went against traditions and geographical origins. He was convinced that the non-laboratory selected micro-flora of all the known soured milks (yahourth, leben, prostokwacha, kephir, and koumis) contained both beneficial and malicious microbes.¹⁶⁴ The microbiologist believed that *maya*, as “natural ferment,” along with the useful lacto bacilli, contained other microbes as well, which might be harmful. He offered the example of the red torula, a microbe predisposed to cholera and typhoid fever, which he had found after investigating yoghurt leavening in a Parisian dairy. To solve such problems, he asserted that “the selection of pure cultures of the lactic microbes was the only way to avoid yoghurt with undesirable micro-flora.”¹⁶⁵

Ultimately, Metchnikoff’s search for yoghurt unpolluted by pernicious microbes turned into inventing a scientific yoghurt production method.¹⁶⁶ He rejected what was a key element in home-made yoghurt preparation – the use of *maya*, qualifying it as “merely rennet [sic].” The leavens produced by strict selection of selected microbes were what the natural *maya* was not: “organized ferments.”¹⁶⁷ The selected composition of the microorganisms would thus limit the risk of contamination, he believed, as it would contain only desirable microbes. The collective work of Swiss pediatrician Adolphe Combe, French scientist Albert Fournier, and American surgeon William Gaynor States (1908) also supported Metchnikoff’s assumption: “[t]he soured milks prepared with the natural ferment

have therefore this disadvantage, that besides the useful lactic bacilli, they also contain other indifferent or even noxious bacteria.” They therefore fully understood the scientist’s decision. “That is why Metchnikoff has modified the preparation of yoghurt, and instead of introducing all microbic flora existing in the natural ferments just described, he has proposed inoculation by means of pure cultures of lactic bacilli [sic].”¹⁶⁸ He insisted on introducing pure cultures into yoghurt preparation, which he called “prepared ferments” instead of *maya*. The scientific preparation of the ferments introduced a new milieu into the process of yoghurt making – the laboratory. It was there that the purification or “sanitization” of the “wild” microorganisms took place, transforming them into laboratory selected starter cultures for yoghurt preparation. This involved eliminating the naturally existing species in leaven, while cultivating others to guarantee the existence of desirable microorganisms.

Scientists used the terms “soured milk” and “yoghurt” alternately. The latter came directly from the Turkish (*yoğurt*), while the former was translated from the Bulgarian product.¹⁶⁹ “Soured milk” (“*kiselo mleko*”) was the term Stamen Grigoroff used in his key publication in 1905.¹⁷⁰ The Bulgarian and Turkish names for the fermented product suggest that the countries under the influence of the Ottoman Empire were the channel through which the product reached France, Spain, Great Britain, Switzerland, Germany, and the Netherlands. The use and meaning of these terms need closer examination because they became important in building connections between product, place, and national identity later. As a 1911 publication on foodborne diseases by the French scientist Adolphe-Auguste Lesage shows, product names often signaled the place of origin. He defined various fermented-milk products common to the French market. Connecting product and locations, he described them as “*lebeu raib d’Egypte*,” “*lebeu d’Algérie*,” “*prostokwach*,” and soured milk, which he referred to as “*yahourth des Balkans*.”¹⁷¹ Referring to yoghurt as a common product for an entire region – the Balkan Peninsula, was how scholars and the reading public acknowledged yoghurt’s origin. Metchnikoff was the one who chose Bulgaria as representative of that region. His authority, supported by his own and his co-workers’ findings on the supremacy of lactobacilli from Grigoroff’s samples, established the image of Bulgarian yoghurt. The image of the longevity of the Balkan Peninsula, presented as an Ottoman population, Metchnikoff absorbed into one single representative – Bulgaria, creating the myth of Bulgarian peasants living healthily on a yoghurt diet. With the scientist’s death in 1916, Bulgarian yoghurt lost its greatest supporter.

Dangerous Tradition versus Safe Science

The transition from home-made yoghurt in the Balkans to commercial yoghurt in France and Great Britain's markets required the already industrialized dairy production to appropriate and adjust traditional technologies for manufacturing. Scientists like British surgeon Thomas Davey Luke in 1910 described how the home-made product was prepared in regional areas, echoing Grigoroff's description: "In Bulgaria and Turkey, sour milk, which is an almost universal article of diet among the peasants, is prepared by putting a little of the previous day's brew into scalded milk, and leaving the vessel close to a charcoal or wood fire for 24 hours. It ought not to be impossible to obtain the same result in this country [Britain, E.S.]."¹⁷² The basic technology for yoghurt production was provided by a farmer's wife or a shepherd. The first step was to obtain the *maya*, a small portion of the previously produced yoghurt that producers preserved and used as a leaven for the new product, then boil the milk from sheep, goats, cows, or water-buffalos and leave it to cool. They tested the temperature for inoculation of the *maya* manually by dipping their pinkie into the boiled milk. If the temperature was not too hot for the yoghurt maker to bear, the *maya* was mixed into the boiled milk. Home producers often applied different, what were considered magical actions and rituals such as drawing a cross over the milk or producing special sounds such as whistling, to guarantee a positive outcome. In order to prevent any drastic drop in temperature, farm women would use woolen material to cover the containers – unglazed earthenware pans and wooden containers of about five kilograms – filled with the leavened milk, and left close to the fire. In this way, it took several hours to transform the milk into yoghurt. As we have seen, Metchnikoff rejected the procedure as unhygienic in his *Essais optimistes*.¹⁷³

Combe, Fournier, and States provided a combined detailed description of the actual appropriation of the traditional practice in scientific terms, in their book *Intestinal Auto-Intoxication* (1908). They described the traditional techniques of boiling the milk until it was reduced to half its original volume. "To hasten evaporation, it is stirred and taken up with a dipper and poured back from some height into the vessel." The authors stated the exact proportions and measurements of reduced milk poured into bowls of about 300 grams, and in order to introduce scientific rationality, stated: "and it is allowed to cool down to about 45°C." Their further description of the process reveals their attempt to standardize the milk-ferment proportions. When milk reached the right temperature, it was "inoculated with maya or fresh ferment, in the proportion of 2cc to the liter or a teaspoonful (5 grams) per bowl."¹⁷⁴ Two tablespoons of the previous day's yoghurt were sufficient

to start the fermentation process. The vessel had to be “enveloped” in woolen cloths or blankets to maintain the same temperature. It took eight hours to curdle the milk. These academically trained authors claimed this was the traditional method. However, it was how West European scientists understood the practices of yoghurt production employed by peasant women and shepherds. Despite trying to be accurate, the scientists’ description actually transformed the technology. The amount produced per day differed significantly from that of the yoghurt producing regions. For instance, Bulgarians used a five-kilo pot, while the demands of the newly established yoghurt consumer market were limited to bowls of “generally about 300 grams.”¹⁷⁵ Scientifically sounding terms of exact temperature and strict proportions tried to convey science to home-production techniques.

In early twentieth-century Bulgaria as well as the wider Balkan area, yoghurt production was predominantly female home-made technology unlike in French, Swiss, Dutch, German, and Spanish markets, where it had become a commercial mass product. Even the dairies in those European countries producing yoghurt in a traditional Balkan manner obtained milk directly from farms or dairy companies and leavened it with fresh *maya*. Fournier, Combe, and States indicated that many yoghurt producers substituted *maya* with fresh ferment.¹⁷⁶ The difference between traditional and scientific yoghurt production was not only down to the gender of the producer and the amount of yoghurt produced. Scientific yoghurt was a mass product made in a specific place – the laboratory or dairy. Although mass production adhered to the principles of traditional yoghurt making, strict measurements were introduced for temperature and quantity as well as specialist dairy equipment. What peasant women were producing with basic equipment on the farm and estimating by sight, was transformed by scientists to a strict formula.

Despite their claims of producing yoghurt according to the traditional Bulgarian and Ottoman technology, scientists trained at European institutions failed in their attempts right from the start. There were three main explanations. Firstly, it appeared the ferment could not survive and be as continuously active as in the Balkans. Secondly, as we will see, they introduced cow’s milk as prime ingredient despite the fact that Balkan people predominantly used sheep’s milk. Thirdly, microbiologists and physicians rejected the preparation of sour milk using *maya* or keeping a small portion of the previous day’s culture (day to day insemination with *maya*) because scientists considered the method dangerous and unhygienic.¹⁷⁷ Scientists like Metchnikoff, British gastroenterologist Herschell, and microbiologists Fournier, Combe, and States criticized the technique and sought to introduce what they called “pure cultures.” In contrast, advocates of the

traditional Bulgarian or Ottoman method were the surgeon Luke, medical doctor Thomas Duton, French vaccine specialist St. Yves-Menard, and French microbiologist Dubovski. The scientific community was thus divided into supporters of the scientifically approved method and those who believed that the use of *maya* according to Balkan traditions was the best way. Luke stressed that “in Bulgaria and Turkey, soured milk has been prepared for centuries without any such special precautions as now suggested, and with eminently satisfactory results from the clinical standpoint.”¹⁷⁸ Dubovski saw the strict measurements introduced by some scientists as superfluous, justifying the peasants’ production techniques with the satisfactory curative characteristics of their product.

The most prominent advocate of the scientific method and introduction of what were claimed to be pure cultures was the microbiologist Elie Metchnikoff, with whom we began. Introducing pure cultures into the process opposed, and even contradicted, the traditional method. The new technique did not rely on the tacit knowledge of previous generations through word of mouth and embodied practice; nor was Metchnikoff’s opinion based on empirical scientific knowledge. The rationalized methods were established on the basis of standardized results and according to the verification of facts through experiments. The scientists forged a new transformation in yoghurt manufacturing and adopted a strictly codified language to describe the technology. In 1910, British bacteriologist Richard Tanner Hewlett offered a description of the preparation of yoghurt, in which strict measurements and scientific rationality ruled: “For the preparation of soured milk, the milk should be well sterilized by actual boiling for at least half an hour, preferably for an hour. It is then cooled to 40°C (105°F), inoculated with the lactic culture, and incubated at this temperature for twelve to twenty hours. Milk properly prepared should be well curdled without much separation of the whey, and possess a pleasant acid odor and flavor.”¹⁷⁹ Hewlett replaced *maya* with lactic culture and suggested a lower temperature of milk when inoculated. His description even provided similar technological steps to the yoghurt preparation suggested by Fournier, Combe, and States in 1908. Two years later, Hewlett employed a much more formal and specialized technique to show how home technologies were adapted to the rationalized scientific knowledge.

Metchnikoff considered the unregulated composition of *maya* as hazardous; allegedly, it allowed various microorganisms to grow, which affected the taste of milk in unpredictable ways. The lack of regulation of the cultures was considered as a lack of control over the *maya*’s micro-flora. Selecting pure cultures was the way to transform the unreliable *maya* into scientifically selected and grown leaven. Scientists were able to eliminate what they considered the abnormal or atypical

microorganisms in order to produce in their laboratories the selected, controlled, and, therefore, pure cultures. This is how yoghurt advocates who believed in the power of the scientifically produced starters prioritized selected microorganisms over the traditional *maya* prepared with wild bacteria. Microbiologists, doctors, and chemists further advertised the scientific method for yoghurt production as superior to traditional preparation. In 1909, Adolphe Combe stated in an article in *The British Medical Journal*: “curdled milk obtained by the use of lactobacilli is superior to Yoghurt as ordinarily prepared, being a constant product, completely harmless, and having a similar but more powerful, action on proteolytic microbes [sic].”¹⁸⁰ The advantage of the laboratory selected cultures was that they matched the requirements of industrial yoghurt production imbedded in the developing industrial milk processing methods. Entrepreneurs of mass-produced goods needed constant quality and a taste that consumers could trust.¹⁸¹ They also required standardization of the product as an additional guarantee that the soured milk produced at different locations would keep the same unchanged characteristics.

This was not the only requirement; the quality of the starter cultures introduced to the milk was another. Artificially selected starter cultures, scientists believed, guaranteed good quality and a relatively stable taste. Researchers used the opposing labels “artificially” and “naturally” to distinguish the laboratory selected starter cultures (positive) from the home-made *maya* (negative).¹⁸² The introduction of selected cultures in the 1910s-1920s was a shift from home-grown ferments to laboratory-based ones: selected, controlled, and produced in laboratories by microbiologists and chemists. In short, both producers and scientists were instrumental in replacing the *maya* with leaven; the variations of microorganisms were substituted by what they considered properly regulated and pure selections. The number of microorganisms became measured and regulated; now the product was characterized by its chemical and microbiological composition.

Microbiologists introduced clear cultures to provide a standardized product for Central and West European consumers. For this reason, scientifically produced starters were prioritized over the traditional *maya*. The control of the microbiological composition of the product became one of the basic characteristics of yoghurt science. Ferments were no longer controlled by the producer as was the case with *maya*. The laboratory became the new place to cultivate and select yoghurt microbes. That westernization of the technology was a break with the home-based, traditional (or considered as such) models of production.¹⁸³ The scientist became the one who regulated the yoghurt strains rather than the home producer. The laboratory selection was a scientific way of considering and

organizing yoghurt production in order to function effectively. Supporters of scientifically selected starter cultures claimed that their laboratory products contrasted with the dangerous and unhygienic natural ferments.¹⁸⁴ Artificial ferments were the modern, hygienic, and scientific way of producing yoghurt that promised to eliminate the dangers of the traditional methods. That scientific discourse was legitimized through laboratory tests proving the superiority of the pure cultures but also through campaigns criticizing the use of the previously produced yoghurt as starter.¹⁸⁵ The scientific and rational description of yoghurt production and the introduction of new practices to the dairies gradually transformed the traditions of yoghurt production into something different – a Western scientific product.

Banishing the Natural from the Laboratory

The development of pure starter cultures for yoghurt production was not the only transformation of Balkan-based methods. From the late 1900s, microbiologists and chemists started to experiment with dry lactic ferments to produce soured milk. Medicines based on dried *Lactobacillus bulgaricus* appeared on the market in the form of tablets, powders, and dry cultures (Fig. 2 and Fig. 3 in the Appendix). Pharmacies and laboratories sold scientifically designated pure cultures in dried form as tablets or in sealed bottles as liquid form that had to be consumed within a few days of manufacture.¹⁸⁶ The replacement of the original home product beyond the local context with tablets and dry cultures helped expand the market and promote certain characteristics of *Bulgarian bacillus*. Dried cultures were a new method of ferment production which was not thoroughly researched as yet; thus, their efficacy remained unproven. After entrepreneurs promoted them commercially in the early 1910s, many researchers questioned their quality. Dr. Vaughan Harley disclosed at the British Royal Society of Medicine in 1910 how the popular treatment also had negative effects. Based on his experience with the treatment and the physical and psychological reaction of his patients, he concluded: “[n]o doubt (...) the public were being instructed very wrongly about it, and they thought that all their diseases were curable by the method.”¹⁸⁷ Advertisements suggested that patients could be their own doctors, but Harley thought this undermined medical authority. He provided a case study of the supposed recovery of a man treated for intestinal dyspepsia who, in his words, had been “taking too much champagne.”¹⁸⁸ That person “took the tablets and cured himself at once; consequently he said that all medicines were useless.” Harley believed, “these results were partly due to the tablets, but also because his diet contained sour milk, and

patients undergoing the treatment adhered more strictly to the diet than under ordinary circumstances.”¹⁸⁹ The miraculous healing was a reason for many others to purchase the tablets. Harley, quoting an anecdote, pointed to the high expectations of many patients: “A man recently told [me] that doctors would soon be a thing of the past, and that he was led to understand that no medical man would be required, because sour milk was all-sufficient. This man had a disease of the heart, for which he was content to take sour milk.” As the quote shows, Hutchison considered one of the “side effects” of yoghurt popularity was the belief in the almost miraculous effects of soured milk treatment. Harley warned that the expectations of patients and scientists rose, and when those expectations were not fulfilled, the entire treatment was dismissed as ineffective. He described in 1910 how for six months, he had seen “dozens of patients who had been taking sour milk, either on their own initiative or the advice of their friends or of a doctor, for various affections, and in hardly any, real benefit resulted.”¹⁹⁰

Supporters of the new remedy like Harley realized the negative effects of the treatment’s popularity. They warned against the inappropriate prescription of soured milk and soured milk tablets.¹⁹¹ In a discussion on the therapeutical value of lactic-acid bacillus, published in the *British Medical Journal* in 1910, medical doctor Arthur Hertz also criticized the inadequate way many of his colleagues were prescribing the lacto-bacilli. He expressed moderate approval of a colleague William Oppenheimer, who prepared his own liquid cultures for patients under the name *Lactigen*.¹⁹² Oppenheimer recommended one wineglass of *Lactigen* three times a day. Hertschell admitted that Oppenheimer “had obtained good results in certain cases of colitis, but only where the Gram-positive organisms were in excess in stools.”¹⁹³ He explained why other researchers were less successful: “they had not made a proper bacteriological examination of the stools, and prescribed haphazardly in unsuitable cases.”¹⁹⁴ In 1910, a *Lactigen* advertisement promoted the product as made with the “original strain of Massol’s Bulgarian Bacillus,” claiming it imported the bacillus for *Lactigen* production “direct from Sofia, through the kindness of Professor Petko Taptchileshtoff,” who even related to them “details in confidence of special culture media to secure the maximum strength of this Bacillus.”¹⁹⁵ While the entrepreneurs used the Balkan people’s knowledge and techniques as production model, their references to the Balkans also served as an advertising strategy.

What producers ignored was that the effectiveness of many of those new products had been uncharted scientifically. Physician Gordon Lane argued in 1910 that “so far, no one had indicated where a reliable preparation of the lactic-acid bacillus for treatment could be obtained.”¹⁹⁶ Because of the diversity of products for

milk souring and the variety of tablets, the *British Medical Journal* argued that all those products might confuse the patients.¹⁹⁷ This journal's editors made a similar observation in an article *Sour Milk Preparation*: "[The] use of Bulgarian sour milk as an article of diet and as an adjunct to medical treatment has now become quite general, and the intending consumer may find himself somewhat embarrassed in choosing from the large number of brands of sour milk, cultures for its production, and various other preparations of the *Bulgarian bacillus*."¹⁹⁸ The article introduced readers to the main producers of the *Bulgarian bacillus* in liquid and tablet form in an attempt to educate consumers and producers alike in the diversity of brands and different effects.

What scientists agreed, was that in order to be effective, the dry products had to contain a certain amount of live lacto bacilli. Herschell concluded that the correct prescription of tablets was not the only guarantee for success. "Even if used in suitable cases, the scientific value of the results obtained will depend entirely on whether the observer has satisfied himself that his preparation contains living *Bulgarian bacilli*."¹⁹⁹ While dried products were promoted as superior to sour milk, most commercial products failed to live up to that standard. In dried form, the bacilli lost their activity and livability. Researchers like R. Tanner Hewlett, Vaughan Harley, and Ernest Quant disclosed that the manufactured natural yoghurt or soured milk contained at least 1,000,000,000 *Bacillus bulgaricus* (*B. bulgaricus*). In contrast, dried tablets contained only 100 to 1000.²⁰⁰ In *Serum and Vaccine Therapy, Bacterial Therapeutics and Prophylaxis, Bacterial Diagnostic Agents*, Hewlett presented his findings: "[a]s regards the culture employed for starting the souring, this should be a *fluid* one in milk or whey." He continued: "Dry and tablet preparations are generally inefficient, as the *B. bulgaricus* rapidly dies out in the dry state, and is difficult to prepare without contamination." Thus he believed that "tablets are comparatively inefficient: whereas 1 cc of sour milk will probably contain at least 1,000,000,000 *B. bulgaricus*, a tablet may contain only 1000 or 100 organisms, and tablets generally contain other organisms and are therefore not suitable as 'starters' for the preparation of soured milk."²⁰¹ Another researcher J. E. Adler, who examined bacteriologically different preparations of lactic bacilli then available, concluded: "Very many of the liquid preparations were grossly contaminated, and many dried preparations were either sterile or contained spores of bacteria other than those which produce lactic acid."²⁰² Moreover, even if the commercially available dried tablets had the required number of microorganisms when tested, this did not guarantee a constant quality. British bacteriologist William Bulloch's research proved great variations in quality. Referring to a product "*Trilactine*," he demonstrated that its microbiological composition differed from one sample to

the next. “No two tubes gave the same type of fermentation. The number of bacteria was very variable, and *Massol's bacillus* could be found in some tablets but not in others. Its quantity, in any case, was trifling compared with the other bacteria present,” he wrote.²⁰³

The problems of ineffectiveness, variable quality, and uneven composition of tablets prompted research on the commercially available products. In 1910, *The British Medical Journal* conducted a comparative analysis of tablets, dry cultures, and fluid preparations of *Bulgarian bacillus* offered on the British market. According to Otto Grünbaum, R. Tanner Hewlett, Alexander Bryce, and Vaughan Harley, the “question of using tablet preparations is of importance not only in regard to preparing soured milk, but also to treatment, as the tablets are being prescribed instead of soured milk.”²⁰⁴ Therefore, the quality of the cultures was crucial both for the successful leavening of milk and for their therapeutic efficacy. *The British Medical Journal* experiments concluded: “dried bacteria when distributed through milk only regain their activity slowly, and the amount of lactic acid produced in a few hours is then not very considerable; the liquid cultures are, of course, free from this objection, and since each tube bears a date giving the limit of time beyond which the contents are not guaranteed to retain their activity, there should be no disappointment when they are used.”²⁰⁵ What the experiments showed was the superiority and efficiency of the liquid starters.

Kenneth Goadby's examination of soured milk generated even more results undermining the trust in science, because the samples he investigated “contained no *Bulgarian bacilli*; there was pure yeast and a few lactic-acid cocci.”²⁰⁶ Herschell similarly concluded: “as I have proved by personal examination and others more skilful than myself have done the same, no more than two or three out of the dozen or more preparations on the market contain any *Bulgarian bacillus* at all.”²⁰⁷ He stated that the published clinical records based on such preparations “must be accepted with great reservation” because “[i]f any *Bulgarian bacilli* are present, they are too few to be of any practical use. (...) [T]he weaker lactic-acid bacilli, which, although they curdle milk, are destroyed in the stomach and will not produce the effects claimed for the *Bulgarian bacillus*.”²⁰⁸ He questioned the therapy but also focused on the quality of commercial products and the efficacy of the dried preparations: “In the majority of cases, the inference must be made that the makers have not put them into the tablets at all.” Nevertheless, he concluded that “[i]f the tablets are properly made, and contain living *Bulgarian bacilli*, this should be the ideal method of using lactic-acid therapy in everyday practice, the use of liquid pure cultures being reserved for serious and acute cases.” But he continued: “in all serious and acute cases in which we wish to secure the action of the *Bulgarian bacillus*

as quickly as possible, we should use a pure liquid culture prepared in a laboratory by methods devised to secure the largest growth, microscopically examined against contamination before delivery to the patient, and used within a few days of making.”²⁰⁹ Thus, although distinguishing in favor of the more powerful liquid starters, he did not explain the divergent activity of the two versions of the bacilli.

Other researchers also raised questions about the regulation of tablets. In the late 1900s, Grünbaum voiced his skepticism in the *British Medical Journal*: “soured milk shows the presence of the organism in at least one thousand millionth of a cubic centimeter,” suggesting that the number of *B. bulgaricus* which the tablets introduced into the intestine was very small. Grünbaum advocated the natural ferments, and rejecting the use of tablets, concluded: “there is no doubt in my mind that soured milk or whey is incomparably the best form to administer the organism.”²¹⁰ He also argued about the “incomparability” in the activity of the microorganisms.

Although many doctors prescribed soured milk treatment because of its popularity, the lack of research on the full spectrum of yoghurt treatments for therapeutic purposes explained why practitioners often prescribed them inappropriately, critics believed. In 1914, Herschell elaborated on his previous arguments, this time with a colleague, physician Adolphe Abrahams, in a book entitled *Chronic Colitis: Its Causation, Diagnosis and Treatment*. The problem, they believed, was not that the soured milk was ineffective, but that many prescribed it without clearly understanding how to use it. The researchers were keen to use their research to build trust in science while the commercially available products undermined the public’s faith. Herschell and Abrahams argued: “[i]t is unfair to condemn a method which has failed in cases the unsuitability of which would have been manifest on a little consideration” and claimed that: “[t]he majority of cases cannot possibly benefit, yet such failures give rise to the expressions of disparagement which occur in medical reports, that it has been extensively tried in cases of constipation and has not fulfilled its promise.”²¹¹ They required a limited use of the treatment only in cases proven effective, for example when “the natural stimulus of the feces is defective either from deficient bulk, deficiency in cellulose, or ineffective bacterial action.”²¹² They urged for proper diagnosis before prescribing a therapy.²¹³

Thus several years after Metchnikoff promoted the medication based on soured milk research in 1907-1908, problems arose around the effectiveness and microbiological composition of the tablets; this brought back into vogue the consumption of soured milk produced by liquid starter cultures (*maya*). The main argument was that “[t]he number of *B. bulgaricus* taken in tablets will be extremely small

compared to that taken in properly soured milk.”²¹⁴ The sales boom of the tablets from 1908 till 1914 gradually declined. After some years of considering yoghurt as a medicine, the scientific world returned to what it considered more effective: the traditions of the Orient.

Conclusion

The discovery of the composition of yoghurt by a Bulgarian scientist Stamen Grigoroff in 1905 facilitated a new market for the ferments required. Based on this discovery, Russian biologist and Nobel prize-winner Elie Metchnikoff established the connection between the place Bulgaria and yoghurt. Responding to popular beliefs on the relationship between living well and food, Metchnikoff surmised that there was also a connection between yoghurt consumption and longevity. That assumption was based on statistics presenting the Balkan Peninsula and more particularly Bulgaria, Serbia, and Rumania as having extremely high numbers of centenarians, but he singled out Bulgaria as representative.

In turn, his theories about the beneficial effects of yoghurt created a therapeutic demand. Metchnikoff related how his co-workers conducted the experiments in the Pasteur Institute with samples brought from a Bulgarian village, used by Grigoroff in his experiment in Geneva, and made available for further examination in Paris. These “Bulgarian” samples lent support to the theories of Metchnikoff and his assistants. Tying yoghurt to the location Bulgaria through Grigoroff’s yoghurt, and by alluding to Bulgaria’s fortuitous centenarians, Metchnikoff popularized the fermented milk product and infused it with Bulgarian characteristics. In the process, nation, place, and identity were construed as a scientific fact in labeling the bacillus as *Bacillus bulgaricus*.

Entrepreneurs of mass produced yoghurt needed constant quality and taste, a standardized product that consumers could trust. Sales of selected pure-culture samples for the mass production of fermented milk began in Europe in the late nineteenth century. In 1891 already, we find the French agrarian specialist René Lezé referring to sales of bacilli for kefir.²¹⁵ Following the excitement that Metchnikoff had generated in the public arena, laboratories, chemists, and doctors introduced numerous yoghurt-related products on the market in the 1910s.²¹⁶ The laboratory selected cultures matched the requirements of industrial yoghurt production and were used both as starters for manufacturing diverse dairy products and as medicine. By introducing selected cultures between the 1910s and 1920s, production shifted from home-grown to laboratory-selected ferments. That

process of replacing the maya with leaven was initiated by producers and scientists. It also marked a break with home-based production; the shift established a scientifically based method of yoghurt production, where the laboratory became the new place to cultivate and select yoghurt microbes. West European scientists provided a rational description of yoghurt production, introducing new practices to the dairies that did not rely on the tacit knowledge of previous generations. This transformed the traditions of yoghurt production into something different – a Western scientific product, a transformation that will be investigated in the next chapter.



Chapter 2

Marketing Authenticity in Western Europe, 1910s-1920s

Metchnikoff's theories on the beneficial effect of yoghurt ferments provoked discussions among early twentieth-century scientists. His vision that fermented milk consumption might postpone old age became extremely popular with the public interested in health issues as he sought to answer one of the most basic questions in life. In addition, Metchnikoff's research on how food affected people's health encouraged the health craze of his time. His scientific authority and popularity directed the attention of the broader public toward the regular consumption of fermented milk products as the "elixir of long life," but also as remedy for intestine and gastric problems. Thus Metchnikoff was paving the way for yoghurt's introduction in many European countries as a commercial product. Between the 1910s and 1930s, many social factors and actors with personal links to Bulgaria would play a vital role in the process of distributing and consuming yoghurt before it could become a staple food in France, the Netherlands, Germany, Spain, Switzerland, and other countries.

Taste of Exoticism

Metchnikoff was not the first to introduce fermented milks to a broader European audience who were learning about yoghurt but had never tasted it. By the late nineteenth century, fermented milk products from various parts of the world (*kefir*, *kumiss* and yoghurt) were introduced to the European market beyond the region under Ottoman influence. In his book on the dairy industry published in 1891, René Lézé described *kumiss* and *kefir*.²¹⁷ Through their travelogues, many travelers passing Balkan lands even introduced yoghurt to their reading public back home.²¹⁸ One volume of *Histoire de l'Empire Ottoman*, covering the 1720s and 1730s and published in 1839, listed the daily food provisions for the Austrian ambassador in Constantinople, Count Vitmont, as including "10 okkas de yoagourt

(*lait caillé*).²¹⁹ In his 1927 article on international travelers and prominent Turks in France, Rumanian historian Nicolae Iorga related how the Ottoman Empire's ambassador in Paris, when falling ill in Marseille in 1797, was given "journals, tobacco, fish and stuffed olives, even truffles and yoghurt" by the diplomatic mission.²²⁰ More than thirty years later, French traveler Bertrandon de la Broquière reported he had consumed yoghurt in Constantinople in 1832 when offered "*un grand bol de lait caillé qu'ils appellent yogourt*" [a large cup of soured milk called yoghurt]²²¹ Another French traveler Théophile Gautier similarly recalled around the mid-nineteenth century tasting yoghurt in a cafeteria in Constantinople.²²² Such stories showed that travelling Europeans had sampled yoghurt or soured milk, yet these early encounters did not generate a sustained European interest in consuming yoghurt.

Even if consumers in Central, West, and Northern Europe had not encountered these specifically fermented yoghurts, in their own regions they were familiar with local products from home-made fermented milks like: *buttermilk* (Germany, Poland, Norway, Sweden, Finland, and the Netherlands), *lait battu* (Belgium, France), *babeurre* (Belgium, France), *karnemelk* (the Netherlands), and *dickmilch* (Germany). Given that fermented milk types existed all over Europe, the question is why soured milk or yoghurt was considered a new product? The basic characteristic of yoghurt was its microflora that differed from similar Central, Western, and Northern European products. Compared to the Balkan type of "soured milk," the fermentation of what were called *buttermilk*, *dickmilch*, *karnemelk*, and *babeurre* was caused by starter cultures *Streptococcus lactis* or *cremoris*, agents of milk fermentation in butter. They were made by using the liquid left over from manufacturing butter. What made those "European milks" different from the "Balkan" product were both the microbiology and technology of the products, which resulted in the different and distinct taste. The development of scientific knowledge for starter culture selection enabled the production of yoghurt at places without the typical microflora. Despite the existing microbiological and technological differentiations, what made people recognize soured milk or yoghurt as very different was the association of a mysterious exotic product with its origin. Besides travelers, scientists associated the product as originating from the distant food cultures of the Ottoman Empire and the Balkan Peninsula's population. Soured milk popularity can be also seen in the context of market and consumer desire for new flavors and textures. That image of geographical and cultural distance affected the assumption of yoghurt's taste as something new and unfamiliar. Yoghurt's embodied characteristics of foreign product with therapeutic virtues affected the perceptions of its taste as novel and unusual.

When Metchnikoff offered his theories of yoghurt arresting the aging process, he provided the consumption of fermented milk with a scientific rationale. A science-based solution for a popular health and longevity issue was a powerful motive for many consumers to include such an exotic food in their daily diet. When it first appeared in France, Great Britain, and Germany yoghurt was unknown and unpopular. Entrepreneurs needed a marketing strategy to make yoghurt commercially viable.²²³ Its success depended not only on adapting the manufacturing technology, but also on re-shaping consumers' expectations. Advertising was needed to tempt consumers of different ages, gender, and social position to start eating an unfamiliar food product. As the French sociologist Faustine Régnier claims, if consumers are to be persuaded to buy new and unfamiliar foodstuffs, a key strategy is to persuade them that the exotic product "has significant therapeutic virtues."²²⁴ Claude Fischler, another French sociologist, highlights the role that medical experts play in justifying the need for new foodstuffs. He even insists that medical experts have taken possession of our menu.²²⁵ Régnier postulates the inseparable link between food and health, stating that "by incorporating a foodstuff, the consumer eats its properties, in particular its virtues, real or imaginary, when the food is regarded as positive" and, we could add, when perceived as harmless.²²⁶ She follows Fischler's definition in this regard.²²⁷

As we have seen, Metchnikoff was single-handedly responsible for attributing the characteristics of health to yoghurt. Scientists and the broader public knew of yoghurt's health benefits, yet it remained an exotic product. This posed a challenge for those interested in marketing. Scholarly and popular books on fermented milk published between 1907 and 1911 often included a historical overview of the consumption of yoghurt.²²⁸ Metchnikoff in 1907, and several authors a few years later, claimed that yoghurt consumption was known from time immemorial. In 1908, Adolphe Combe, Albert Fournier, and William Gaynor States stated in their collaborative book *Intestinal Auto-Intoxication*, that yoghurt "goes back to the most remote periods."²²⁹ A similar assumption appeared in two other books: *Maya Bulgare* published by La Société da la Maya Bulgare in 1910 and *The Bacillus of Long Life* (1911) by nutrition specialist Loudon M. Douglas.²³⁰ These publications addressed both professionals and the general public, functioning as a channel for a diverse audience. The authors traced stories of fermented milk through legends and documents going as far back in history as possible, referring to nomadic traditions in Central Asia, to the Bible, to ancient Egypt, Greece, and Rome.²³¹ Many authors, in creating a mythical past around yoghurt, sought to convince readers that the novel product actually had a remarkably long cultural and therapeutic history. For instance in 1907, Dutch microbiologist Martinus Willem Beijerinck

stated, in an otherwise scholarly discussion on the subject, that “[t]he use of soured milk as drink and food is so familiar to many Eastern countries, and dates from remote antiquity, so there can be no doubt as to its favorable effect on health; the establishment of various societies which try to popularize new preparations of that nature, seems to prove that the attention of the Western nations begins to be drawn towards it.”²³² The rising popularity of yoghurt in Western Europe thus resulted from both scientists supporting its consumption as well as yoghurt producers.

As part of the mythology, around 1908, books on yoghurt related a legend about the French emperor François I who suffered from some kind of intestinal disease, which doctors were unable to cure.²³³ Fournier, Combe, and States report, on the basis of French explorer Xavier Dybowski’s research, that the emperor’s ambassador to the Ottoman Empire recommended a Jewish doctor from Constantinople, who prescribed medical treatment with curdled milk. The doctor apparently prepared the soured milk from the milk of the ewes he had brought along, but kept the secret of its preparation. Miraculously, François I rapidly regained his strength.²³⁴ Every story or myth on yoghurt in France depicted it as a mysterious exotic product with rationally proven therapeutic virtues. History came to support scientific authority in favor of normalizing yoghurt.²³⁵ The popular press further reinforced the producers’ advertising campaigns to develop yoghurt appreciation for example by emphasizing the beneficial effect on intestines at a time when gastric problems were common. The connection between soured milk and longevity offered one more justification for anyone asking, “Why should we buy that strange product?” Doctors, entrepreneurs, and journalists were the social actors promoting this new and unfamiliar foodstuff to an audience outside a region that had been under Ottoman rule for eight centuries. Those actors were the mediators between Western consumers and Western producers, influencing both sides and generating a demand based on their statements about yoghurt’s beneficial effects and on long traditions in what they called Eastern or Ottoman countries. Producers responded to consumers by supplying starter cultures from microbiologists and chemists’ laboratories.

If scientists claiming the benefits of yoghurt consumption were crucial for the first public acceptance, experts like doctors were second in line, closely followed by journalists. Next came the images in advertising campaigns to market the product. These enabled consumers to overcome the “food neophobia” provoked by unfamiliar or unusual food.²³⁶ One solution to potential neophobia was the guarantee by trusted authorities that soured milk was not only harmless, but also had a significant therapeutic effect. French physician P. Guéguen discussed medical cases

for soured-milk treatment. In a 1909 article, he describes health-care professionals who contributed to the popularization of soured milk.²³⁷ Physicians were significant mediating actors between science and the public, frequently recommending the soured-milk or *Bacillus bulgaricus* therapy to combat widespread intestinal disease. As the public accepted the experts' knowledge and expertise, their recommendation of yoghurt consumption, as Régnier concludes, "made it possible to introduce new products with less fear since the medical opinions validated the health benefits of the exotic."²³⁸

Pharmacists, too, became important mediators in the yoghurt distribution chain. The product pharmacists and dairy shop entrepreneurs sold, was produced according to the same technology. It was the same product, but distributed through two different channels. Pharmacists were part of that distribution chain. They delivered or even produced yoghurt that physicians prescribed to their patients. A discussion published in the *Therapeutical and Pharmacological Section* of the *British Journal of the Royal Society of Medicine* (1910) underscored pharmacists' role in yoghurt distribution and quality control. The journal included the reflections of the bacteriologist William Bulloch and medical doctors Vaughan Harley, Arthur Hertz, and Gordon Lane on the therapeutical nature of the lactic-acid bacillus. These specialists also mentioned pharmacies as outlets where a variety of yoghurt tablets were sold.²³⁹ In 1910, the British newspaper *Hastings and St Leonards Observer* ran an advertisement on soured milk, also referred to as Bulgarian fermented milk, which was prepared and distributed by pharmaceutical chemists.²⁴⁰ Such practices were not limited to Great Britain, as Danone's company history shows. For example in 1912, instead of food stores or dairies, the company distributed its yoghurt through Barcelona's city pharmacies. Later on Danone used a similar distribution strategy to enter the French yoghurt market in 1923.²⁴¹

With the approval of these socially respected actors, the unfamiliar and exotic product was not seen as dangerous. Metchnikoff's theories, confirmed and authorized by other scientists, made doctors recommend the consumption of yoghurt as a treatment for various diseases causing intestinal discomfort. Hence an overwhelming demand for the elixir of life was established. Milk producers and chemists also made the product attractive to those interested in health movements by creating scientific knowledge in favor of this new curative food. British physician George Herschell identified this process in Britain: "Chemists, by means of papers with clinical indications taught the medical men how to include sour milk and lactic ferments in their practices. Both milkmen and chemists manufactured soured milks that doctors promoted to their patients."²⁴²

The acceptance of yoghurt was not only thanks to successful marketing and scientific approval. Colonial practices likewise transformed middle-class Europeans' curiosity about new cultural and food experiences. The colonies provided new foreign foods. They also "taught" consumers to be more open to novelty. Philosopher Lisa Maree Heldke advances the idea that modern Western colonizing society was characterized by "an obsessive attraction to the new, the unique, the obscure, and the unknown."²⁴³ The author sees "new" in relation to the colonizers' desire for "new territories, new goods, new trade routes, and new sources of slaves..."²⁴⁴ Indeed, the popularity of yoghurt can be seen in the context of West Europeans' desire for new flavors and textures. Soured milk acquired a connotation of exotic food originating from distant food cultures.

The Balkan Peninsula, despite belonging to the European continent geographically, was considered as oriental as the Ottoman Empire. In his 1927 article *Les voyageurs orientaux en France*, Iorga gave a very good sense of the attitudes of the late-nineteenth and early-twentieth century French people towards the region.²⁴⁵ Everything Turkish was picturesque: "*Le vrai Oriental, c'est le Turc de l'ancien régime, le Turc à turban, à vêtement large, à babouches, le Turc qui arrive avec toute sa turquerie vestimentaire et verbale, avec tout ce qui constitue son aspect pittoresque.*"²⁴⁶ The five centuries of Ottoman governance in the Balkans had been responsible for a multi-national and multi-religious political constellation of the Empire. Iorga defined the oriental as something non-occidental, opposed to the European identity, and backward. As he put it, "*à part pour leur notion du progrès, cette conception dominante du monde occidental, ce point cardinal d'un développement qui n'existe pas pour l'Orient.*"²⁴⁷ However, the Western perception of the Orient in the late nineteenth and early twentieth century did not have only negative associations. Iorga also articulated what appeared to Europeans as different and unfamiliar, provoking curiosity and stirring romantic feelings: "*[b]ientôt les romantiques chercheront en Orient de la lumière, de la couleur, des choses nouvelles, attachantes par ce caractère même de nouveauté, des choses bizarres et chatoyantes.*"²⁴⁸ This romanticized vision of the Orient was ascribed to yoghurt that represented exotic food.

Urban middle-class, middle-aged consumers' curiosity in new food experiences, together with scientists and producers, imbued yoghurt with new meanings. From an ordinary daily food accessible to everyone, as was the case in the Balkans, yoghurt became a medicine, a tool in the polemics of nutritionists and doctors propagating healthy food and lifestyle. The process of establishing trust in yoghurt was closely related to, if not shaped by, the increase in raw milk consumption. By the late eighteenth century, milk was the basic ingredient for cheese, butter, and cream production, but not a drink in its own right.

The history of milk represents eighteenth century medical insights in nutrition. In 1747, James Lind, a British Navy physician, while experimenting with sailors' nutrition in order to prevent scurvy, observed that the consumption of particular foodstuffs could prevent diseases. In 1770, Antoine Lavoisier discovered that food transferred oxygen and water in the body to create energy. Nineteenth century scientists isolated main food components to study their connection to health.²⁴⁹ Scientific developments in the early twentieth century enabled nutrition scientists to identify various chemical micro-constituents of food.²⁵⁰ Consequently, nutritionists, chemists, and physicians began to evaluate food according to its composition instead of seeing food consumption as a pleasurable activity. Their aim was to discipline the desires, appetites and pleasures at the table by providing a scientific rationale of nutrition and rationalization of food choices.²⁵¹ Thus scientific knowledge prefigured "the concerns about food, the body, and pleasure," according to Australian nutritionist specialist John Convey.²⁵² The dietary guidelines promoted healthy diets, thus creating categories of what was healthy and unhealthy nutrition. Depending on the quantities of elements (e.g. water, proteins, and sugar), foodstuffs were characterized and tagged as good, nutritive, less nutritive, dangerous, and so on. This achievement enabled the scientists to identify what should be consumed – not according to taste, but according to chemical composition. These insights were considered the domain of "the new nutrition." Between the mid-nineteenth and mid-twentieth centuries, nutrition scientists trained as physiologists, biochemists and physicians and became the actual creators of that new nutrition.²⁵³

The increasing consumption of milk as a drink began in the late nineteenth century and was part of a wider process of developing safe and healthy food movements.²⁵⁴ In the early twentieth century, physicians, hygienists, doctors and public-health officials actively promoted fresh milk consumption as a key element of the human diet.²⁵⁵ Milk consumption was also pushed when technological innovations in the milk producing sector created surpluses as well as the scientific advances in microbiology and nutrition.²⁵⁶ New health-care professionals regarded milk consumption as a cheap means to deliver important chemical components to the human body.²⁵⁷ Compared to eggs and meat, milk was promoted as an equally nutritious but cheap alternative to the more expensive food. In a 1920 guidebook on cheese and butter production, British dairy specialists Charles William Walker-Tisdale and Jean Jones wrote that "[t]he value of milk as a food is shown by the fact that 1 quart of milk is equivalent in food value to 3/4 lb. rump steak, 10 eggs, or 4 lb. of cod fish."²⁵⁸ This new status of raw milk consumption played an important role in the appropriation of yoghurt. Since milk was the raw material for yoghurt

production, its favorable reputation and characteristics were transferred onto yoghurt. A major additional advantage of yoghurt was that, thanks to its preparation method, it reduced the hazards which raw milk could harbor. Although highly nutritious, raw milk could contain infections such as tuberculosis and salmonella.²⁵⁹ With the introduction of the pasteurization of milk, the risk of contamination was reduced, but infection during milk transportation, packaging or storage was still possible. The superiority of yoghurt was down to the technology of yoghurt production, which required the milk to be boiled. People believed that yoghurt preserved the nutritive characteristics of milk, yet diminished the risk of infections.²⁶⁰ Lactose intolerance was not an issue. Furthermore, the microbes causing fermentation had beneficial effects on human health.²⁶¹ The well-developed infrastructure for the supply and distribution of raw milk was easily adapted to the production and distribution of yoghurt. Thus, the social and economic politics in milk consumption played an important role in promoting yoghurt.

Early twentieth-century urban consumers were well aware of the positive aspects of milk consumption, as well as the risks it might harbor. Yoghurt entered the market not only as a fashionable cure for intestinal problems, but also as an alternative to raw milk. In 1908, during a discussion at the Royal Society of Medicine on the therapeutic value of the lactic-acid bacillus, the physician Robert Hutchison declared: “[i]f the ordinary patient was told to drink milk, he probably would not do so; but if told to drink sour milk, he would.”²⁶² In 1909, Swiss pediatrician Adolphe Combe advocated yoghurt consumption because he believed that “[a] great advantage of Yoghourt is its pleasant taste, which is never objected to even by patients who dislike milk. Yoghourt is more nutritious than milk in equal volume; it is easily digestible and has a slight laxative and diuretic action [sic].”²⁶³ He presented the idea of medical food, or of food acting like a medicine, a connotation applied to yoghurt. Combe insisted that “[i]n autointoxication from the intestines, Yoghourt is one of the best of the foods, and is most antagonistic to intestinal decomposition. Yoghourt can be used for an indefinite time without harmful results....[sic]”²⁶⁴

The process of establishing trust in yoghurt, first set in motion by the medical profession, was further reinforced by yoghurt producers in the early 1910s, first in France and later in Germany, Great Britain, and the Netherlands. The fear of the unfamiliarity of yoghurt was transformed into a passion for the exotic. As we have seen, health-care professionals had helped to move yoghurt out of the laboratory into the patient waiting room. With the support of eminent doctors and adventurous middle-class city consumers, the next step in the West European domestication of yoghurt was mass production.

Emigrants, Western Entrepreneurs, and “Natural” Yoghurt

Riding on the wave of yoghurt's popularity, a number of entrepreneurs started small dairies producing yoghurt with starter cultures or *maya* on the eve of World War I. Newly established yoghurt brands came in vogue, gradually shifting the attention of scientists and the general public away from the artificially produced tablets. Such interest was once more related to Metchnikoff as public scientist. Olga Metchnikoff's wrote in her memoirs, after her husband's experiments on lactic bacillus, the notion of the therapeutic “power of pure sour milk began to spread among the public.” That interest attracted dairy producers, one of whom “had the idea to prepare it on a large scale according to the new scientific principles” and contacted her husband for help.²⁶⁵ She was referring to Aram Deukmedjian, one of the first yoghurt producers in France, whose daughter happened to have Metchnikoff as godfather.²⁶⁶ Aram, born in Constantinople of Armenian descent, went to France as a student with a French scholarship in 1909. Subsequently he graduated in economy at the Sorbonne. Three years later, in October 1912, he established the yoghurt brand “Aram,” which he sold in a Parisian creamery-restaurant named “Cure de Yogourt.” Driven by the rising yoghurt consumption in France, in the same year Deukmedjian opened a factory for yoghurt production that supplied the city of Paris and its suburbs with 1000 pots of yoghurt daily.²⁶⁷ Olga Metchnikoff wrote that her husband played a significant role in the success of this new enterprise. Aram was looking for “someone whom he could entrust with the technical work of preparing the pure curdled milk.”²⁶⁸ For his part, Metchnikoff was willing to find a position for his goddaughter's father. He trained his protégé in the required techniques and recommended him to the healthy living public.²⁶⁹ Despite his place of birth and possible tacit knowledge of how to produce yoghurt, Deukmedjian still sought Metchnikoff's widely acknowledged and science-based expertise. The scholar thus borrowed scientific principles in the production of the *Aram* yoghurt, which was an important step towards the product's appropriation by the French market. To be successful, Deukmedjian mobilized Metchnikoff's name and scientific authority when positioning the new brand on the French market. Olga Metchnikoff asserts that “a short time later, the manufacturer declared that he could not be sure of the success of his enterprise without the guarantee of Metchnikoff's name, whose research had proved the advantages of the preparation. After consulting the Pasteur Institute's legal adviser, Metchnikoff consented to this, without of course having any pecuniary interests; the formula chosen was ‘sole provider of Professor Metchnikoff’[sic]”, she wrote.²⁷⁰

The success of Aram's yoghurt shows the importance of Metchnikoff and his followers in popularizing yoghurt. Their life stories introduce another significant

factor in popularizing fermented milk. Other emigrants from the Balkans also helped spread the knowledge about yoghurt production. From the late nineteenth century until the 1930s, the permanent economic and political crises after the Balkan states gained their independence from the Ottoman Empire, caused many residents to emigrate to Europe and the USA.²⁷¹ The two Balkan Wars in 1912-1913 also caused many others to seek opportunities elsewhere.

In 1919, Jewish-Greek émigré Isaac Carasso opened a small company producing yoghurt in Barcelona. A few years earlier in 1912, at the advanced age of 65, Carasso had emigrated with his family from the multicultural city Thessaloniki, where Jewish residents made up half of the population and Turks, Greeks, Donme, Levantines, Bulgarians, Armenians, and Roma the other.²⁷² Jews emigrating from the Balkans to the West in the period from 1880 to 1924 were fleeing economic hardships, the severe political climate, military conscription, and natural disasters, as well as the national, ethnic, and religious conflicts that emerged when the Ottoman Empire weakened and national struggles for autonomy strengthened.²⁷³ Like other Balkan emigrants, Carasso brought the knowledge and practical skills for soured milk production from the region.

The company Danone would play a key role in developing the yoghurt market and transforming the image Europeans projected in decades to come. According to Danone company historians Félix Torres and Pierre Labasse, Carasso was familiar with Metchnikoff's work and theories.²⁷⁴ It is therefore no surprise that after emigrating to Spain, he promoted the Balkan product that could prevent the intestinal problems affecting many young children, which had a lot to do with poor hygiene and the hot climate.²⁷⁵ Instead of food stores or dairies, he distributed the yoghurt through the city's pharmacies because the product was still considered a medicine rather than a foodstuff. To introduce the product to the Spanish dairy market as early as 1912, Danone combined two strategies. Metchnikoff's theory of the beneficial effect of yoghurt was applied to product images. Danone's advertising materials were distributed in surgeries and Carasso used the doctors as mediators to promote his product commercially.²⁷⁶ The symbol of the brand was also well chosen. To illustrate the close relationship between yoghurt and science, Danone chose as its logo a microscope: a symbolic expression of the scientific development and pureness of the product. In general, the company strategy was to highlight the healthy effect of consuming yoghurt. Carasso emphasized the beneficial effect on human health and longevity. Furthermore, the product was represented as the universal foodstuff for all genders and ages, as the company targeted a wide variety of consumers like young, middle-aged, and elderly people, as well as middle-class housewives, and the health-aware public.²⁷⁷ Yoghurt distribution through

pharmacies for relieving stomach problems led to an appreciation of the product as medicine.

The emigrants from the Balkans were not the only ones who saw a commercial opportunity in the rising popular demand for yoghurt. Well established large-scale dairies and newly emerging small-scale yoghurt workshops, similar to those of the emigrants, also entered the yoghurt market in Europe. An example of a dairy producer that expanded its production line to include fermented milk was Société Laitière Maggi, founded in 1901 in Paris by Julius Maggi, who launched the yoghurt brand *Maggi* in 1912.²⁷⁸ The company's interest in yoghurt production grew; by the 1910s and 1920s, the production and consumption of natural yoghurt had almost entirely replaced the yoghurt tablets. Scientists and dairy producers alike advertised yoghurt as a traditional diet of the Balkan population, who they portrayed as simple people living long and healthy lives. The notion of authenticity was nurtured through direct references to countries considered the homeland of yoghurt. To emphasize this sense of locality, yoghurt brands in the 1910s and 1920s were named after geographical regions, towns, or mountains in the Balkans – mainly in Bulgaria, even though they were produced in France. The products names traced an imaginary map of yoghurt's land of origin: *Le Danube*, advertised as the Véritable yaourth; *Sofia*, distributed in the 1920s and 1930s by La Société Nestoroff; *Vardar*, produced by La Société Mavale in the 1920s and 1930s, *Balkans* by Bozoni, *Yaourt Constantinople* and Piskorsky yoghurt by the G. Piskorsky enterprise based in Cannes; *Yoghourth des Balkans*, *Yaourth Maritza*, a trademark from the 1930s until the 1960s and produced by La Société Speransky; and *Rila*, a 1930s Iamkoff product.²⁷⁹ All those brands were produced by small dairies and sold in ceramic pots. As most of the non-French names indicate, the companies were presumably owned by immigrants.

There were also well-established (multi-national) companies on the French market like *Maggi* and *Nestlé* that jumped on yoghurt's rising popularity to launch their own yoghurt brands. As social historian Yavuz Köse asserts in a study of the Anglo-Swiss milk company *Nestlé* and its marketing campaign in the Ottoman Empire, the larger yoghurt producing companies borrowed the expertise for yoghurt production directly from the countries where yoghurt was common food.²⁸⁰ Around 1915, *Nestlé* opened a small plant "Fabrique de Joghurt," for the research and production of their new product, based in the heart of the region, the city of Constantinople. According to the documents Köse studied, the product was intended for the French market. He points out that in 1920, "this preliminary attempt was extended with the opening of an experimental laboratory for dairy products in Paris."²⁸¹ *Nestlé* appropriated the technology of yoghurt production

by studying the local practices and then transferring the knowledge to a new milieu. They emphasized the “oriental” origin of the cultures used to produce their products.²⁸² To promote the *Nestlé* product in Paris, the company used illustrated advertisements and brochures demonstrating the Turkish origin of yoghurt and extolling its quality.²⁸³ The advertisement promoted the notion that a healthy lifestyle would extend one’s life, using the image of a healthy-looking, bearded, elderly, supposedly Turkish man. The promotional material emphasized the authentic and exotic character of its yoghurt. *Nestlé* used the same advertisement later as marketing strategy to successfully promote the product to other markets.²⁸⁴ The supposedly exotic character of yoghurt conveyed the idea that the product was alien to what was considered European culture and native to an unfamiliar region, culturally and religiously different.



Figure 1 – “Paskal joghurt” Advertisement, 1920s.

Source: www.reklamemarken-vignetten.de

Nestlé was not the only company selling their yoghurt by creating an image of health and exoticism. A yoghurt producer based in Munich also used this marketing strategy in the 1920s and 1930s. The German firm produced a brand named *Paskal joghurt*. Their advertising campaign is a good example of what was believed to be authentic yoghurt. The firm offered both yoghurt and dried cultures as tablets or ferments for yoghurt making. The *Paskal joghurt* firm designed three separate images to promote their products, each with a different message and embodying diverse ideas of yoghurt. The first emphasized yoghurt's exoticism and included two different personages alluding to the Orient (Fig. 1 and 2). Their strategy highlighted traditions that were different from Europe by using distinct symbols representing a foreign culture. The posters depicted a young waiter offering yoghurt, his clothes and accessories indicative of the Orient (Fig. 2). The boy was dressed in loose Turkish trousers (*shalwars*), had a turban on his head, and wore pointy

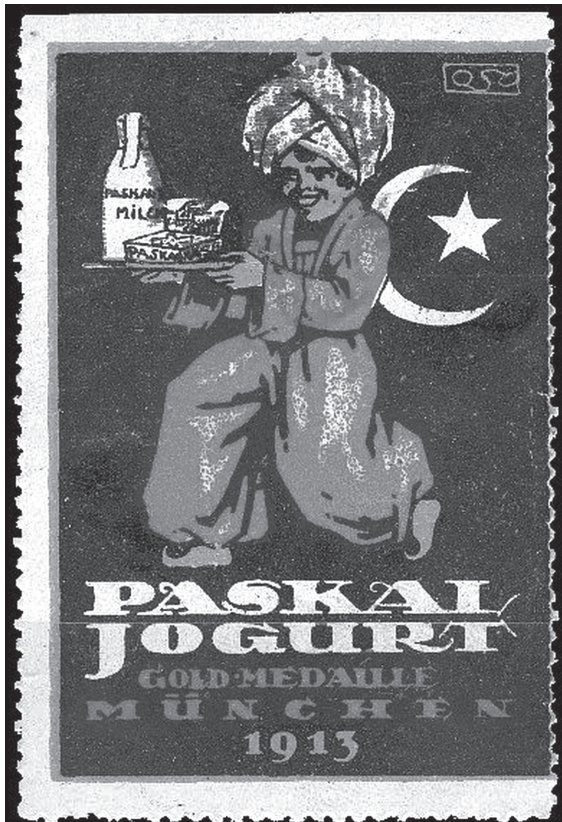


Figure 2 – “Paskal joghurt” Advertisement, 1920s.

Source: www.reklamemarken-vignetten.de

Aladdin-type shoes. All these details communicated a message about the waiter's ethnic origin and transferred his attributes onto the product he was offering. The advert drew a direct association with Oriental and Muslim cultures. In that sense the exotic not only signaled difference and exoticism, but also regionality and authenticity. The message of *Paskal joghurt* was that through the products, the consumer would reach that mystic world and culture.

Another similarly evocative character was a seller with a traditional yoke to carry yoghurt (Fig. 1). The personage was most likely from the Ottoman Empire; this conveyed a difference between the promoted exotic oriental product and the fashionable European cosmopolitan world. Here the producers of *Paskal joghurt* played on the association between their product and the authentic technology of yoghurt production in the Balkans. Thus, the circulated symbols of otherness made the consumer perceive the advertised product as geographically distant.



Figure 3 – “Paskal joghurt” Advertisement, 1920s.

Source: www.reklamemarken-vignetten.de

Paskal yoghurt commodified the featured food by presenting the far-off nutritive traditions as desirable, seducing consumers to part with their money.²⁸⁵

The connotations of distant, foreign, and exotic cultures, tickling the European consumers' imagination, remained constant components of the message in the advertisements, but were not the only ones. A further marketing strategy supplemented the authentic and exotic image of *Paskal joghurt*, anticipating and answering the question why the consumers should buy it. Presenting an image of an old bearded man, the company referred to another aspect of yoghurt consumption: longevity (Fig. 3). A short caption informed the consumers that the man was "*ein hundertjähriger*" or centenarian. The reason for his longevity obviously was the yoghurt he promoted in its dried form (*Trockenspeise*), ready for consumption (*genußfertig*). Here we have a shift in emphasis: from highlighting what is natural and traditional in the previous advertisements, to using the idea of longevity as the bait. Moreover, dried cultures were far from the traditional methods of yoghurt production.

Another marketing strategy the *Paskal joghurt* producers employed was to claim the universality of yoghurt and its easy production at home or in the dairy. The slogan that came with a do-it-yourself message asserted: "Necessary for every household" (*Unentbehrlich für jeden Haushalt*) (Fig. 4). Thus, the dairy producers insisted that yoghurt was easy to prepare as well as necessary for the whole family. This message was conveyed through a third personage in their advertisements. A middle-class urban European woman dressed in modern clothes presenting the tablets produced by *Paskal joghurt*. Intentionally or not, that advertisement presented the woman not consuming "the real oriental yoghurt" in the first campaign, but its Europeanized equivalent – the dried tablets of *Lactobacillus Bulgaricus* which were said to have the same characteristics as the other products.

This campaign perhaps exemplifies the differentiation between the scientific or "artificial" product and the traditionally or "naturally" produced yoghurt. The "natural" product was associated with foreign traditions visually presented as exotic but also somehow backward: a message encoded in the traditional oriental costumes, as well as in the depicted primitive methods of yoghurt selling and distribution (Fig. 1 and 2). In contrast, the advertisement of the "artificial" product projected a modern European urban lifestyle. Yoghurt was now replaced by the scientifically produced lactic-acid tablets. With the image of a modern woman, fashionably dressed, offering boxes of yoghurt tablets produced with the help of omnipotent science, the company intended a clear association between Europeans from the large urban centers and modernity. That advertisement allows a more diversified picture of the intended yogurt consumers. Using the young female

figure set a new and unprecedented gender-orientated advertisement strategy. To reinforce the association, the background introduced a silhouetted skyline of Munich, featuring the Cathedral of Our Dear Lady (Fig. 4).

As the advertisements show, German and Swiss producers turned people's attention towards the part of Europe considered less developed, even oriental: the Balkans. At the same time, the representations offered by scientists and yoghurt producers alike construed the Balkan Peninsula as a region with a healthy life-style and healthy food, unlike the more industrialized and developed European countries. These images were not tied to Bulgaria, but to the region of the Balkan Peninsula, where the Ottoman Empire had been an influence for eight centuries. Due to the complicated national politics after the Russian-Turkish War, following by two Balkan wars, the differentiation of the various nationalities and



Figure 4 – “Paskal joghurt” Advertisement, 1920s.

Source: www.reklamemarken-vignetten.de

emerging states was hard for anyone outside the region to understand. That generalized vision of the exotic, healthy, and delightful Ottoman lifestyle was not only a German and Swiss specificity, but a common image distributed as yoghurt characteristics to the rest of Europe, depicting the product as a new foreign food. Those embodied visions attributed to soured milk were also a result of the dramatic changes that urbanization, mechanization, mass-scale production, and consumption had brought. Many Europeans in the industrializing world nostalgically turned to nature and saw the economically less-developed countries as closer to the traditions and nature that had been lost in the West. Thus, the traditional food of countries far removed from France, Germany, and the Netherlands became an example of a healthier lifestyle compared to life in the cities.²⁸⁶

Advertising Bulgarian Yoghurt as Authentic

Not surprisingly, the yoghurt producers embraced the idea of exotic food so popular with the reading public. The scientific arguments for yoghurt's Bulgarian origin – its quality and beneficial effects first introduced by Elie Metchnikoff in 1907 – were employed to market the product. In 1908, scientists Fournier, Combe, and States had stressed the superiority of Bulgarian soured milk compared to similar products, but did not distinguish it as exclusively Bulgarian; instead they presented it as a Balkan and Turkish product, although pointing out: “[t]he best known and most studied of all the oriental curdled milks is the Bulgarian curdled milk or yoghourt. This is especially used throughout European and Asiatic Turkey, in Greece, Montenegro, Serbia and Bulgaria.”²⁸⁷ In 1909, Combe had stated that “[t]he coagulation in this preparation is due to a special ferment called Maya.”²⁸⁸ These scientific treatments dating from 1909-1910 did not clearly explain the distinction between Bulgarian soured milk and the other yoghurt-like products from the region, despite Metchnikoff's suggestion based on Grigoroff's research. Nevertheless, in 1909-1910, Bulgarians were perceived as healthy and long-living people, a perception which traveled around the scientific journals and public press. That set a certain tendency to refer to Bulgaria even if Bulgarian yoghurt was a synonym for an entire range of yoghurt-like products.

The direct association with Bulgaria became a notable characteristic, as the definition in the prominent French dictionary Larousse (1923 edition) testifies: yoghurth or yogourt was: “*lait caillé, qui constitue l'un des principaux aliments des montagnards bulgares. Utilisé en médecine dans le régime alimentaire des sujets atteints de problèmes gastro-intestinaux, ou digérant mal le lait. On dit aussi yaourt,*

yahourt” [Soured milk is one of the main foods of people living in the mountains of Bulgaria. It is used in medicine for patients with gastrointestinal problems or who have difficulty digesting milk. One also refers to it as *yaourt*, *yahourt*].²⁸⁹ The Bulgarian soured-milk label was used increasingly to both a specific product and a generalization for all yoghurt-like fermented milks containing *Lactobacillus bulgaricus*. For example, in 1933, French microbiologist Fernand Corminboeuf highlighted two characteristics of Bulgarian yoghurt: the health benefit and the traditional character (“*le nom bulgare “Yoghourt” veut dire ‘lactic acide de digestion facile. Ce dernier produit était, selon la tradition ancienne, utilisé couramment comme préventif de nombreuses maladies...[sic]*”) [The Bulgarian word “Yoghourt” means ‘lactic acid for easy digestion.’ According to ancient tradition, this product was commonly used to prevent many diseases].²⁹⁰

Why did Bulgaria become such an important factor besides the obvious impact of Metchnikoff’s writings? Why did the notion *Bulgarian yoghurt* assimilate different ethnic products? A possible explanation was that until the late nineteenth century, parts of the Balkans belonged to the Ottoman Empire. The Turkish five-century political domination influenced the external understanding of the various nationalities shaping the Empire. Even after some Balkan countries became independent, from a West European perspective, those new states were considered to have similar characteristics and were often presented in opposition to Western Europe.²⁹¹ In that sense, the typologization of the region was transferred to the foodstuff, and presented as identical. Yoghurt was common in Bulgaria, Greece, and Turkey; but for many Europeans, the local variants were difficult to distinguish, therefore they considered different products as one and the same. Bulgarian yoghurt became a *pars pro toto* for various products in the Balkan region, but this does not explain attributing the Bulgarian origin.

In 1910, three years after Metchnikoff’s *Essais optimistes*, in which he referred to elderly Bulgarians, the *New York Daily Tribune* published a short item about the oldest woman in the world. The newspaper said she came from Bulgaria. Baba Vasilka, who was born in May 1784, in the Bulgarian hamlet of Pavelsko, was apparently competing by one year with “the claim by Frau Dutkiewitz of Posen, born in 1785, to be the oldest woman in the world.” The article provided the record of Vasilka’s birth, kept in a neighboring orthodox monastery. She was presented as “the daughter of a peasant, and worked as a peasant up to a comparatively recent date. For more than a hundred years she worked regularly in the fields.”²⁹² A year later, British dairy and nutrition specialist Loudon M. Douglas, in his book *The Bacillus of Long Life*, apparently featured the newspaper article along with a picture

of Baba Vasilka (Fig. 5 in the Appendix), presenting the 126 year-old as “the oldest woman in the world.” The picture also showed Baba’s son Todor, whom the author described as “a youth of 101 years, active and vigorous.”²⁹³ Following Metchnikoff’s claims about the connection between the foodstuff and longevity, Douglas used the image of the centenarian and her son to introduce his book promoting fermented milk consumption. He directly attributed the connotation of Bulgarian yoghurt as healthful nutrition by presenting Baba Vasilka and her son as “typical examples of people who live to a great age by taking soured milk, as it has been their principal food all their lives.”²⁹⁴ Douglas argued that in Bulgaria, “the majority of the natives live to an age considerably in excess of what is recognized as the term of life amongst Western nations, and inquiry has disclosed that in the Eastern part of Southern Europe, amongst a population of about three millions, there were more than three thousand centenarians found performing duties.”²⁹⁵ The author stated that it is quite common “to find amongst the peasants who live to such a large extent on soured milk, individuals no younger than 120 years of age.”²⁹⁶

As a 1921 article indicates, longevity remained one of the more enduring connotations of Bulgarian yoghurt. American microbiologists at Yale University, Leo Rettger and Harry Cheplin stressed that “[n]umerous instances are on record where persons lived and retained much of their early vigor to a very old age particularly in Bulgaria, and where, from all appearances, they owed their long life to sour milk, which was their staple and in many cases practically the only diet.”²⁹⁷ The authors reinforced the already popular perception of Bulgarians as healthy and long-living people, a topic of discussion in scientific journals and in the popular press around 1909-1910.

The recognition of Bulgaria as the land where yoghurt possibly originated was further exploited throughout the two phases of yoghurt’s existence in European urban markets: first in the promotion of tablets and later when yoghurt produced in dairy workshops and pharmacies dominated the market. For instance, in the 1900s and 1910s, the French brand “La Maya Bulgare” was an excellent example of the embodiment of a Bulgarian origin to yoghurt. In the 1900s, *La Société de la Maya Bulgare* led the French market, producing yoghurt and starter cultures as well as publishing materials to promote the novelty.²⁹⁸ In its 1908 leaflet, the company linked their product to Bulgaria (Fig. 6 in the Appendix), using this to persuade potential consumers to buy their products. Convinced of the effectiveness and power of this message to convey the sense of locale, the company simply headlined it “*La Maya Bulgare*” [The Bulgarian Maya]. The company and product names were written at the top of the leaflet, followed by the Bulgarian coat of

arms and a small crown – symbols of the Bulgarian kingdom. *La Société da la Maya Bulgare* believed that directly relating their product to Bulgaria was all the advertising needed to sell their product. Such a strategy could only succeed if the consumers were clearly aware of the connection.

Bearing in mind the extreme popularity of Metchnikoff's ideas of longevity, the hidden messages were probably crystal clear. More than twenty years later, Dutch dairy producer *HET* had a similar advertising strategy (Fig. 5), showing how the market had moved further north. In the 1930s, the company used a personage similar to the images in the *Nestlé* and *Paskal yoghurt* advertisements in the 1910s: a healthy looking old man with a long beard – thus sending clear messages of orientalism that were already becoming clichés. The man in their brochures supposedly looked Bulgarian, playfully drinking yoghurt. That message was further underlined by the slogan, “*Doet als de Bulgaren, drinkt yoghurt om uw jeugd te bewaren*,” encouraging the consumer to follow the Bulgarians' example and drink yoghurt to preserve their youth. On another poster, the same personage promoted the accessibility of the product, stressing the price and recommended daily consumption. A brief text highlighted that one out of 650 Bulgarians was a centenarian, a clear reference to Metchnikoff's theory that their yoghurt consumption was responsible. *HET*'s advertising efforts to attract consumers were not innovative because the company used accepted images of the Ottoman Empire as exotic when referring to Bulgaria. Moreover, the direct connotation of yoghurt as a Bulgarian product was also a marketing invention as a step towards differentiation of the shaping yoghurt market.



Figure 5 – Advertisement of *HET*.

Source: Geheugen van Nederland, BG C17/323, “*Doet als de Bulgaren, drinkt yoghurt om uw jeugd te bewaren*,” <http://www.geheugenvannederland.nl>

The introduction of yoghurt in France, Switzerland, Spain, and Germany and its transformation into a mass product also increased yoghurt producers' desire to attract consumers not only with effective marketing, but also by differentiating yoghurt products. One example was the Spanish-French yoghurt producer Danone. After establishing a successful yoghurt business in Barcelona, and attracted by yoghurt's popularity in France, Isaac Carasso and his son Daniel decided to expand the family firm to France in 1929. At that time Daniel was studying at École Supérieure de Commerce in Marseille. He also attended bacteriology courses at the Paris Pasteur Institute.²⁹⁹ That was not surprising considering Metchnikoff was working in Paris and the French yoghurt market was already established. At first, the family pursued a strategy similar to the one developed in Barcelona ten years earlier: Danone yoghurt started out in a small atelier in Paris. Like his father, Daniel Carasso distributed the product in pharmacies and relied on doctors to popularize the brand.³⁰⁰ But unlike in Spain, the yoghurt market in France was better developed, with different yoghurt brands. The new market situation required a different strategy to promote Danone yoghurt.³⁰¹

As the brand name did not convey the same authenticity as other producers, Daniel Carasso used another strategy to promote the product on the French market. According to his memoirs, the strategy was “*vendre la différence en termes de nouveauté, de qualité et de présentation*” [selling the difference in terms of innovation, quality, and promotion]³⁰² To differentiate Danone yoghurt from the competition, Daniel changed the product packaging. He changed the earthenware pot the company had used in Spain, and which competitors in France also used, with a new returnable white porcelain pot. These pots helped to distinguish Danone yoghurt visually from its competitors but also established a vision of an elite product, imbedding a certain meaning of prosperity and wellness, he believed.³⁰³ The creation of original packaging was followed up with a direct advertising campaign. In 1930, advertising agency R. L. Dupuy created posters with the slogans “*Délicieux et sain, le yoghourt DANONE est le dessert des digestions heureuses!*” and “*le yoghourt DANONE est pur et fait de bien*” [“Delicious and healthy, DANONE yogurt is a dessert for happy digestion!” and “DANONE yogurt is pure and does you good”].³⁰⁴ Instead of promoting their product as a cure, Danone redefined and introduced it as a healthy dessert, offered in an elegant porcelain pot. Labeling yoghurt as a “dessert for happy digestion” referred to a sweet, last course served after the main meal. What made yoghurt superior to all other desserts was its healthy effect on the digestive system.

Yoghurt campaigning embodied the twentieth century nutritionists' idea that particular foods might also serve as nutrition. That was not only a smart

advertising move, but also made sense, given the changing role of yoghurt in urbanized Europe. This transformation of yoghurt's image from a medical treatment to a healthy dessert enabled European dairy producers to attract a wider range of consumers. Danone played the role of pioneer in that process. Although The Second World War interrupted that process temporarily, yoghurt producers continued to advertise a dessert rather than a cure. After the war, the product gained new meaning as a tasty dessert, good for anyone, and available in a great range of flavors, as we will see.³⁰⁵

Yoghurt's popularity gained new momentum in the 1930s with the introduction of a small device for producing yoghurt at home. One of the first yoghurt makers (*yaoutière*) in France, produced by a dairy firm *Laboratory Yalacta*, confirmed that more than two decades after Metchnikoff advanced the theory of putrefaction, the curative effect of yoghurt and its exotic origin remained the most successful strategies for yoghurt producers. Using the established and effective advertising slogans, the company started promoting their equipment as a cheap and easy way to produce yoghurt. Its 1934 campaign stated: "*Tout le monde connaît aujourd'hui les vertus thérapeutiques du yaourt, à la consommation journalière duquel le célèbre professeur Metchnikoff attribuait la beauté, la vigueur et la longévité des races orientales*" [Today everyone is familiar with the therapeutic virtues of yogurt, to which daily consumption the famous Professor Metchnikoff attributed the beauty, the vigor, and longevity of the Oriental people].³⁰⁶ The producer claimed that these therapeutic virtues were well known thanks to Metchnikoff's popularity among people outside the scientific world. Hence, *Yalacta* was advertised as a product recommended by medical specialists both for infants and adults, for sick and healthy. Yoghurt was described as both healthy food and medically approved for regulating the digestive functions.³⁰⁷ Another advertisement used the same argument, quoting Metchnikoff's work to advance yoghurt's popularity: "*depuis les travaux de Pasteur et Metchnikoff, personne n'ignore que le yaourt, qui forme pour ainsi dire la base de l'alimentation des Turcs et des Bulgares, constitue s'il est, préparé dans les conditions requises un puissant désinfectant intestinal*" [Since the work of Pasteur and Metchnikoff, everyone is familiar with the fact that yogurt, which is a staple food of the Turkish and Bulgarian diet, is prepared in [climatic] conditions that require a powerful intestinal disinfectant].³⁰⁸ The advertisement referred to Metchnikoff and Pasteur as distinguished scientists, whose authority validated yoghurt. Producers also showed that yoghurt was a staple food in Turkey and Bulgaria, but prepared scientifically thus had a positive effect on intestinal problems.

What distinguished the *Yalacta yaoutière* from other devices, the company claimed, was the strict control over the "exact technology" for yoghurt production.

According to *Laboratory Yalacta*, the efficiency of other manufacturers' products was uncertain because they failed to follow the right technology. *Yalacta*, made by the French and originating in the Orient, the advertisement announced, offered an alternative, enabling consumers to produce yoghurt at home by following the hygiene requirements and controlling the fermentation process.³⁰⁹ Here subjectivity was stimulated and rejected at the same time. The mistakes which the dairyman could make, the home makers could avoid by using the *Yalacta* device. The producers also emphasized that anyone could produce yoghurt and adapt the product to their personal taste by following four simple steps.³¹⁰ Not only the easy use requiring just raw milk but also the good quality of the end product were touted as characteristics to win over consumers. The yoghurt maker was also advertised as a cost-saving device, supposedly enabling consumers to make yoghurt six times cheaper: "*De plus, le yaourt fait avec Yalacta revient au prix du lait, c'est-à-dire six – fois moins cher que celui vendu dans le commerce*" [What's more, yogurt prepared with *Yalacta* comes down to the price of milk, in other words costs six times less than the yoghurt sold commercially].³¹¹ The *Yalacta* devices were promoted as very easy, even simple way of producing yoghurt, requiring only raw milk and ferments. Other advantages claimed was the significantly lower cost than when yoghurt produced at home than purchased.

The arrival of do-it-yourself yoghurt makers on the market was a result of the change in yoghurt consumption, shifting from artificial tablets to the product now presented as naturally produced. It was also a response to growing consumption and an attempt to make yoghurt more accessible by bringing the technology into the household. The developing yoghurt market in Europe encouraged this innovation but also affected the manufacturing technology and the ideas behind the product. By presenting the process of yoghurt making as a technique that was easy to do at home, *Yalacta* partly demythologized and demystified the product. While repeating the wide-spread clichés of therapeutic effects and oriental origins of yoghurt, *Yalacta* advanced some new connotations: "[l]'appareil Yalacta, pratiquement incassable et inusable, permet non seulement de contrôler la fraîcheur et la propreté du yaourt servi, mais aussi de le préparer doux ou acide à volonté, sans compter diverses recettes au café, au chocolat, aux fruits [The *Yalacta* device, virtually unbreakable and durable, not only lets you control the freshness and hygienic qualities of the served up yogurt, but also prepare it to suit your taste, sweet or sour, besides including various recipes with coffee, chocolate, and fruit]." Thus the producer educated the consumer in not only how to use the yoghurt maker but also highlighted the advantages of being able to experiment at home with new flavors to suit their taste. A free brochure "*Les Précieuses Recettes d'Orient*" [The

Precious Recipes of the Orient] containing recipes with coffee, chocolate and fruit etc. accompanied the device.³¹² *Yalacta* encouraged taste sensations, already transforming the perception of yoghurt as remedy. Even while constantly stressing that yoghurt was a “*cure de désintoxication*” [cure against desintoxication], actually *Yalacta* was advancing a transformation in the way yoghurt was produced, consumed, and imagined.³¹³

While consumers in the rest of Europe could not miss the Bulgarian connection and Balkan emigrants had jumped on the bandwagon to commercially exploit that connection, ironically, the actors from the young Bulgarian state were not involved in creating the yoghurt's origin. In the early stages, no Bulgarian nationalist either political or scientific figure influenced the popularization of Bulgarian yoghurt abroad, even though in the first place it was the Bulgarian scientist Grigoroff who had informed Metchnikoff about the connection between yoghurt consumption and the longevity of Bulgarian peasants. Nor did other Bulgarians until the late 1930s, when the image was already firmly established. In 1937, Bulgarian scientist I. Kvatchkoff's article “*Considérations sur le Lait Caillé Bulgare de Brebis (Kisselo Mleko ou Kvasseno Mleko)*” was published in the highly influential international dairy journal, *Le Lait*.³¹⁴ Kvatchkoff presented the status of Bulgarian dairy specialists, almost twenty years after the lively debates that Metchnikoff's ideas had sparked.

Kvatchkoff demonstrated his familiarity with international scientific research and discussed various types of milk used for yoghurt production in Bulgaria and in countries like France, Germany, America, and Russia. He stated that the transfer of technology was linked not only to the allocation but also to the appropriation and adaptation of the new production and consumption patterns to the new milieu. Kvatchkoff concluded that even the copious research conducted by foreign scientists used samples of yoghurt made from cows' milk.³¹⁵ He contended that this was what made Western yoghurt essentially different: “*même en employant pour le caillé le maya bulgare, tandis que dans le vrai lait caillé bulgare de brebis le principal agent microbien est toujours – le bacille bulgare qui paraît jouer un rôle plus spécifique que celui du yogourt*” [even when used for curdling Bulgarian Maya, while in the real Bulgarian soured milk prepared from sheep's milk, the main microbial agent is always – the Bulgarian bacillus which seems to play an even more significant role than the yogourt [yoghurt] itself].³¹⁶ His research with Bulgarian yoghurt made from sheep's milk delivered better results than yogurt cultured with Bulgarian maya but produced from cow's milk, he wrote.³¹⁷ He made a remarkable distinction between the product in Bulgaria and the one flourishing on the international market. He maintained that the soured milk produced

abroad was not “true Bulgarian sour milk.” The main difference, he thought, was in the raw material which differed significantly in composition, thus affecting the end product. Instead of traditional Bulgarian sheep’s milk, foreign European firms made yoghurt from cow’s milk.

His argument failed to influence the further representation of yoghurt as Bulgarian on the international market. The image created by a host of Europe-based scientists, producers, and popular press could not be easily destroyed by a single article. Kvatchkoff’s contribution was to demonstrate what a representative of the country perceived as the homeland of yoghurt, thought of the product “Bulgarian yoghurt” on the European market. He did not comment on the images and messages but instead emphasized the differences in yoghurt production. To him, any deviation from practices considered traditional marked the product as inauthentic. He thus questioned the effective technological transfer to foreign countries with their own gastronomic traditions. Kvatchkoff even criticized scientific knowledge as basis for the inauthentic yoghurt produced from cow’s milk, opposed to the “*vrai lait caillé bulgare de brebis*” [real Bulgarian sheep milk yoghurt]³¹⁸ Here Kvatchkoff posed a significant question about the transfer of a product considered traditional. He highlighted the impossibility of an exact replication of a technology or a product undergoing relocation. The yoghurt turned into something non-authentic once it migrated from the Bulgarian context, he suggested.

Conclusion

Yoghurt’s arrival on the French, German, British, and Spanish urban markets began with Metchnikoff’s discovery that fermented milk consumption might benefit consumers’ health. Despite the rising popularity of Metchnikoff’s theories, introducing that new product in Central and West European consumers’ diet was far more complex. Scientific research concluded that *Lactobacillus bulgaricus*, the basic bacteria in yoghurt composition, had a beneficial effect on human health, however, it did not establish the connection to longevity as such. Nevertheless, the assumption of yoghurt’s connection to healthy lives and longevity together with Western consumers’ attraction to the packaged image of exoticism enabled its popularization. The attribution of oriental authenticity fuelled successful marketing strategies, influenced by western understanding of the various nations comprising the former Ottoman Empire. The image of exoticism attributed what was named *ottoman yoghurt* as a generalized product consumed on the Balkan Peninsula as well as in European and Asiatic Turkey. That generalized oriental

yoghurt was packaged with the story of its ancient origin, nutritive value, and long tradition, while the new scientific discoveries confirmed its beneficial effects. Even if dairy producers' marketing created a strong image of an exotic oriental product, scientists and journalist singled out Bulgaria as a yoghurt country. Metchnikoff's suggestion that the high number of Bulgarian centenarians had yoghurt as their staple diet directed attention to the possible connection between yoghurt consumption and longevity. Adding visual weight to this theory of Bulgarian longevity was a picture of a 126-year-old Bulgarian woman and her 101 year-old son, which dairy and nutrition specialist Loudon M. Douglas used to illustrate his book in 1913. Entrepreneurs exploited these connections between Bulgarian and yoghurt in their marketing by simply transferring the well-established image of yoghurt as an exotic oriental food to what they claimed was Bulgarian yoghurt. Labeling the product to a specific country was a way to differentiate it from the competition, using the scientific claim linking Bulgarians' longevity to their daily yoghurt consumption. The technological transfer of yoghurt allowed that dissemination and yoghurt's appropriation by other societies, which could then "transform" something that was foreign into familiar categories. The import of yoghurt-production knowledge to diverse European countries placed it in an entirely different milieu. The process led to re-contextualization and adaptation to the new market, consumers, and nutritive habits as well as to industrialized dairy production. Adjusting the traditional product to broader consumer patterns meant the Europeanization of yoghurt, first by way of France.

Chapter 3

Shifting to Mass Production, 1930s-1940s

Urbanization along with scientific and technological innovations in leading European countries inspired similar reforms in Bulgaria. The push for modernization of Bulgaria's dairy industry in the first half of the twentieth century shaped both milk and yoghurt production. This chapter traces the mutual shaping of technological and social changes of home-made food. I explore how modernizers of yoghurt production sought to replace home-based, women producers with trained dairymen and science-based production, and why they dismissed women producers as outdated in their attempt to reproduce their practices and generate a Bulgarian and "authentic" product.

Modernizing Bulgarian Dairy

The transformation of yoghurt from home-made product to mass-produced foodstuff was a long process. Before Bulgaria became autonomous, Bulgarians were traders in the Ottoman Empire. Since the mid-nineteenth century, Bulgarian entrepreneurs had been active yoghurt producers in many large Ottoman cities like Constantinople, Edirne, and Thessaloniki, close to ethnic Bulgarian territory. They developed strategies and gained experience of yoghurt production beyond the home-made production customary on individual farms. According to Ivan Zafirov Masharov, who worked for the Bulgarian Exarchate in Constantinople from 1908 to 1910, the dairies operating in Constantinople were predominantly owned by Bulgarians.³¹⁹

In 1886, the first issue of the *Statistics Reports*, published by the newly established Bulgarian Principality's Statistics Department, listed the price of raw milk in 21 Bulgarian towns and also included other dairy products like butter, cream, white cheese, and kashkaval.³²⁰ The state did not present statistics for yoghurt, suggesting that it was not yet a commodity in the 1880s.³²¹ Like the development of the dairy industry elsewhere in Europe, yoghurt production was closely linked to urbanization and agrarian modernization. In Bulgaria, this transformation took

longer, accelerating particularly in the late 1920s when urban residents demanded good quality raw milk and a variety of other dairy products like yoghurt. Selling yoghurt as a mass-product first started in the larger Bulgarian cities. While in 1920 only Sofia and two other cities had a population of over 20,000 (Russe and Burgas), by 1934 Bulgaria boasted twelve relatively big cities: Burgas, Varna, Pazrdzhik, Plovdiv, Pleven, Russe, Sliven, Sofia, Stara Zagora, Harmanly, Shoumen, and Yambol.³²² Those changes were typical of the 1930s, when municipalities faced the challenge of providing a steady supply of healthy raw milk for their growing population. For urban residents, the inclusion of drinking milk in their daily lives was a new practice; to meet the growing demand for greater quantities of raw milk, dairymen had to upscale their production.³²³

In 1934, the head of Sofia's veterinary department and veterinary control lecturer at Sofia University (1927-1933), Asen Kaloyanov, provided a detailed description of milk supply in the Bulgarian capital.³²⁴ Trained in Berlin, the veterinarian stated that providing the city with raw milk had become a pressing issue because the surrounding villages could no longer meet the city's milk consumption: a dozen or so small farms with ten to twenty cows and about a thousand producers, each owning two to five cows or buffalos, could only supply five to ten thousand liters of milk a day.³²⁵ These nearby dairymen transported the raw material over a limited distance of four-five kilometers, delivering their milk early in the morning to individual customers, institutions like hospitals, schools, and restaurants, and also creameries and milk shops for further distribution. For most farmers, dairy farming was not their main activity; they only sold the surplus for additional income. Middlemen, along with peasants from nearby villages were the main suppliers in the emerging distribution chain between farms and the expanding cities. The emergence of mediators changed the direct consumer-producer relationship that used to regulate the quality of the product. However, this new milk supply chain suffered from high and unstable prices of poor quality milk: milk was frequently falsified by being watered down, skimmed or adulterated with additives.

To a certain extent, nothing unique was happening in Bulgaria. All urbanizing European countries faced similar problems with food supply once cities expanded. Especially challenging was the distribution of perishable foods. Through intense campaigns advocating its favorable effects on health, milk consumption increased dramatically in Europe after the 1870s.³²⁶ The establishment of the European dairy market started at the regional level with "the growth of an urban market for dairy products in the first half of the nineteenth century."³²⁷ German historian Barbara Orland emphasizes that the internal industrialization of the European dairy industry in the late nineteenth century was a significant factor in its modernization.

She shows that, overall, the industrialization of milk and dairy production led to the formalization, institutionalization, and standardization of the dairy sector in Europe.³²⁸ The agricultural innovations along with the ideas circulating across national boundaries shaped the modernization of agriculture, emerging as a shared European process throughout Britain and the European continent.

Organizing milk production on scattered family farms so that the perishable product quickly reached far-away cities was not an easy process, however. Indeed, the challenge of supplying milk to cities and controlling the quality of milk in the entire milk supply chain from the farm to urban consumers was hotly debated by European dairy specialists.³²⁹ With the growing insights in harmful microorganisms, experts saw almost every surface as a potential agent of infection, involving microbes of tuberculosis, cholera, typhus, and many others. The potential risks from food products led to discussions on the pressing need to control the entire chain from production through processing and preservation to the trade of animal products.³³⁰ In her case study of the development of German dairy markets in the late nineteenth century, Orland argues that “[m]ilk hygiene, as a reflection of the attempt to make a highly sensitive natural product marketable, gained much more influence than debates within the community of bacteriologists. Scientists had to take into account the forces of a completely renewed milk market.” The issue of hygiene “turned out to be the crucial factor in the ability of sellers to survive on the market,” she stated.³³¹ With the growing awareness of the importance of hygiene, milk was subjected to strict sanitary, chemical, and microbiological control that impacted production.

Although the modernizers of the Bulgarian dairy sector shared their European counterparts’ concerns, there was a specific national context to these transnational discussions: politicians and scientists of the newly established state saw modernization as a key strategy to de-link Bulgaria from its oriental past. After its liberation from five centuries of Ottoman rule, Bulgaria eagerly followed European economic and industrial models in its attempt to build up a new state. The French specialist in Balkan history Bernard Lory has coined the notion of de-Ottomanization to describe the greater process of building a national identity.³³² Thus the driving forces behind the Bulgarian emancipation from its recent past and national identity formation were the dual processes of de-Ottomanization and Europeanization.³³³ When Bulgarian modernizers looked to imitate the modern European dairy industry, they viewed Europe not as a geographical entity, but rather a symbol of economic prosperity and scientific and technologic progress. They drew a mental map of Europe by focusing on countries with developed dairy industries such as Denmark, Germany, the Netherlands, and Sweden

– countries with well-developed structures in cheese, butter, and raw milk production. Despite Bulgarian's idealized image of industrialized and urbanized Europe, there were many cities with substandard dairy production. In their comparative study in 1937, American economists Lois B. Bacon and John M. Cassels wrote that the quality of the milk in Rome's dairy markets "was extremely bad," compared to what they found in Paris and Berlin. They considered the conditions on Italian farms "often filthy." Milk was "commonly skimmed, diluted and adulterated with foreign substances of various sorts," they reported.³³⁴

In this process of de-linking from the Ottoman Empire – and thus by extension Europeanization – Bulgarian modernizers found powerful tools in science and technology. The need to transform and modernize the agrarian sector opened up debates among businessmen, scientists, and policymakers. Modernization of the dairy sector was discussed in numerous trade journals by veterinarians, chemists, economists, agrarian specialists, and sanitary inspectors, many of whom had trained abroad.³³⁵ In these journals they promoted European achievements, advocating dairy co-operatives, collecting stations, and supply centers. The Bulgarian modernizers, however, did not comment on the methods of yoghurt mass production and the possible application in their country. In fact, initially yoghurt did not even enter into the overall discussions on Bulgarian dairy modernization.

The first periodical dealing with the problems of agriculture was *Plow* (*Орало*), which appeared in the 1880s and its successor, *Agriculture* (*Земеделие*) published between 1908 and 1944 by the Agrarian Association, followed by the periodical bulletin of the Ministry of Agriculture and State Property *Agriculture Reviews* (*Сведения по земеделието*) (1920-1934). Other important media were the monthly *Veterinary Collection* (*Ветеринарна сбирка*), the official organ of the Society of Bulgarian Veterinarians in the period 1892-1942, and the monthly journal *Chemistry and Industry* (*Химия и индустрия*) published by the Bulgarian Chemistry Association from 1922 to 1943.

As agriculture professionalized further, three different journals dealt exclusively with the problems of the milk and dairy sector. In 1935, an association of stock-breeders and dairy producers from Sofia and the region launched the *Dairy Producer* (*Млекопроизводител*). Although short-lived (two years), the periodical aimed "to protect the material interests of the dairy producers."³³⁶ By discussing how to improve stock-breeding and the production and distribution of milk, *Dairy Producer* contributed to the development of the dairy sector. A year later, in 1936, veterinary specialists trained abroad established their monthly journal, *Meat and Milk* (*Месо и мляко*). Up to 1942, the editorial board, which included veterinarians and agronomists, published articles by Bulgarian and international

scholars. In 1940, teachers at the first State Dairy School in Pirdop launched a new journal, *Dairy Enlightenment* (*Млекарска просвета*), which survived three years. The journal's title conveyed its objective: "the professional advancement of Bulgarian dairymen."³³⁷

All the authors writing in these journals presented Bulgaria's dairy sector in the 1930 and 1940s as an outdated, decentralized system of small-scale family farms with technologically backward operations.³³⁸ Only the reorganization of agriculture would solve the poor economic conditions of Bulgarian farmers. Thus the discussions in the Bulgarian dairy sector represented modernization as a contest between two mutually exclusive discourses: the modern and the traditional. Such discourse was common in the debate on modernizing Europe's dairy sector.³³⁹ International cooperation between countries enabled the transfer of technology and ideas and the circulation of knowledge and practices. With the nineteenth-century revolution in science and technology, the idea of inevitable progress became codified in the discourse of dairy modernization.³⁴⁰ The dairy sector in Europe and the United States experienced a similar transformation also because of the intensified links between national markets and international trade since the early 1920s.³⁴¹ Most prominent were Denmark and Sweden.³⁴² During the 1920s and 1930s, the Swedish together with American, Canadian, and British initiatives "worked as a model for milk marketing in other European countries."³⁴³

Thus national dairy developments occurred in an international and global context. Experts discussed at length national similarities and how to appropriate foreign examples. In 1921, the French language international dairy journal *Le Lait* followed the example of the Netherlands when it came to the inspection of milk.³⁴⁴ Later, the journal chose Britain as an international model on how milk consumption should be promoted.³⁴⁵ On the other hand, Britain referred to Danish trade examples when evaluating its dairy industry.³⁴⁶ Local advocates often presented the achievements of one dairy nation as an underdevelopment of another. Foreign examples and other countries' goals were used as powerful tools to encourage the development of local industries. British social democrat H. M. Hyndman, for example, argued: "I should not be so hopeful of this happy [milk] consummation but for the fact that other countries and cities have been compelled to pay close attention to the milk business, and that, in spite of our curious inability to march with the times in relation to our food supply."³⁴⁷ To make his point, Hyndman gave as example Denmark, where a "complete revolution in the milk trade" was in fact down to private companies.

Bulgarian specialists were no exception. In 1931, Bulgarian economist D. Danailov in his article "Co-operative Production of Dairy Products" presented

the European model as necessary for the Bulgarian dairy market, outlining significant factors to achieve this goal: guaranteeing product quality in relation to consumer expectations (cheap/good-quality); standardizing products in order to reach as many customers as possible; and adopting European examples.³⁴⁸ The author suggested that “today’s market requires goods of good quality, standardized, and cheap.”³⁴⁹ He urged better organized and centralized milk production to ensure the modernization of the dairy sector, including cheese, yoghurt, and butter production. In 1934, agricultural specialist Yanko Antonov focused on changing the entire milk chain: from the point of breeding animals to delivering the product to consumers, from farm to fork, as he put it.³⁵⁰ It was “essential to regulate and modernize the milk supply for large consumer centers (Sofia, Plovdiv, Varna, Burgas, Russe, Pleven, Stara Zagora, and others).”³⁵¹ Two years later he wrote: “The more developed countries have long since solved the problem, persistently seeking improvement in the hope of achieving perfection: that is to provide consumers with healthy milk of an absolutely guaranteed good quality, with preserved natural and nutritive characteristics.”³⁵² Antonov campaigned to implement the production and distribution chain according to the examples of Britain, the U.S., Denmark, the Netherlands, Switzerland, Sweden, Norway, and others, noting that “the issue of supplying the cities with milk is becoming more and more topical.”³⁵³ He believed that concentrating the farmers in larger organizations was an essential step, as was establishing the milk chain from the farms to urban homes and dairies, where milk was transformed into cheese, yoghurt, and other dairy products.

Closely following the international trends, Bulgarian specialists like Danailov and Antonov drew attention to quality and hygiene. These problems arose later in Bulgaria than in the European countries with more developed milk industries. Milk was brought under strict sanitary, chemical, and microbiological control. In 1931, representatives of the Institute for Public Health, Il. Tzonev and L. Berova-Stoycheva argued that product quality depended on the level of hygiene.³⁵⁴ Factors causing milk contamination were the cattle sheds where milk was produced, the animals themselves, the containers for storing milk, and the dairymen.³⁵⁵ Doctors, veterinarians, economists, agriculturalists, and microbiologists emphasized the impact of hygiene on all the practices involved in the production of milk. Dairy specialists believed that food should meet several health criteria according to existing technological, scientific, and hygienic requirements. Sanitary, chemical, and microbiological control would guarantee consumer satisfaction as well as health and economic interests.³⁵⁶

Not only food and health-care professionals and scientists recognized the problems in the dairy sector. Successive Bulgarian governments considered the

food supply to the urbanized areas as their major responsibility. They believed they could manage the food chain more efficiently with a centralized dairy system to ensure government control of all levels and steps in milk processing and dairy production.³⁵⁷ Their policy goal was to guarantee healthy, pure milk, of a good quality, for urban consumers.³⁵⁸ Three key concepts for the dairy sector figured in these discussions: milk hygiene, quality, and safety. The main instigator in reorganizing the dairy sector was the National Government Agency of the High Agrarian Consulate at the Ministry of Agriculture and State Property. The Agrarian Consulate together with the Regional authorities played an important role in establishing a centralized milk supply chain to maintain government control. So did veterinarians at regional sanitary offices, many of whom were trained abroad. From the 1930s on, as part of state politics to modernize the dairy sector, various structures slowly emerged: co-operatives, milk collecting points, dairy stations, veterinary stations, and laboratories. Such structures, putting into effect the centralization of Bulgaria's dairy industry, were modeled after the common processes in Western and Northern Europe, where a well-developed milk chain guaranteed quality and hygiene control.³⁵⁹

In 1935, by enforcing legislative regulations, the state authorities pushed through a major reorganization in the dairy sector, by first issuing *A Decree for Milk Processing*.³⁶⁰ The decree required the establishment of regional collecting centers to facilitate raw milk conservation and distribution from the production site to the city before reaching consumers. The regulators considered the new infrastructure essential because infections were a result of improper milk treatment, conservation, and transportation after milking on farms, which they could not control in the traditionally organized sector.

Like elsewhere in Europe, laws restricting the number of enterprises encouraged the consolidation of dairy producers into one single dairy processing station per dairy region.³⁶¹ Policy makers divided Bulgaria into dairy regions. Each division had a veterinary surgeon and dairy controlling agencies as state representatives. The enterprises received the milk from the regional collecting centers and processed it into dairy products. The law allowed both cooperative and commercial processing stations. The milk collecting and processing stations were regulated by a committee, whose members were regional specialists: a veterinary surgeon, an agronomist, and an agricultural inspector.³⁶² To establish new collecting stations, the government regulated the number of milk producers, the milk processing conditions, and the distances from the cities.³⁶³ Through knowledge transfer and appropriating foreign experiences, Bulgaria's dairy supply used the models of the city of London's supply chain and dairy organizations in the Netherlands and

Denmark. The centralization of the dairy industry was a thus a common process that emerged in Europe through the establishment of so called “dairy zones” and processing stations.³⁶⁴ In 1936, for instance, Yanko Antonov provided a modernist description of the dairy processing stations, arguing that their main function were “to normalize the milk supply in certain areas by using the healthiest methods and most modern technology.”³⁶⁵ He believed they would guarantee milk quality and lead to efficient milk processing. New methods would “normalize and stabilize milk prices, and ultimately encourage an increase in the consumption of various dairy products.” He concluded that all was done “in the name of consumers’ health and economic interests.”³⁶⁶ The spread of modern processing stations was delayed with the outbreak of war in 1940: financial investments for buildings and machinery were lacking. The first modern dairy station “Serdika,” established in Sofia in 1940, collected milk from 14 smaller receiving stations in the region, which distributed the pasteurized milk to dairy shops or processed it into dairy products.³⁶⁷

Similar to developments in Western Europe, the call for experts and the institutionalization of specialist training were the last building blocks in the push for modernization of the dairy sector. The generation that had been trained abroad now called for institutions in Bulgaria for the next generation. In building new institutions of dairy education, again models were borrowed from Europe. Committed to serve their young nation, many returned home like Stamen Grigoroff, to help build and modernize what contemporaries saw as “underdeveloped” and “oriental” Bulgaria. The returning professionals were mediators of European influence, who introduced European innovations and models.³⁶⁸ As professional education became one of the most powerful instruments of implementing modernization, governments encouraged the creation of institutions for professional training. Still, the orientation towards Europe was not the only decisive factor for young Bulgarians. There was no institute of higher education in Bulgaria until 1888, when a Higher School was founded in Sofia, upgraded to the status of university in 1904. This did not change the situation in the field of agriculture, because the university offered programs only in history, philosophy, mathematics, physics, and law. That changed when the Faculty of Agronomy was formed in 1921 and the Faculty of Veterinary Medicine in 1923.³⁶⁹

The Bulgarian state used professional education as a tool to professionalize, modernize, and reorganize the dairy and agrarian sectors. The demand for specialists prompted the establishment of professional dairy education to teach dairy masters how to use machinery, analyses, new technologies, and hygiene standards. In 1935, the Ministry of National Economy financed the first specialist institution for dairy education, the State Practical Dairy School in Pirdop, a small town in western

Bulgaria, 80 kilometers from Sofia and at the heart of the traditional dairy processing region.³⁷⁰ The School provided students with theoretical and practical training in milk processing techniques to produce cheese, butter, and fermented dairy products; it also taught dairy product control.

The School admitted only male students between 17 and 25 years-old with a secondary education. It offered a two-year course plus one additional year of practical training in dairies approved by the Ministry of Agriculture, after which students graduated as dairy masters and received a craftsman's certificate.³⁷¹ The requirement for secondary education excluded farmers' daughters from specialist education, amounting to an active intervention of excluding women. That was a remarkable development. After all, dairy production was usually farm women's work. Thus both the formal education and the professionalization of production resulted in the masculinization of the dairy industry, reserving the field for men only. Simultaneously in many other industrial sectors, the technological innovations led to more work for women because they could be paid low wages. In these contexts, their work was designated as unskilled. As labor historians have argued, the interpretation of skill and craft was a thoroughly contextual matter.³⁷² In 1930s-1940s when dairy mass-scale production was introduced in Bulgaria, this was based on pre-industrial foundations. What actually happened was that a home-based production practice acquired the characteristics of a craft. Craftsmanship in Bulgaria was traditionally for men, with stepwise learning of skills and clear hierarchical distinctions between apprentice, journeyman, and masters. Specialized dairy schools both reproduced and reinvented those traditions which excluded females from training.

The first schools were established in 1883, in the town of Sadovo (east of Plovdiv, Central Bulgaria) and in Obrazcovo chiflik (near Russe, Northern Bulgaria) before other agrarian schools followed in Pleven, Kyustendil, Vidin, Haskovo, Dobrich, and others. Modernizers found these schools too basic to meet the demands of reforming the dairy sector, however. According to the 1940 edition of the Pirdop School magazine *Dairy Enlightenment*, commemorating its fifth anniversary, the School considered the mission to fill the gap in professional dairy training "an urgent need."³⁷³ The editorial wanted to re-connect Bulgaria to the rest of the European continent, claiming that only through professional education, could Bulgaria become "part of those countries where the dairy industry accomplished considerable progress thanks to science and modern technology."³⁷⁴ Establishing an educational center to train certain categories of professionals resulted from gradual specialization of the dairy industry within the agricultural sector. The diversification of the individual dairy branches went hand in hand with the need for specialized knowledge and milk processing practices.

Introducing Science for Yoghurt Manufacturing

The modernization of Bulgaria's agrarian sector only took place after the 1930s, when governmental policies sought to manage agricultural development, demographic transition, and economic prosperity. The modernization of the dairy and yoghurt industry was part and parcel of that process. Since milk was the basic ingredient for yoghurt production, the reorganization and appropriation of new scientific practices and technology for milk production, distribution and quality control equally affected yoghurt manufacturing. Dairy and veterinary specialist Kosta Katrandzhiev observed the transition of home-made to mass-scale production of yoghurt in his time.³⁷⁵ In his 1940 article, he presented the contradictions and difficulties when modern methods replaced the traditional production practices. After training as a veterinarian in France, he moved back to Bulgaria to become the manager at the Capital Station for Milk Control in Sofia in 1938. Katrandzhiev's European education nurtured a pro-modern predilection and a resolve to transform Bulgaria's dairy industry according to the leading European examples. He actively advocated modernization by publishing articles on milk control and dairy manufacturing. His call for a modern dairy industry according to the revolutionary (technological) regimes marked a radical departure from what he considered the traditional models of production. In fact, he was one of the most active promoters of the reorganization and scientification of the dairy sector.³⁷⁶

In 1937, Katrandzhiev and his colleagues found that the yoghurt manufactured in Sofia's dairies was often substandard because the microorganisms introduced into the milk were problematic: the samples they analyzed showed that *Lactobacillus bulgaricus* failed to develop in the correct proportions for soured milk. Some samples showed mutations; in others, the microorganisms were suppressed by competing microorganisms. According to Katrandzhiev, impure, contaminated, and old leaven was to blame. Moreover, he was alarmed that various dairies produced yoghurt with a different taste and consistency. Like Metchnikoff's advice two decades earlier, he expected that if the dairies implemented hygiene control and used clear cultures instead of *maya* in their production of yoghurt, such problems would disappear.³⁷⁷ As Station manager, he administered the delivery of starter cultures to the dairies from his laboratory to improve the quality of yoghurt.³⁷⁸ The Station's laboratory selected and filtered the microorganisms to turn them into "pure cultures" for yoghurt manufacturing. To overcome the dairymen's resistance to changing their routines, the Station distributed the selected microorganisms free of charge. Katrandzhiev argued that "this improvement in

the quality of soured milk in Sofia hardly costs the Municipality anything at all. What one needs is initiative and perseverance.”³⁷⁹ He echoed the discussion from the 1930s, but showed how the technological and scientific achievements had also been introduced to yoghurt production. In 1943, the director of the State Practical Dairy School in Pirdop, Nikola Dimov, emphasized the role of the dairymen in producing a good quality and hygienic product, asserting that milk control should not only be the task of specialized institutions, but also the responsibility of dairymen. “Your craft, dear masters,” he said, “is not to develop a non-existent quality of milk in your production, but to preserve the quality of milk in the manufactured product.”³⁸⁰ The director insisted on the need for dairymen’s training in how to operate the equipment for basic milk analysis.³⁸¹ This milk control equipment should be standard in any dairy or milk station.³⁸² Introducing machinery and new science-based milk control techniques and dairy processing methods was crucial for the mass production of yoghurt. Establishing laboratory cultures was a step further in the process of modernizing yoghurt production.

The cultivation of clear cultures begged several questions: What was the “typical” Bulgarian product? Which micro-organisms were needed for its production? What was the correlation between them, and what characteristics like taste and consistency should they have? To answer these questions, experts based their explanations on scientific rationale. In 1938, Bulgarian veterinarian surgeon and author of the first Bulgarian handbook on yoghurt manufacturing, K. Popdimitrov, explained the technology in *Bulgarian Soured Milk, Origin, Manufacturing, Nutritiousness, and Control* (Българското кисело мляко. Произход, производство, хранителност и надзор). For producing Bulgarian soured milk, Popdimitrov excluded all micro-organisms, except *Lactobacillus bulgaricus* and *Streptococcus thermophilus* (e.g. *Streptobacterium casei*). Others organisms like *Bacillus subtilis*, *Bacillus mesentericus*, *Bacillus amylobacter*, and *Mycoses* were spoiling the yoghurt; he determined them as “undesirable micro-flora.” He defined the “typical” characteristics of the microorganisms essential for yoghurt like the proper structure and their reaction to a certain ambiance.³⁸³ He wrote: “the microflora of Bulgarian soured milk is completely different from others soured milks. The microorganisms in Bulgarian soured milk are thermophilic (milk is leavened and yeasted warm) but at the same time they [*Bacterium bulgaricum* and *Streptococcus thermophilus*] grow excellently in symbiosis.”³⁸⁴ The symbiosis between the two microorganisms was the essential characteristic of Bulgarian yoghurt; the proportion of *Bacterium bulgaricum*, as he referred to *Lactobacillus bulgaricus*, to *Streptococcus thermophilus* should be 3:1. If an organism failed to have these characteristics, the product

was defined as atypical, according to the scientific terms he now defined as the *sine qua non* for Bulgarian yoghurt.³⁸⁵ Thus in transferring yoghurt from the farm and small dairies to the laboratory, experts at the Station asserted their authority to set strict technological criteria for the mass-scale production of yoghurt, based on their understanding of what “real” Bulgarian yoghurt should be. Scientists introduced “clear cultures” to generate a standardized product and prevent any deterioration in the taste and quality of yoghurt. Its microbiological composition was also adjusted to ensure it remained consistent throughout production. Standardization was thus a further step in promoting regional, local yoghurt as a typical national product.

We should bear in mind that the soured milk produced at farms throughout the centuries was never made with what scientists defined as pure cultures. Many additional microorganisms were also part of yoghurt’s micro-flora. The personal selection each housewife made, preserving the yoghurt considered the most delicious as *maya* for the next day, resulted in a selection of leaven with two dominant, but not exclusive, bacteria: *Lactobacillus bulgaricus* and *Streptococcus thermophilus*. Her selection was based on taste. Yet, the process of standardization the Station promoted resulted in defining what constituted Bulgarian yoghurt and how it should be produced. By having the common characteristics of the product fixed, yoghurt became nationalized as Bulgarian yoghurt: a product with its own specifications according to criteria set for production technology rather than for taste. Katrandzhiev described the two basic requirements for mass producing what he called “high-quality genuine Bulgarian soured milk: impeccable hygiene and competence.”³⁸⁶ He thus defined Bulgarian in scientific terms according to transnational criteria of science practice rather than in local terms of taste and experience. Katrandzhiev asserted in another article in 1940 that “the mass consumption of soured milk has created favorable conditions for domestic trade, which forced the production of soured milk to leave people’s homes and to opt for hygienic conditions and an up-to-date technology.”³⁸⁷ His claim was that the mass-produced yoghurt gradually gained its market share over home-made production. Katrandzhiev believed that the dairymen who sold urban residents mass-produced yoghurt needed to be trained in the principles of science and sanitation. Indeed, Katrandzhiev like other prominent specialists such as Popdimitrov and Marinov, considered it essential that dairymen familiarized themselves with how to use clear cultures in production, avoid the mutation of the yoghurt strains, prevent infection by keeping the cultures clear, and how to use sterilized, fresh, excellent quality milk with sterilized containers. Marinov blamed the problems in mass dairy production on the lack of such knowledge, convinced that ordinary

dairymen were not sufficiently qualified to maintain those standards and so needed additional training.³⁸⁸ These ideas were further supported by special editions of scientific journals that explained how clear cultures were essential and could benefit yoghurt production.³⁸⁹ The measures to improve the quality of mass produced yoghurt went hand in hand with strict control of the milk supplied to Sofia, regular inspection of dairies, and laboratory product testing.

Katrاندzhiev warned that the yoghurt produced in private commercial dairies was not always of good quality.³⁹⁰ Yet despite claims that modernization would improve quality, he also acknowledged that mass production resulted in deterioration in quality and loss of taste and aroma. He admitted that the small-batch production of yoghurt in farmhouses was prepared with fresh starter cultures from good quality milk, according to the customary recipe, and were of much better quality than in commercial dairies. Despite his socialization in modernist dairy methods, Katrandzhiev believed that home-made yoghurt was prepared in better hygienic conditions because the processes were more easily monitored than mass production under unhygienic conditions without the proper specialists. Those statements, however, do not imply he was advocating traditional technology. On the contrary, Katrandzhiev called for applying scientific methods and using clear cultures as the best ways to acquire the right quality of micro-organisms; he also thought they were the best ways to protect the specific flavor and guarantee the quality of yoghurt. In other words, despite these problems, he maintained his belief in the power of scientific methods.

Female Skill versus Male Science

The professional literature discussed how science could (or should) be applied to dairy production. In 1930, dairy and microbiology specialist Asen Kantardzhiev, at that time professor at the Agrarian Faculty of Sofia University, published *A Dairy Handbook* (*Млекарски наръчник*), the first Bulgarian manual on science-based dairying.³⁹¹ This was more of an overview of yoghurt manufacturing than the manual published by Popdimitrov, who sought to claim the product for the Bulgarian nation, stating that “Bulgarians from time immemorial admired soured milk as good food even as a cure for stomach pain and illness. Many legends, tales, myths, and historical monuments testify the use of sheep’s soured milk as a favorite food of the Bulgarian population.”³⁹² His elaborate presentation of the historical roots of Bulgarian yoghurt leads the reader along the paths of Bulgarian history. His historical overview, even though based on prominent historians at the time

such as Konstantin Jireček, Vasil Zlatarski, and Petar Nikov, was highly manipulative. Starting with the tribes that established the First Bulgarian Kingdom in 681 to the significant episodes up until the 1930s, he reinforced the notion that yoghurt was an indispensable component of Bulgarian nutrition. Despite evoking the past and its patriotism, the manual also introduced the reader to innovations in yoghurt production (including research on yoghurt micro-flora and nutritive characteristics), to instructions on collecting samples for microbiological and bacteriological testing of yoghurt and milk, and to regulations stipulating the organization of dairy workshops.³⁹³ Popdimitrov drew a parallel with the traditional practices in yoghurt production and commented on how they might benefit from scientific methods. While a valuable source on the problems of early mass production in the 1930s, the book also offers an excellent, elaborate, and rather unique description of traditional yoghurt production in Bulgaria that deserves our attention. I therefore discuss it here at greater length.

Popdimitrov describes how prior to mass production, the soured milk (yoghurt) was produced mostly for family and non-commercial use, preferably made from ewe's milk. Bulgarian women produced yoghurt daily, depending on the season, whether the religious calendar allowed the consumption of dairy products, but also on whether animals had enough nutrition or were free from disease. Floods or droughts also affected animals' productivity. Bulgarians produced yoghurt by extracting milk from different animals: ewes, buffalos, goats, cows, or by mixing those milk types.³⁹⁴ Despite the potential variation in raw material, most farm women preferred ewe's milk for their yoghurt production and both Popdimitrov and Katrandzhiev emphasized Bulgarians' preference for ewe's milk. Popdimitrov suggested that "from [t]he pure ewe's milk you can get the most delicious and nutritious Bulgarian soured milk."³⁹⁵ The biochemical composition of this type of milk and the symbiosis between the *Bacterium bulgaricum* and *Streptococcus thermophilus* gave the specific taste of Bulgarian yoghurt.³⁹⁶ Compared to cow and water buffalo milk, ewe's milk had the highest levels of fat, proteins, and lactose.³⁹⁷ Katrandzhiev, on the other hand, explained the popularity of ewe's milk by Bulgarians' preference for fattier products.³⁹⁸ He pointed out that yoghurt made of cow's milk was not as thick, and certainly less nutritive, than other types of milk, as the proportions of albumen and fat were half of those in sheep's milk.³⁹⁹ The characteristics of cow's milk affected the technology of making yoghurt. Because of its more liquid consistency, cow's milk was boiled until three quarters of the quantity was left, to thicken the milk.⁴⁰⁰ He thought yoghurt based on cow's milk was not genuine: it lacked the right density, contained more whey, and was less nutritious than sheep's milk. Some Bulgarians added 50-100 grams of cream to every liter

of boiled cow's milk to compensate for its liquid consistency. Katrandzhiev also did not recommend the goat's milk used in some regions because he did not like the taste nor found it suitable as *maya*. Goat's milk required a specific technique; before leavening, it needed to be boiled until half the quantity was reduced.⁴⁰¹

Popdimitrov's manual thus stated that only specific raw milk rendered the desired nutritive and organoleptic characteristics of genuine Bulgarian yoghurt. His prescriptions were the first step towards yoghurt standardization, but they ignored the regional variations including tacit knowledge, religious practices, and rituals to guarantee milk fermentation. For example, the availability of ewe's milk depended on the natural processes of lactation as well as the Bulgarian annual agrarian and religious calendar. Farmers only started milking on April 23, St. George's Day (Гергьовден) until July 12, St. Peter's Day (Петровден).⁴⁰² In the winter, or when ewe's milk was unavailable, Bulgarians relied on buffalo, goat, and cow's milk, which changed the taste of the yoghurt. Popdimitrov argued that buffalo yoghurt had less flavor than sheep-milk yoghurt.⁴⁰³

Farm women producing yoghurt for family use followed several basic steps. First, the farmer's wife boiled and then chilled the milk to a certain temperature. Then she added a small portion of yoghurt preserved from the previous day. Finally, in order to prevent any drastic drop in temperature, farm women covered the containers of leavened milk with woolen material. After 5 to 6 hours, the milk was transformed into yoghurt. Home producers of yoghurt regarded the introduction of *maya*, the agent of the extraordinary milk transformation, as the most risky stage. That is why farm women applied different techniques and rituals to guarantee the transformation of the milk, like using magical words; drawing a cross over the milk; and producing special sounds (e.g. whistling).⁴⁰⁴ In the village of Getcovo in North East Bulgaria, according to local folklore, cooled milk was put in a different container before adding the leaven. The youngest of the unmarried virgins was the main actor in this scenario. She poured the milk from a certain height through a golden ring into the new container.⁴⁰⁵

The peasant women preserved the leaven by drying it in special conditions. Nevertheless, sometimes the *maya* was not well preserved or "got lost." Then the farmer's wife would borrow some from the neighbors. If the whole village did not have enough *maya*, they borrowed from a neighboring village.⁴⁰⁶ Popdimitrov gives an account of other ways to preserve and procure *maya*. One technique involved dipping a cloth into a bowl of yoghurt and then letting the cloth dry. As a result, the piece of cloth would contain the right microorganisms. When the yoghurt producers needed it, they could easily reactivate the culture.⁴⁰⁷ According to Popdimitrov, a widespread method to activate leaven was by dipping a piece

of lamb into a small amount of raw milk. Left in the milk, the acid bacteria of the lamb would coagulate the milk. Reproducing the leaven several times by souring milk and extracting a new portion of leaven would result in a good quality *maya*.⁴⁰⁸ He goes on to describe that Bulgarians sometimes used natural sources to achieve the required microorganisms.⁴⁰⁹ Sometimes sour bread was soaked in water and when dipped in boiled milk, it was supposed to turn the milk sour. He described other techniques relying on formic acid. A stick put in a formicary would also coagulate milk. Plants were another source of the bacillus that caused milk fermentation. He even reported the use of gold coins called “*kostadinki*” to leaven yoghurt.⁴¹⁰

Popdimitrov explained why yoghurt tasted different in Bulgaria than “in Europe.” The microorganisms causing the fermentation of milk, despite having the same bacteriological characteristics, could affect the taste.⁴¹¹ He stated that “bacteriological and biological research has proven that there is no difference between the bacilli causing the fermentation of milk in Bulgaria and those in Europe; yet the end products differ. The yoghurt produced with the microorganisms isolated from Bulgarian soured milk, is better in taste and flavour than when produced with foreign microorganisms.”⁴¹² He suggested that each country had its own species of beneficial microorganisms generating specific national products, supporting the argument with an analogy: “as of today, the flavor of Pilsen beer has been mastered nowhere else except in Pilsen itself.”⁴¹³ He realized that “it was impossible to prove scientifically whether the characteristics of the soured milk in Bulgaria were related to climate-specific microorganisms – they could only be registered practically, based on the significant difference in flavor and taste.”⁴¹⁴ Popdimitrov did, however, manage to create a link between Bulgaria’s specific geography and climate and the uniqueness of yoghurt produced there. What he defined as Bulgarian soured milk, was not only a specific technology, but also a link between soil and climate resulting in what he named “climate-specific microorganisms.”⁴¹⁵ Popdimitrov thus connected yoghurt and Bulgaria to a geographical area; what made the product genuine, however, was a matter of sense perception: its taste.

Regarding taste, Popdimitrov also declared: the superiority of the micro-flora in the Bulgarian product was down to “the mass selection, as a result of the daily leavening of the yoghurt.”⁴¹⁶ This argument first appeared in 1930 in the *Dairy Guidebook* by Kantardzhiev, who commented on the local people’s instinctive selection of regional micro-flora. He concluded that because people preferred a certain taste, “a selection of the best fermentation-causing bacteria was unwittingly accomplished.”⁴¹⁷ Popdimitrov used the same argument to defend the uniqueness of Bulgarian yoghurt, saying that Bulgarian farm women actually accomplished

a natural selection of microorganisms by picking the most delicious yoghurt as *maya* for the subsequent leavening.⁴¹⁸ Recently, food scientist Charles Bamforth has called this “back slopping,” seeing it as the means “to seed the fermentation with the preferred micro-organism.”⁴¹⁹ The cultivation of bacteria by farmers’ wives was crucial in establishing a specific taste for the product that would differ from region to region, and from one nation to another.⁴²⁰ Producing home-made yoghurt from sheep’s milk was a daily practice for Bulgarian peasant women; what scientists described as natural selection was the repetitive process of selecting yoghurt samples according to what women-producers and their families considered good-quality yoghurt. In other words, what the scientists projected as a natural process was in fact an embodied practice.

Popdimitrov stressed the differences in taste of Bulgarian product but did not comment on the dissimilarity of yoghurt consumption in Bulgaria and what he referred to as Europe. When yoghurt consumption was transferred to countries like France, Germany, Great Britain, and the Netherlands, the consumption of the product was set in a new cultural and nutritive milieu. Its promotion by microbiologists, physician, chemists, and pharmacists influenced how it was received as curative nutrition. Daily consumption was recommended, but yoghurt was prescribed as medicine for digestive problems. As indispensable component of Bulgarian nutrition, soured milk was consumed on a daily basis regardless of age, gender, or social position.⁴²¹ It was prepared and consumed for family use by the farmer’s wife. Wealthy people had their domestic staff prepare food incorporating yoghurt. Yoghurt was consumed preferably in summer as refreshing lunch at harvest time.⁴²² Bulgarian ethnographer Ivanka Panicheva conducting research in Svoboda village (Chirpan region) recorded that people referred to yoghurt as ‘often milk’ (*често мляко*) referring to its frequent consumption.⁴²³ Soured milk was consumed regardless of the time of day. It was common for breakfast, lunch, and dinner, consumed raw and often combined as sauce to other dishes. It was not common practice to use yoghurt for cooking.

When the dairies began to mass produce yoghurt in the larger Bulgarian cities in the 1920s and 1930s, before slowly spreading to the smaller towns, initially they did not try to compete with the home-made production of soured milk. In 1940, Katrandzhiev recalled how in those previous decades, consumers had gradually got used to the product sold in the dairies, observing that “over the last few years, the production of soured milk in this country has been acquiring the status of an industry, even if still limited in scale, and this explains the growing demand for it....Nowadays, soured milk is not only home-made the way it was in the past; quite a few food places produce it and offer it, among them dairies,

confectioneries, restaurants etc.”⁴²⁴ He reported that Sofia consumed 3.5 tons of mass-produced yoghurt annually, suggesting a fairly established urban market and consumer demand.⁴²⁵

As a promoter of modernization, Katrandzhiev may have been biased, but in their history of the Bulgarian dairy industry, Atanasov and Masharov similarly discuss the establishment of dairy shops as an alternative to traditional household production.⁴²⁶ Several interviewees remembered the introduction of mass produced yoghurt and confirmed Katrandzhiev’s observation that home-made and mass-scale yoghurt coexisted. Bulgarian microbiologist Maria Kondratenko remembered during a 2009 interview that in the mid-1930s, “even in our small town [Aitos, South-East Bulgaria] there were three dairies offering soured milk.... My mother, even though she prepared soured milk at home, would sometimes send me to buy it from there.... Between the master craftsmen there was constant rivalry as to whose soured milk would turn out better.”⁴²⁷ Bulgarian writer Dragan Tenev also recalls how the dairies in Sofia sold yoghurt in the interwar period.⁴²⁸ He vividly describes the scene when the city woke up. Many people’s early morning routine included buying yoghurt: “around seven o’clock, sparks of life would start darting around the bakeries, grocery stores, butchers, and especially around the dairy workshops where the citizens of Sofia went to buy yoghurt rather than raw milk.”⁴²⁹ In his childhood, yoghurt was leavened in large enamel basins or earthenware pots (Fig. 6). He describes how the dairymen “using their roundish scoops of shiny stainless tin” served it into the customers’ containers.⁴³⁰ As these reminiscences show, for many households, yoghurt making was no longer part of their common daily practices in the 1920s and 1930s. Instead, urban residents bought yoghurt in a shop or at the market.⁴³¹

The dairymen produced yoghurt in earthenware pots that could hold five kilos and these were later replaced by enamel models. Domestic producers used unglazed earthenware pans and wooden containers.⁴³² Yogurt’s density was so high that the product was cut in portions according to the amount the consumer wanted to buy.⁴³³ As proof of the quality, consumers looked for the presence of *kaymak*: the fatty portion of cream on top of the yoghurt. Recalling her childhood, Kondratenko emphasized how important it was for Bulgarian consumers to have *kaymak* in their yoghurt. She remembers: “When I was buying soured milk, I always kept my eye on when they would start selling from a new pot with lots of *kaymak* on the top.... On the way home, I always ate the entire *kaymak*, which was considered the most delicious part of the soured milk. When I got home, my mother would ask me what type of yoghurt I had bought that had no *kaymak* at



Figure 6 – Old yoghurt pot from Getzovo village, in the Razgrad region of Bulgaria. Temporary exhibition at the Sixth Yoghurt Fair in Razgrad (2009). Picture: Elitsa Stoilova.

all.”⁴³⁴ She vividly described Bulgarian consumers’ preferences in yoghurt quality and their purchasing practices.

In the 1920s and 1930s, dairymen applying the technology for producing home-made yoghurt gave it the air of craftsmanship. As British historians Richard Blundel and Angela Tregear state in their article on the development of cheese factories in Britain, “artisan practices have both borrowed from and become integrated with industrial logics and strategies.”⁴³⁵ At this early phase of mass-production in Bulgaria, the interaction between artisanship and industry was not quite the same as in Britain. Industrial yoghurt production would only blossom in the late 1950s in Bulgaria, after the communist party ordered the nation-wide industrialization of agriculture, as I will describe in the following chapters. However, transforming the practices associated with home-made yoghurt into craftsmanship was a phase in its own right. In the interwar period, Bulgaria was an agricultural country with a predominantly peasant population guided by patriarchal values and Christianity mixed with ancient folklore traditions. The peasant home was the farm women’s domain that shaped the technological and craft activities. Yoghurt preparation was an exclusive domain of the farmer’s wife. That female activity in a traditional society was a mixture of technological knowledge as well as folklore and Christian values tied to women’s position in society. The introduction of industrial processing methods changed those relationships, meanings, and practices that had characterized yoghurt production as a female activity. That

transformation from home based industry into a craft was how women's home-industries were transferred into the public sphere.

The new urban market also re-defined the position of peasant women producing yoghurt for their own families. Aside from other tasks around the household, the farm, and the animals, peasant women began to play a specific role in the commercialization of yoghurt for a growing urban market. They took part in the exchange of goods as producers of a recently introduced commodity that until then had only been produced for their own family members' consumption. The growing demand for soured milk in the urban market encouraged peasant women to increase their production at home in order to make some money.⁴³⁶ The product was still produced in the traditional way, but with radical changes to its distribution and consumption.

Katrاندzhiev's 1938 article included a picture of peasant women selling their yoghurt at a town market. The caption says they were women from the village of Borisovo selling yoghurt at the "Momina cheshma" market in Razgrad (Fig. 7 in the Appendix). In the background, the picture shows a modern woman in non-traditional dress, representative of the potential urban consumer. To show how yoghurt was transported to the market, one of the peasant women has a large wooden shoulder yoke, balancing three pots of yoghurt on each side. The author does not explain why he published this picture. Given the subject, we could argue that this depiction of Razgrad market was meant to illustrate the primitiveness of dairy production in the countryside compared to the modern industry with scientists and laboratories that the author promoted in his article. The image of the three female yoghurt sellers also serves as a valuable and vivid source of practices in the yoghurt trade. An interview with the daughter of a yoghurt seller in another village close to Razgrad supports such a view. In the 1930s, O. X. often accompanied her mother to the market in Razgrad, going there twice a week on foot.⁴³⁷ The village women started out early in the morning and walked to the town carrying six pots hanging from a wooden stick on their shoulders.⁴³⁸ My interviewee's mother had regular customers such as the doctor, the wife of a Jewish tradesman, and others who preferred her mother's yoghurt and had it delivered directly to their doorstep.

Despite the two different systems of yoghurt production and distribution in the 1930s and 1940s, the growing mass-production, although limited to urban areas, disconnected town consumers like intellectuals, teachers, doctors, public servants, traders, advocates, and students from the consumed product, turning yoghurt producers into yoghurt buyers. This not only transformed the consumer-producer relationship, but also introduced other experts to yoghurt production. The methods of

the women producers of home-made yoghurt clashed with modern dairy production, where science, technology, hygiene, and strict control were the norm. When the home-made product became industrial, the profile of the people involved changed from peasant women to male workers in small dairies.⁴³⁹ Peasant women sold their product at town markets, but modernizers considered the practice improper and unhygienic. Gradually, women were excluded from industrial yoghurt production, despite being the traditional guardians of the technology for centuries. The reasons for this masculinization of yoghurt production were the growing urban-based market demand and the introduction of science. The amount of milk available to farmers' wives was limited since they used their animals' surplus milk. The amount of yoghurt the female producers could supply was much less than the dairies produced by collecting raw milk from various farmers. The market principles and production costs were crucial for transforming yoghurt from home-based to mass production in dairies. This was further institutionalized by the education system.

Despite his sympathetic portrait of home production in 1938, Popdimitrov considered modernization crucial for yoghurt production. He believed that in Bulgaria, "numerous multiple errors occur during its [yoghurt] production, preservation, and selling due to the extremely poor equipment and general ignorance in the area of dairy production."⁴⁴⁰ In order to guarantee safe and good-quality food for urban residents, he pushed for the regulation and control of yoghurt production by the authorities. Slowly, the traditional techniques of yogurt making were adapted to the efficiency principles of science-based industrial production. He believed such industrialization required new specialists; in practice it also meant a shift from female skills to male skills. As the selection process at the first dairy school in Pirdop shows, the specialists were to be men only, who would be taught the new requirements and logistics of modern dairy production. Manufacturing was transformed from a female home specialty to a male craft. At home, learning how to make yoghurt occurred tacitly, handed down from mother to daughter, whereas mass-production workers applied the lessons they learned in the dairy schools. Male students were introduced to production methods based on scientific achievements and newly developed machinery. The exclusion of women students from the dairy school, in effect, denied the former dairy producers the opportunity of specialized education. The authority of science, technology, and education thus turned into a powerful agency in the masculinization of female activities and in the 'regenderization' of yoghurt production.⁴⁴¹

This restriction became a major factor in the masculinization of dairy production, a process enforced and supported by the state and the scientific community. In 1936, the weekly Bulgarian magazine *Milk Producer* (*Млекопроизводител*) published an article entitled "Woman in Milk Production" ("Жената в млекопроизводството")

directly addressing the exclusion of female dairy producers from the modernization process. The authors raised an important question: “Should the woman who was and still is the keeper of dairying and milk production...be left in ignorance and unaffected by enlightenment and science?”⁴⁴² The article emphasized that: “The first dairy producers and milk processors...were women; they still have this role and would keep it in the future too, regardless of the fact that men have become “great dairymen” who open dairy processing stations, dairy shops, etc.”⁴⁴³ Only commercialization had brought men into dairy production. “It is well known that until recently, women were and even today...they are the housekeepers who run the household and the so-called minor industrial branches. Only recently, when they saw that cow’s milk provided for the family, did men become interested in dairy production.”⁴⁴⁴ The article suggested that Bulgarian dairy production might benefit from including women in the modernization process. It put forward the idea to have dairy and agricultural courses organized for rural women to “broaden their knowledge.”⁴⁴⁵ That suggestion did not materialize.

Labor historians have observed similar “masculinization” processes in other traditionally female sectors. One example is the industrialization of laundry work.⁴⁴⁶ Doing laundry – considered a natural and thus “unskilled” female activity – was transformed into skilled male work during its industrialization, as Arwen Mohun has shown.⁴⁴⁷ That process required the evolvement of “masculine ways of thinking about and organizing technology in order to function properly.”⁴⁴⁸ The discourses around the industrial laundry created symbols that led to the assumption that such work was essentially masculine. Laundrymen claimed that “commercial laundries were modern, mechanical, and scientific.”⁴⁴⁹ Similarly, modern dairy specialists argued that the dairies emerging in towns were “technologically better equipped.”⁴⁵⁰ Similarly, when yoghurt production was introduced to dairies, it was cast as a male practice opposed to the home production managed by “unscientific” and unskilled women. Masculinization of the dairy industry was justified through the introduction of technological equipment, scientific rationality, and specialized education. The technological change and idea of progress reinforced the process. Understanding the research-based knowledge and innovations as more rational, devalued the traditional methods of yoghurt production. Male experts and entrepreneurs’ growing claims about yoghurt production involved machines and new scientific knowledge (microbes, fermentation, inoculation, *Bacillus bulgaricus*, and so on) as indispensable for the quality and hygiene of the product.

Dairy experts routinely railed against rural women’s production methods as backward and old-fashioned. In 1938, Popdimitrov described the equipment required for a modern town dairy such as machines for pasteurization, a

thermostat, and a fermentation cupboard. In fact, these were simple tools, but labeled as highly developed technology to remove milk fat, regulate temperature, and pour the cooled or boiling milk into containers. In 1940, Katrandzhiev detailed the rudimentary requirements for modern yoghurt production. Even though the dairies followed the same steps and rules as the traditional yoghurt makers, they were presented as more exact, by claiming some activities were based on scientific principles like measuring temperature with an instrument and selecting starter cultures. For instance, the temperature of the milk before introducing *maya* was no longer checked by dipping your finger or elbow in the milk. Instead, the scientific procedure required a thermometer to indicate the exact temperature for milk leavening, considered to be 40-45°C.⁴⁵¹

Popdimitrov, Katrandzhiev, and Kantardziev suggested introducing the ferment with a syringe and a long needle. Popdimitrov criticized the practice of using the previously produced yoghurt as starter and suggested alternative ways to prepare starter culture directly before its introduction to the milk.⁴⁵² The scientific and rational yoghurt production methods together with machines and new practices gradually transformed the traditions of yoghurt making into a different product. Scientists introduced not only new procedures and tools, but also a 'new' scientific language. Katrandzhiev described the fermentation process as "the time during which the milk, at 40-45°C, cultured with a starter culture for yoghurt, acquired a dense, thick texture and a pleasant sour-milk taste and aroma under the influence of *Str. thermophilus* and *Lactobact. bulgaricum* [sic]."⁴⁵³ He pointed out that the proper correlation between them was essential for the quality of the yoghurt. Katrandzhiev recommended the bacteria in the proportion 3:1 (*Str. thermophilus* to *Lactobact. bulgaricum*). For the same reason he suggested a 0.5-1 % of leaven in that exact proportion be introduced into milk cooled down to 42°C. After three hours, the result should be a product with an agreeable texture and density.⁴⁵⁴

The push for scientific methods and the growing demands of urban residents for basic products were not the only driving forces in the modernization of yoghurt in Bulgaria. Both occurred in the political context of the country's modernization as the simultaneous and dual process of de-Ottomanization and Europeanization. In this modernization process, science and technology were powerful tools for yoghurt and dairy modernization. Bulgarian specialists used West-European scientific and technological achievements as a positive foreign example, contrasting them with the Bulgarian dairy industry they considered undeveloped and the antithesis of Europe. In this process, peasant women's traditions in yoghurt production were cast in the same category of anti-scientific and backwardness. The Bulgarian yoghurt debate represented modernization as a contest between two

mutually exclusive discourses: the modern and the traditional. Perhaps it is no surprise then that Bulgarian modernizers never used the Turkish term “yoghurt” but referred to it as *kiselo mleko*, nor explained its production and consumption as being influenced by the Ottoman Empire. Indeed, the product was considered a traditional Bulgarian nutriment. However, the modernization of yoghurt production was part and parcel of the reorganization of the milk industry and the overall country modernization and state formation.

Conclusion

Transforming yoghurt from home-made to mass-produced foodstuff was part of the modernization of Bulgaria's dairy industry. The impact on yoghurt's traditional production and distribution showed that the transformation of traditional food can be affected by political, economic, social, and cultural changes, but also boils down to the transformation of its raw material. The up-scaling of yoghurt production, driven by the demand in Bulgarian cities, required standardization to guarantee that commercial dairies maintained the characteristics defined by scientists as “typical Bulgarian yoghurt.” The movement to introduce science and technology to yoghurt production had two major effects. First, a typical home product had been transformed into a commercial product due to the adaptation of scientific knowledge. These scientific principles opposed the received wisdom; thus the old methods of yoghurt production acquired the reputation of being backward, primitive, and unscientific. The modern approach generated alternative yoghurt production know-how and practices. Even though most of these were based on traditional methods, they were translated into the language of science. The second major effect was replacing farm women as the main producers of yoghurt with urban male workers in the dairies by means of professional education. Science-based male education and the modernization of the dairy manufacturing resulted in standardizing yoghurt. Scientific debates reduced the regional variations to one universal “ideal type” of yoghurt making that should be the model for all producers. The restriction and control of these variations would guarantee a standard product with a good taste and good quality for the mass consumer. The product that ticked all the scientific guidelines was labeled “good-quality, real Bulgarian soured milk.”⁴⁵⁵ Such a standardized product embodied the nationalist policy of authenticating the product through its Bulgarianization.

Chapter 4

Developing the Industrial Know-How after World War II

The transformation of Bulgarian yoghurt from a foodstuff made by women at home to a commercial product resulted from urbanization and modernization of the Bulgarian agrarian and dairy sector, setting in motion the establishment of scientific rules for mass-scale yoghurt production. The standardization of yoghurt, however, accelerated in the communist period when the government needed foreign currency and saw yoghurt as a potential export. This prompted centralization in large scale state-governed dairy plants. Scientists, supported by the state, directed their efforts to helping Bulgaria's yoghurt industry compete as a European and world leader. The scientific and R&D centers developed yoghurt starter cultures and a new technology for industrial production which became a source of foreign currency as well as national pride. By 1970, the drive for an industrial product with national characteristics also raised new questions about how to preserve, recreate, and reproduce this foodstuff's Bulgarian authenticity for national and global markets.

Creating Socialist-style Agricultural and Dairy Systems

Despite the considerable changes in Bulgaria's agricultural sector in the 1930s and 1940s, modernizing the dairy sector was a slow and difficult process. Cooperative farming, thanks to legislation and bank loans, helped farmers invest in new technology and improved both animal feed and animal breeds. Progress was (again) halted by The Second World War, after which, in a 1946 referendum, Bulgaria abolished the monarchy and became a People's Republic. From 1948 on, the governing Communist Party closely followed the Soviet political and economic model, propagating a state that served collective rather than individual needs, made private ownership illegal, and nationalized all existing business entrepreneurships. The new regime provided a new political context for milk and dairy production.

Nationalizing land, animals, buildings, and equipment, the regime created the Labor Cooperative Farms (Трудово кооперативни земеделски стопанства, ТКЗС) that had little to do with the pre-war cooperative movement.⁴⁵⁶ Instead, the Soviet style co-operatives were meant to increase the national dairy production and milk consumer products, by consolidating the existing smaller dairy farms. Farmers and peasants were either forced or persuaded to join the agricultural cooperative establishments in the villages. These cooperatives became the producers and suppliers of milk for the emerging dairy plants. By concentrating the dairy industry in several large-scale dairy plants combined with cooperative farms to guarantee the milk supply, the government seized control over production, quality, and safety. Under the communist regime, the first milk-supplying station "Serdika," which the municipal authorities had established during the war in 1940, was reorganized in 1949 as the first state-governed dairy. The typical organization of the industry in communist countries was "designed to facilitate top-down planning, rather than market competition, with a strong orientation toward large firms integrated both horizontally and vertically," according to those economists, who, like the modernizers before them, said the absence of small to medium-sized firms of 50 to 100 employees was hampering the development of a Western economy.⁴⁵⁷

The experience gained in the 1930s and early 1940s proved useful to the new regime. The post-1944 political discussions about Bulgaria's agrarian sector resembled those in the pre-war decade. Like the pre-war modernizers, the communist leaders defined the agrarian sector as backward and decentralized, demanding modernization modeled after West European countries considered more developed.⁴⁵⁸ This time, however, the modernization was linked to the communist ideology seeking to accomplish agricultural change through mechanization, fixed pricing, collectivization, and nationalization.⁴⁵⁹ In this new political context, the propagandists and media promoted centralized milk production and processing under communist rule as the way forward in improving the dairy sector, but they also undermined the previously celebrated cooperatives, in which land-owning farmers had pooled resources and costs.

Dairy and yoghurt production went into a higher gear; forsaking farmers' home-based technology and craftsmanship altogether, the newly established mechanized dairy plants began to produce for the national market.⁴⁶⁰ The top-down policy managing Bulgaria's dairy industry destroyed the practice of making yoghurt on the farm for family use. For many, the knowledge and intimacy of preparing a home-made product was lost. The transformation to consuming industrially produced yoghurt, already under way in large towns in the 1930s and 1940s, gradually shifted to the smaller towns and even to the villages in the 1950s

and 1960s. After the state forced cooperatives to become state agrarian farms and managed most of the country's livestock, cooperative members were allowed only a small number of livestock and land for their own use.⁴⁶¹ Peasants from the Razgrad and Bolyarovo regions in North East Bulgaria recall how collectivization made it difficult for peasant women to make their own yoghurt.⁴⁶² The migration of farmers to the cities further lowered the number of people who made their own yoghurt in the rural regions.⁴⁶³ By the late 1960s, when state grocery stores opened in rural areas and many peasants no longer owned animals, even people living outside the cities started buying the product, explaining they "did not have any choice or alternative. That was the only way to get yoghurt."⁴⁶⁴ Nevertheless, home-made yoghurt still existed alongside mass-produced yoghurt.⁴⁶⁵

Meanwhile, in 1953, several years after the communist government came to power, all levels and sectors of the dairy industry were brought under one body, the "Dairy Industry," as a subdivision of Rodopa, the central state-governed organization responsible for producing meat, milk, and canned food.⁴⁶⁶ Dairy Industry managed all the dairy sectors, at every level. A parallel step in building a centrally planned, highly mechanized industry was the establishment of the Higher Institute of Food and Flavor Industries in Plovdiv in 1953 to train specialists in research, development, and management. This was not the only research center as science-based research also took place in a few other research institutes that collaborated with the dairy plants. In 1960, the Council of Ministers decided to establish the Dairy Industry Institute in Sofia to support industrial dairy production. Two years later it was relocated to Vidin (North-West Bulgaria), an important center for milk processing with a long tradition in dairy production and its own dairy school. The newly established Institute developed protocols and quality standard methods, including new technologies for dairy products, starter cultures for butter and white cheese, and dairy machines to improve performance.⁴⁶⁷ Establishing specialized educational and scientific institutes supported the drive to modernize the dairy industry.

The 1960s state policies forced even the larger cooperative farms to guarantee the flow of raw milk to the growing number of large-scale dairy plants. The dairy plants in turn needed machinery and new technology to match the pace of industrialized production. In the 1960s and 1970s, the industrial need for Western innovations, machinery, and thus currency pushed the liberalization of trade policies with the rest of the European countries considered as capitalist – in opposition to the communist ideological and economic order.⁴⁶⁸

Yoghurt Processing Innovation for the State

In the 1950s, regional dairy plants were still being constructed throughout Bulgaria. The existing milk processing station Serdika in Sofia was reorganized and extended whereas the new plants would take another twenty years to complete.⁴⁶⁹ In the early 1960s, the government concentrated the dairy production in large dairy plants and, by 1970s, established 28 regional centers according to the territorial division of Bulgaria, in the main cities of each province.⁴⁷⁰ While those dairy plants were still under construction, urban residents were purchasing yoghurt in grocery stores supplied by the state cooperative and it was still produced from sheep's milk and sold in the customary 5 and 10 liter metal containers.⁴⁷¹

Table 1 – Milk and yoghurt prices produced by the state cooperatives (levs)

	1953	1954	1955	1956	1957	1960	1961	1962	1963	1964
Milk/ liter	3, 34	3, 21	3, 05	2, 88	2, 71	2, 69	2, 9	2, 89	2, 9	3
Yoghurt/ kilogram	-	-	3, 97	3, 78	3, 78	3, 92	3, 80	3, 8	3, 9	4

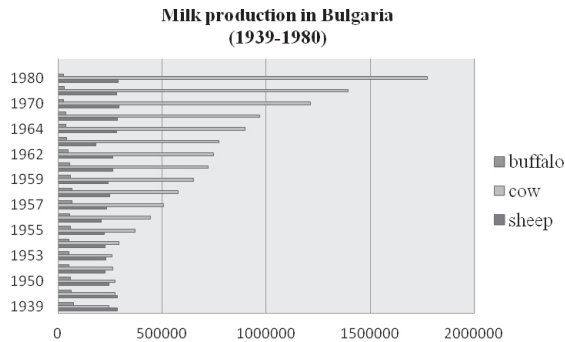
Source: *Статистически известия*, no. 1-2 (1957); no. 4 (1964) (*Statistic Bulletin*, no. 1-2 (1957); no. 4 (1964); and *Статистически сборник*, no. 5-6 (1970) (*Statistic collection*, no. 5-6 (1970)).

Until the 1960s, there was no uniform packaging because the yoghurt was still sold “on tap” per kilogram. Customers chose the packaging and how much they wanted to buy. Maria Yaneva recalls what her father told her about his childhood in Sofia in the 1950s, when “everyone carried small containers from home for their yoghurt to be poured into from the big serving dishes.”⁴⁷² Researchers looking to rationalize production suggested this kind of packaging was quite impractical because it slowed down the selling and caused queues when people bought their yoghurt and milk early in the morning.⁴⁷³ The packaging was not the only thing cast as unsuitable for modern yoghurt production. So was the raw material.⁴⁷⁴

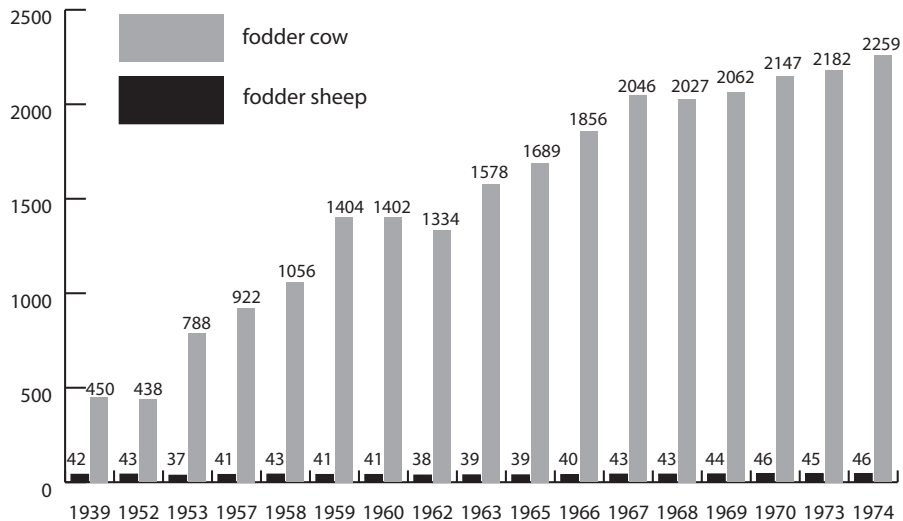
When milk processing was concentrated in large-scale farms and the industrialization policies were centralized, yoghurt production became an all-year-round production process that needed a permanent supply of milk. The traditional agricultural cycles such as the milking period of sheep from April to the end of September were not suitable for the industrialization process. For this reason, cow's milk, preferred for industrial dairy production in Europe and the U.S., was introduced into yoghurt production in Bulgaria as well. The introduction of mechanical milking, which could be implemented with cows much more efficiently, reshaped industrial dairy production and the husbandry and breeding of dairy animals. Industrialization permanently changed the basic characteristics

of Bulgarian yoghurt. Firstly, sheep's milk used as raw material for home-made yoghurt was substituted by cow's milk to facilitate production. Secondly, yogurt manufacturing became a year-round production process, made possible by the all year availability of cow's milk and high productivity.⁴⁷⁵ Due to the introduction of cow's milk as the predominant raw material for yoghurt and dairy product manufacturing, the production of the traditional sheep's milk dropped by more than two million liters, from 7,004,000 in 1939 to 5,410,000 in 1953. By the late 1950s and 1960s, the number of animals dropped to six million, remaining stable during the entire communist period, while never reaching pre-World War II levels again. As a result, cooperative farms had fewer sheep and water buffalos, the traditional dairy animals for yoghurt production. Sheep's milk was mainly used for manufacturing cheese; by contrast, the yoghurt market offered products based on sheep's milk or mixed sheep and cow's milk; buffalo milk production dropped significantly because it was difficult to adapt to industrial production.⁴⁷⁶ According to Bulgarian microbiologist Maria Kondratenko, moreover, ewe's milk was more expensive than cow's milk, which the dairy plants used to produce white cheese and *kashkaval*, mostly for export.

Nevertheless, the centralization and mechanization of dairy industry production were far from fully realized: the Bulgarian dairy industry relied on a "poor level of mechanization of the production processes" because "manual labor dominated."⁴⁷⁷ Until the 1960s, even while under centralized supervision, most plants continued to produce yoghurt the way craftsmen had done; the process remained for the most part manual.⁴⁷⁸ Former head of the Scientific Production Laboratory and important actor in yoghurt industrialization, Kondratenko vividly recalls the struggle to achieve industrial yoghurt production in the late 1950s and early 1960s: "We had horrific problems and numerous internal fights. At that time, the soured milk was getting rather sour and watery, and it went off too soon. Committees of experts kept being appointed, one after the other, to look into the reason." Kondratenko remembers that in order to improve the quality, they were adding bicarbonate of soda to reduce the milk protein level. Despite this, "the soured milk remained watery, easy to pour with a ladle." She concludes: "We had a long and difficult way to go and, besides, production differed from place to place."⁴⁷⁹



Graph 1 – Milk production in Bulgaria (1939-1980). Source: *Statistics Handbook of the People's Republic of Bulgaria: 1960, 1965, 1970 and Annual Statistics: 1939, 1950, 1953, 1957, 1959, 1962, 1964, 1970, and 1980.*



Graph 2 – Average milk yield productivity. Source: *Statistics Handbook of the People's Republic of Bulgaria: 1960, 1965, 1970 and Annual Statistics of People's Republic of Bulgaria: 1956, 1957, 1961, 1966, and 1971.*

Kondratenko was worried also by consumers' dissatisfaction with the yoghurt produced in the dairy plants. It was not only the consistency – home or artisanal made yoghurt had been much thicker. The untypical taste of the cow milk yoghurt may have been more efficient for industrial production than the commonly used sheep's milk, but it made city consumers long for the better tasting product they used to buy from small private dairies before the plants were built.⁴⁸⁰ A 1961 assessment of the Serdika dairy plant in Sofia confirms Kondratenko's recollection: "The

industrial production of yoghurt was also introduced in other dairy processing plants but the products differed from the yoghurt prepared at home. The basic faults were a taste sharper than desirable and grainier structure. Besides, the desirable proportion of *Lactobacillus bulgaricus* (LB) and *Streptococcus thermophilus* (ST) was soon gone,” the report concluded.⁴⁸¹

Planners believed that mechanization would solve their production problems, increase low-quality yoghurt, and satisfy disgruntled consumers. Scientists and dairy specialists at university and research centers sought how to adapt the yoghurt production technology to the industrial production and how to accomplish full automation of yoghurt production, a goal set in Serdika-Sofia’s rationalization plan for the 1960s.⁴⁸² In response to the push for rationalizing and modernizing yoghurt production, in 1961 engineer Alexander Dinkov and veterinary surgeon Stoyan Stoyanov, both working at Serdika-Sofia, developed a way to rationalize the automatic mixing of the strain culture by injecting yoghurt starters into milk.⁴⁸³ The plant adopted the method of manufacturing rationalization in its own production and shared it with other regional enterprises for yoghurt production.⁴⁸⁴ Dinkov and Stoyanov’s innovation was an important step forwards in the fully automated production of yoghurt. Two years later in 1963, the so-called Thematic Plan for Rationalization Activities for the automation of yoghurt production was instigated to manage “all aspects of the production plan and to raise the enterprise to the level of modern science.”⁴⁸⁵ The search for accelerating industrialization was part and parcel of food production specialization, which led to the autonomy of the enterprise Dairy Industry in the same year as Rodopa, the state-governed organization responsible for administering meat, milk, and canned food production up to then.⁴⁸⁶

After the Dairy Industry Institute had been relocated from Sofia to Vidin in 1962, the need for Serdika, Bulgaria’s largest dairy plant, to have its own research laboratory became pressing. Not only did Sofia have the largest consumer market, but the capital also accommodated the Dairy Industry’s government administration and attracted prominent dairy scientists and specialists. Because the Serdika-Sofia dairy plant provided starters to enterprises elsewhere in the country, officials felt it needed a scientific and research laboratory. This was the reason for establishing the Central Experimental and Production Laboratory for Pure Cultures (CEPLPC) in 1963, a unit headed by the young and prominent microbiologist engineer Maria Kondratenko. Her task was to produce suitable starters for traditional dairy products distributed to the plants all over the country.⁴⁸⁷ Apart from research activities, the Laboratory also served the needs of industrial dairy production; CEPLPC specialists selected and cultivated strains and nutritive media

for yoghurt and cheese production. The laboratory would play a crucial role in yoghurt's transformation to an industrialized mass-produced good.

Despite the expectations, the solution to the government's demand for fully automated yoghurt production came from the Higher Institute of Food Industry in Plovdiv.⁴⁸⁸ There, the scientist Tonyu Girginov carried out research between 1964 and 1965, which led to a new technology for producing Bulgarian yogurt.⁴⁸⁹ Prior to his innovation, milk was pre-treated before being homogenized. Once delivered to the plant, milk was purified and tested. Any raw material containing antibiotics or other inhibitors was not processed into yoghurt. Then the standardization of milk in terms of fat content took place. Next, milk was homogenized at a pressure of 170 to 180 atmospheres. Pasteurization followed at 92–95°C for twenty-five to thirty minutes. The pasteurized milk was cooled to 45°C to allow the active selection of *Lactobacillus bulgaricus* strains. The milk was incubated in special containers with 1 to 2 per cent technical quality starters *Lactobacillus bulgaricus* and *Streptococcus thermophilus*. The inoculated milk was matured in individual cartons (0.5 l glass jars) and left in thermostatic chambers at 44–46°C for two to two hours and a half for coagulation. The final product was cooled and stored in refrigerators at a temperature below 10°C, the temperature when the fermentation process stopped. This type of yoghurt manufacturing was known as the synchronized or batch method.

Girginov's technology offered two different methods of yoghurt inoculation. His early variant (1965) was a semi-continuous process including fermentation in two stages. Later, he developed the technology further for a continuous process of yoghurt production.⁴⁹⁰ In *Yoghurt: Science and Technology*, Adnan Tamime and Richard Robinson acknowledge Girginov's invention as significant for implementing the method of continuous yogurt manufacturing. The continuous production of yoghurt was only possible by utilizing "a high degree of mechanization and an appropriate plant design.... In theory, therefore, continuous yoghurt production should only refer to a process in which the raw material (milk) is steadily and continuously transformed into a coagulum (yoghurt)," they wrote.⁴⁹¹

According to Girginov's first variant, after purifying and testing, the milk was cultured at 45–46°C and kept in the container for sixty to seventy minutes until its acidity increased. Then it was poured into individual cartons and placed in a thermostatic chamber. The product was ready in two and a half hours. The discharged milk was cooled in a container to 32–33°C and incubated to the required acidity. Then the yoghurt was cooled to 5–6°C. In the second variant, the processed milk was inoculated with a starter culture for yoghurt; it remained in the

container until the acidity of the inoculated milk reached 70°T of lactic acid. At that stage a continuous pre-fermentation was maintained for forty minutes. The already inoculated milk was discharged and poured into jars. Simultaneously an equal volume of homogenized pasteurized milk at 46–48°C was added. Thus the volume of milk and its acidity always remained constant. The discharged milk was cooled in a container to 32–33°C that slowed down the fermentation process and allowed full control of the incubation achieving the required acidity. Then the product was cooled to below 10°C in a refrigerator for two and a half to three hours.⁴⁹² His invention became known as a New Technology for Production of Bulgarian Yoghurt.⁴⁹³ According to Kondratenko, “Bulgarian yoghurt using this technology is remarkably dense and has a homogenous, creamy consistency when whipped. Its texture is smooth and lucent and its taste and flavor are stronger than yoghurt obtained using the classical method. The product’s acidity increases more slowly and can be adapted to the consumer’s taste.”⁴⁹⁴ She believed the technology could be easily adapted according to consumers’ preferences, but also to different yoghurt production cycles. The dual characteristics of the technology were crucial when exported later in the 1970s.

Girginov’s new technology replaced the synchronized method and ended the production of yoghurt of varying quality.⁴⁹⁵ Microbiologist Mihail Angelov explains the advantages of the newly discovered technology: it enabled control of the milk fermentation process, reduced the cost of the product, allowed standardization as well as full automation of the production process and 24-hour continuity of technological operations (Fig. 12 and fig. 13 in the Appendix).⁴⁹⁶ According to Kondratenko and Zdravko Nikolov, “gradually, this new method of yogurt production spread to the rest of the newly developed dairy plants in the country. However, the final product still differed from home-made yoghurt. The main disadvantages of the industrial product were its stronger sourness, more crumpy [*sic*] structure and more expressed whey separation.”⁴⁹⁷ In addition, the implementation of the new technology to the rest of the dairy plants was difficult and required time as well as additional training.

Scientists Hunting for Authenticity in the Bulgarian Countryside

In response to the greatly dissatisfied consumers, the Central Experimental and Production Laboratory for Pure Cultures initiated in 1968 an ambitious project under Kondratenko and her team. They took Girgonov’s research on the continuous cultivation of starter cultures at Plovdiv one step further. Kondratenko’s team

embarked on a mission to find a way of reproducing authentic Bulgarian yoghurt. That project was driven by the search for an industrially-produced product that nevertheless had the national characteristics. In short, it was nothing less than searching for how to recreate and reproduce yoghurt authenticity for an industrial production and mass market. To do so, they came out of the laboratory and went back to the countryside. Five years after its establishment, Central Laboratory started an ambitious project, collecting, selecting and cultivating strains for producing the yoghurt it came to define as typically Bulgarian. They collected samples of home-made yoghurt from various regions of Bulgaria, looking for natural leavens with good technological characteristics of the two species crucial for making true Bulgarian yoghurt.⁴⁹⁸ A former student of Girginov, Kondratenko conducted a large number of investigations on the cultivation and selection of the *Lactobacillus bulgaricus* and *Streptococcus thermophilus* starter cultures. Within two years (1968 to 1970), Kondratenko and her team had isolated a large number of lactic acid bacteria. In the scientific literature they defined the mutual interaction between *Lb. bulgaricus* and *St. thermophilus* as a symbiotic relationship.⁴⁹⁹ She and her colleague Zheliyazko Simov described the importance of this symbiosis as: “The original soured milk owes its world-wide popularity to its taste, aroma, nutritive, dietary, and curative qualities that distinguish it from all fermented milks produced in different countries and continents. This comes as a result of its specific micro-flora, but even more so the symbiotic relationship between the Bulgarian rod and the thermophilus streptococcus.”⁵⁰⁰ That symbiosis of the two microorganisms was specific and not the result of laboratory experiments, but what specialists named “natural” selection. The organoleptic specificity and the specific micro-flora were what distinguished it as Bulgarian. Defining the distinguishing characteristics of Bulgarian yoghurt was only one step in its authentication. The recreation and reproduction of that symbiosis in laboratory-selected starter cultures for industrial yoghurt production formed the very process of manufacturing authenticity for an industrial product.

While collecting samples of home-made yoghurt, the scientists were particularly interested in discovering the existing symbiotic relationships between *Lb. bulgaricus* and *Str. thermophilus* in wild starters. This specific interaction was studied as a desirable characteristic that should be present in starter cultures for the industrial production of Bulgarian soured milk. The symbiosis supports the mutual growth of the two types and each species benefits from that co-existence. Thanks to advancements in microbiology, this type of symbiotic co-existence in starters was selected on the basis of samples existing in Bulgarian plants, soil, and home-made

products before cultivation in the laboratory setting. The presence of both bacteria provided higher acidity. In symbiotic starters, *Str. thermophilus* developed faster, producing acid and carbon dioxide that stimulate the growth of *Lb. bulgaricus*. In that symbiotic existence, the amino acids and peptides produced by *Lb. bulgaricus* stimulated the development of the *Str. thermophilus* strains.⁵⁰¹

As the diversity of combinations with different *Lb. bulgaricus* and *Str. thermophilus* strains led to differences in yoghurt flavor, aroma, and texture, selecting symbiotic starters with typical characteristics reduced the differences and contributed to the production of a typical yogurt. Obtaining a stable symbiotic association was a difficult task and often ended in failure, as Kondratenko recollected.⁵⁰² The CEPLPC scientists, however, developed a specific method to obtain symbiotic starters for producing Bulgarian soured milk. Over a period of six months, they cultured selected combinations of *Lb. bulgaricus* and *Str. thermophilus* every day. The researchers registered the time required for milk coagulation with those cultures, the structure of *Lb. bulgaricus* and *Str. thermophilus* strains, and the inter-relationship. Selecting a stable symbiosis between the two strains was what scientists called “purifying the wild cultures.”⁵⁰³ Pure cultures were considered those selected in laboratories but having as a source home-made yoghurt, plants, or soil samples. They contained only *Lb. bulgaricus* and *Str. thermophilus* that had constant characteristics and did not mutate over time.

Three years of research and thousands of experiments later, in 1972 the laboratory developed seven symbiotic blends of *Lactobacillus bulgaricus* and *Streptococcus thermophilus*. The research thus created a standard for what they understood as original Bulgarian yogurt. The Bulgarian state saw the great economic potential of that innovation, not only for its dairy industry, but also for export to the international dairy markets. This explains why several years later, the method was patented.⁵⁰⁴ That patent might seem strange as communist regimes generally did not pursue such things, but in the 1970s, Bulgaria started intensifying trade exchange with the West, a policy aimed at reducing the state’s currency deficit. From 1965 to 1975, the forced industrialization raised the country’s demand for industrial development purchasing mainly of machinery, spare parts, chemicals, and special metals.⁵⁰⁵ Communist Bulgaria had limited options to earn hard currency. Tourism, foodstuffs, textiles, metal, and machinery exports were the main options. Yet, by the mid-1960s, when legal measures were introduced, the country began to rely on direct Western investments under the purchase of a license or through joint ventures.⁵⁰⁶ The newly developed starters and yoghurt production techniques played a crucial role in export. Reconsidering the economic effects of the patents, Bulgaria exported know-how and technology instead of selling a difficult to transport end

product with a very short shelf-life. This marked a shift from producing a product for direct marketing to end consumers to reconfiguring the product for export aimed at global yoghurt producers. The patents for the selected Bulgarian starters and yoghurt production techniques formed part of the search for technologies and consumer exports in order to obtain hard currency.

In the early 1970s, research on the isolation and selection of *Lactobacillus bulgaricus* and *Streptococcus thermophilus* extended in a three-year project entitled “Isolation, Study and Selection of *Lb. bulgaricus* and *St. thermophilus* as strains for the Development of Starter Cultures for Bulgarian yogurt.” This was thanks to collaboration between the major research institutions in dairy science and a medical organization, the Higher Institute for Contagious and Parasitic Diseases (HICPD). The developer of the innovative technology Girginov coordinated the working groups – CEPLPC in Sofia, the Research Institute of Dairy Industry (RIDI) in Vidin, the Zoo-technical Faculty at the Agricultural Academy in Sofia, the Higher Institute of Food Industry (HIFI) in Plovdiv, and HICPD.⁵⁰⁷ Project leader Kondratenko claims they collected samples from very different sources: home-made yoghurt as well as sources found in the wild such as plants from various regions. Having collected 1,903 *Lb. bulgaricus* strains and 387 *St. thermophilus* strains, they tested over 200 combinations from all the collected strains and finally obtained 12 new starters for Bulgarian yogurt.⁵⁰⁸ These symbiotic starter cultures, newly developed in the late 1960s and early 1970s, were claimed to be highly effective for producing original Bulgarian yoghurt.

In 1972, researchers at the Central Laboratory together with pediatricians and nutritionists began joint research on the health benefits of fermented products produced with original strains of *Lb. bulgaricus*.⁵⁰⁹ They studied traditional food to prove the advantages of Bulgarian yoghurt over similar products. Science became an instrument for the authentication of Bulgarian yoghurt, while the scientists acted as promoters of its uniqueness. In the 1970s and 1980s, many Bulgarian microbiologists, biochemists, and physicians collaborated in studying the health benefits of the strains of *Lb. bulgaricus* and *Str. thermophilus* isolated in Bulgarian yoghurt samples. CEPLPC in Sofia, RIDI in Vidin and HIFI in Plovdiv became the main research centers. The researchers asserted that Bulgarian *kiselo mliako* (soured milk) tasted better and was healthier than other yoghurt products. Through experiments and clinical trials, scientific research sought to demonstrate that selected strains of *Lb. bulgaricus* and *Str. thermophilus* isolated in Bulgarian yoghurt had specific characteristics and benefited human health. Bulgarian dairy specialist Boyana Gyosheva even claimed that the selected strains of Bulgarian

yoghurt prevented cardiovascular disease and improved lipid metabolism. They also have an immune-stimulating and immune-modulating action, inhibit the genesis of cancer and have an overall positive effect on metabolism.⁵¹⁰

The scientists in Sofia and Vidin were working with selected strains and starters considered the “best-performing” microorganisms. Their work focused on the possible use of yoghurt and its starters in the prevention and treatment of diseases. Even though this research essentially studied dairy foods, it also aimed to prove scientifically the superiority of the Bulgarian product and starters compared to fermented milk products abroad.⁵¹¹ Gyosheva stated that these numerous studies concluded that “Bulgarian yoghurt differs from the yoghurt produced in other countries not only in its taste, aroma, and texture, but also in its preventive and therapeutic properties.”⁵¹² The scientific experiments helped to boost national pride and create an image of extraordinary Bulgarian yoghurt, but they also made good business sense for export. Reinforced by the national myth of origin and superiority, people refused to believe that good yoghurt could be produced elsewhere – it could only originate in Bulgaria. This popular belief turned a blind eye to the export of cultures and know-how for yoghurt production. Export was perceived as further proof of the superiority of “our” yoghurt. Hence, science became a tool for nurturing the notion of Bulgaria as a unique sense of place, and was therefore the only place where *the* Bulgarian yoghurt was manufactured.

Industry Demands Suitable Packaging

The industrialization of yoghurt went through the transformation from home and artisanal techniques to standardized national technology. Incorporating the existing knowledge on yoghurt production, scientists, researchers, and dairy specialists devised a new production method to suit industrial manufacturing. That scientification and mechanization of the production actually transformed what was considered traditional yoghurt making. Further factors were the innovations and transformations in the milk supply, yoghurt packaging and retail system. The dairy sector followed the Party line, aiming at centralization and mechanization of the entire production process. The technological innovations altered the sales logistics. The automatization of the process of yoghurt production also included the mechanization of product packaging, as well as suitable containers. By the early 1960s, the introduction of the glass jar as yoghurt container replaced the existing packaging (Fig. 11 in the Appendix).⁵¹³ In the grocery stores, customers exchanged their cleaned and empty 500 ml. jar for a full jar of yoghurt. In this

glass deposit system, customers only paid for the container if they did not bring an empty jar. The shopping bags full of jingling glass jars became part of the ritual of purchasing yoghurt. Glass jars were not the only option. In 1962, chemical engineer Jordan Petrov proposed using plastic containers. An Expert Commission rejected his proposal, however, deciding that small containers should be made of glass only.⁵¹⁴ From then on, the glass jars had cardboard covers. This did not prove hygienic because the paper covers stuck in the filling machines, causing jars to break and yoghurt to spill on the production line.⁵¹⁵

The Serdika-Sofia dairy plant expanded operations with a new yoghurt production building in 1966-1967 and imported a new glass filling machine from Britain.⁵¹⁶ In August 1967, Rodopa international trade agency's Dairy Industry department imported another filling machine from the Italian firm Gina Frau.⁵¹⁷ As a result, the glass deposit system, the jar washing processes, and the aluminum foil sealing became entirely automated.⁵¹⁸ Serdika-Sofia processed 200 tons of milk a day, producing six to nine thousand jars of yoghurt an hour. By the late 1960s and early 1970s, the state was supplying many other plants with automatic washing and filling machines, mostly imported from Comecon countries like the German Democratic Republic, (with a capacity of 4,500 to 5,000 jars per hour) and the USSR (3,000 jars per hour).⁵¹⁹

After automation, yoghurt production was divided into different activities, some based on manual work, others relying on machines, doing the kind of tasks that dairy masters had once done, combining the physical work with managing the entire process. Now the dairymen were the mere tenders of the machines. Other workers worked predominantly with pasteurizers, filling and washing machines. The transformation to automatic filling of yoghurt jars was keenly observed in a 1971 article: "[t]he glass loads automatically. Workers are only observers: the control valves and buttons 'take care' of the technology." Dairy work was now reduced to only controlling and monitoring the mechanized part of the production process. It also changed the way yoghurt was presented to consumers. Bulgarian producers followed the international trends by adopting reusable glass jars combined with an aluminum foil lid. The shape of the jars was slightly altered but the size remained the same, 500 ml.⁵²⁰ All the dairy plants produced yoghurt from three types of raw milk: sheep's, cow's, or mixed. Most yoghurt had similar packaging and differed only in the labeling on the aluminum lid that provided information to consumers. The type of yoghurt was indicated in the center of the lid; with two circles around it. The outer circle showed which dairy plant manufactured the yoghurt and the quality standard applied, along with instructions to keep the

product at a temperature lower than 10°C; it stated its shelf-life (3 days after the production date), and specified the weight and price. The price of yoghurt was controlled by the state and was the same everywhere in Bulgaria. National statistic bulletins showed only slight variations in industrial yoghurt market prices. The cost of a 500 grams cow milk yoghurt jar in 1964 was 0.33 leva, only slightly rising in 1969 to 0.36 leva and changed by only one stotinka to 0,37 leva in 1974. That price remained stable until 1989. The inner circle functioned as a calendar with the days and months of the year, marking the month and day of production.

Unlike the rest of the country, after its reorganization in 1972, Serdika-Sofia began distributing yoghurt in plastic containers with a foil lid. Square and round-shaped containers were introduced simultaneously and Sofia was the only city in Bulgaria that underwent a complete shift from reusable to non-reusable yoghurt packaging. In fact, only twenty per cent of the yoghurt produced in Bulgaria was distributed in disposable packaging.⁵²¹ According to the interviewees, the plastic containers were available only to a limited number of people. Consumers found them rather valuable, fascinating, and specifically useful in agriculture. Relatives of people who lived in the capital used their “connections” to get plastic containers because these were perfect for planting seedlings.⁵²² Those interviewees who were children in the late 1970s recalled another endearing appropriation. The foil of the lids was used to make badges and small bas-reliefs.⁵²³ “We made badges from the round aluminum lids of the soured milk jars. I remember the technique very clearly – with paper underneath, you drew the relief with a pencil, and then varnish,” A.S. remembered from her childhood in Sofia. The sheets of foil used for cooking purposes were difficult to obtain from the dairy plant in Sofia.⁵²⁴ Aluminum lids on the glass jars were also transformed into hand-made figures: snowflakes for New Year decorations or forms for baking sweets named “*cornettos*” (фунийки).⁵²⁵ These examples of unintended uses of standard packaging demonstrate the specificity of communist consumption in a shortage economy. Shortage was compensated by people’s creativity – what was available was transformed into what was difficult or impossible to obtain.

In the late 1970s, using Girginov’s technology and a variety of starter cultures, Bulgaria’s dairy industry sought to diversify by offering a wider range of products and containers. Sheep’s milk yoghurt was only available if mixed with cow or buffalo milk. Similarly, non-flavored buffalo milk was always mixed with other milk. The fat percentage of yoghurt also varied (cow’s milk yoghurt being the standard with 3%): “Shipka” (“Шипка”) 3.6%; “Bolyarka” (“Болярка”) 3%, “Nona” (“Нона”) 3%, “Dunav” (“Дунав”) a mixture of ewe’s milk and skimmed cow’s milk with 5%; “Mladost” (“Младост”) 3% and blended yoghurt “Svejest” (“Свежест”)

2%, both using the reservoir method.⁵²⁶ An additional range of yoghurts was based on additives. The flavored or sweetened yoghurts on the Bulgarian market were: Boryana (“Боряна”), “Svejest” (“Свежест”), and “Snezhanka” (“Снежанка,” literally translated as Snow White).⁵²⁷ But the amount of “new” products distributed was considerably lower than the amount of plain yoghurt because of the lack of equipment at most dairy plants and consumers’ resistance.

The flavored yoghurts did not taste traditionally Bulgarian. In fact, their introduction to the domestic market was as a result of exporting starters and know-how for the Bulgarian type of product. When it reached the Western market, where yoghurt with added sweeteners and different flavors predominated, Bulgarians appropriated those new yoghurts’ production techniques for their local production. Thereby, export was not only a way to introduce Bulgarian goods and technologies to the Western markets, but also was introducing Bulgarians to Western dairy producers and tastes. The exchange led to innovations and domestic development in the area of flavored products. They quickly became popular with consumers, but because of technical problems and lack of machinery, the production stopped. An analysis of the period 1977 to 1983 shows that Serdika-Sofia’s target for producing “Mladost” and “Vita” yoghurt was not met. Officials blamed “insufficient quantities ordered by the trade organizations, irregular supply of hose pipes and poor organization.”⁵²⁸ The dairy plant reportedly produced flavored yoghurt in 330 ml and 250 ml plastic containers instead of the 500 ml glass jars considered standard. Ewe’s (mixed with cow or buffalo milk) as well as “Snezhanka” yoghurt were distributed in 250 ml containers.⁵²⁹ Consumers remember those yoghurts as a delicacy also because they were not always available and therefore rare and considered precious. For example, Didi Andreeva from Burgas recalls Snezhanka yoghurt as something you could only dream about:

Snezhanka was sweetened yoghurt in a plastic cup; it weighed about 300 g. It was available only in Sofia and possibly other Bulgarian cities. In Burgas we had not even heard of it. Indeed, when my father travelled on business to Sofia, I looked forward to getting that yoghurt; or when visiting relatives, I could not wait to taste it. It was a delicacy, especially for children.⁵³⁰

The production of so-called luxury yoghurt required specialized equipment that was only available in the West. Dairy specialist Nikola Dimov wrote that “the new product assortment is only available at carefully selected industrial units that are being technologically upgraded for the new production.”⁵³¹

In the 1970s Serdika-Sofia became the best-equipped modern dairy plant in the country. During the Cold War, the plant owed its special status to the governmental policy of establishing a larger dairy plant to compete with the dairy leaders

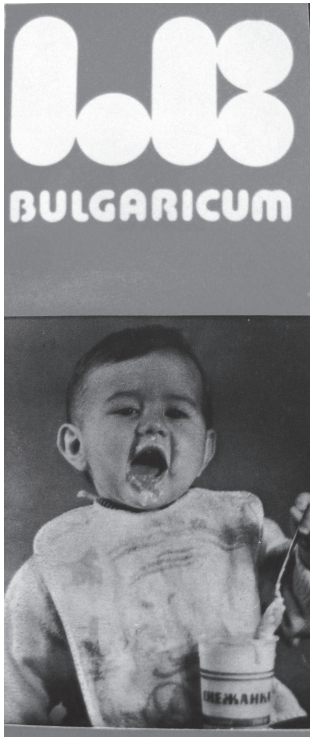


Figure 7 – Advertisement for “Snezhanka” or Snow White yoghurt. Source: *Хранителна промишленост* 3 (1976):1 (*Food Industry* 3 (1976):1).

in the Western bloc. That image was promoted abroad through active research and innovation activities and resulted in its reputation for patents and export of starter cultures, know-how, and technology. The need for hard currency intensified the trade exchange between Bulgaria and Western countries; it was not a one-way exchange. Bulgarians promoted their yoghurt as genuine, but also appropriated knowledge and machinery from the West, as the case of glass-filling machines shows.

Conclusion

The division of Europe into the (communist) East and (capitalist) West after the Second World War affected Bulgaria as member state of the communist bloc. Forced industrialization and collectivization in agriculture shaped the production of yoghurt. Large-scale dairy plants gradually replaced the small-scale commercial yoghurt dairies and home-made products for family use. Casting aside home-based technology or craftsmanship, the yoghurt industry began searching

for new technology to fit industrial production, but also for recreating the food-stuff's Bulgarian authenticity. The adaptation of yoghurt technology to intensify mass production was enabled by Tonyu Girginov's innovation in 1965, which replaced synchronized manufacturing with a continuous flow of coagulated milk. This innovation sought to integrate craftsmen and farmers' wives way of making yoghurt into new fully automated production but also to solve the existing industrial problems. The innovation allowed a continuous production process with a good taste and texture and consistent characteristics that were easy to adapt to consumers' preferences, characteristics that enabled Girginov's yoghurt manufacturing technology to cross borders. The method was considered and promoted abroad as the key technique for producing Bulgarian style yoghurt. The industrial yoghurt production intensified scientific research on the continuous cultivation of starter cultures for producing Bulgarian yogurt. The selection of symbiotic starters with typical characteristics aimed at reducing the differences in product and thus contributed to the standardization of the more customary Bulgarian yoghurt.

The need to maintain national characteristics prompted researchers to leave the laboratory and explore the countryside to collect samples of home-made yoghurt that were selected and cultivated into industrial strains for yoghurt production. Specialists came to define yoghurt with specific micro-flora as typically Bulgarian. With this standard, the symbiotic relationship between *Lactobacillus bulgaricus* and *Streptococcus thermophilus* as well as the organoleptic specificity of the end product were fixed and ensured the consistent taste and texture. The re-creation and reproduction of that symbiosis in the laboratory was a way to manufacture Bulgarian yoghurt as an industrial product. The newly developed yoghurt technology and the allegedly unique selection of lacto bacilli facilitated a new orientation of Bulgarian trade, promoting the invisible microorganisms and technical know-how instead of the more visible and recognizable end product. The exported symbiotic starter cultures were produced in two different forms, lyophilized and liquid, both of which were supplied regularly to the producers. Girginov's technology and Kondratenko's search for authentic starter cultures became the vehicles for nurturing the notions of Bulgaria as a unique location with a superior product. The scientists boosted national pride by creating an image claiming that a product with the extraordinary characteristics of Bulgarian yoghurt could only come from Bulgaria.

Chapter 5

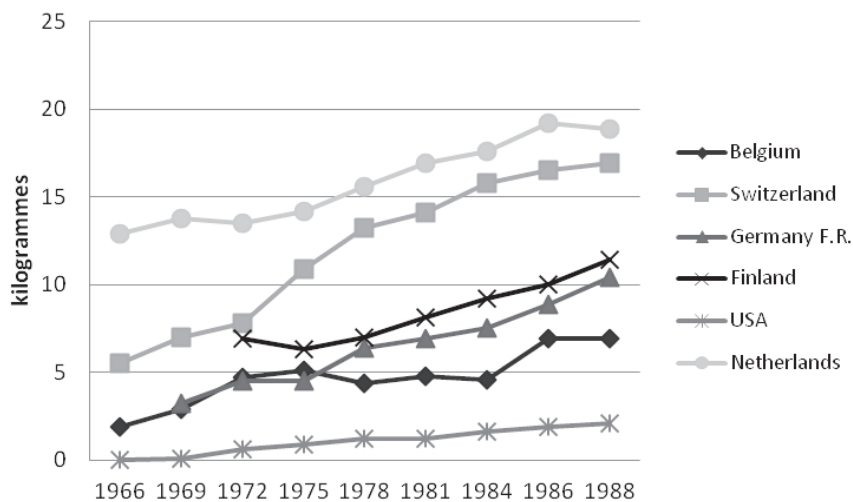
Starter Cultures as Bulgarian Ambassadors, 1960s-1970s

Building the image of Bulgaria as a developed European dairy center and homeland of yoghurt was part of the government policies in the communist period. To justify the claim of leading producer of yoghurt and dairy products, Bulgaria advanced its innovative technology and selection of original starters for yoghurt production as its major assets. Bulgarians had been exporting traditional white cheese (feta-type) and yellow cheese (*kashkaval*) since the late nineteenth century, but yoghurt export was not possible until the late 1960s and early 1970s. Even then, what travelled across the border was not the foodstuff but the technology developed by Girginov and Kondratenko's laboratory of seven selected strains of Bulgarian yoghurt cultures. Promoting abroad Bulgarian scientific and technical achievements in industrial yoghurt manufacturing was shaped by the complicated Cold War trade between communist and free-market countries. Despite restrictions at various levels, exchange and cooperation between East and West existed, rendering the Iron Curtain, metaphorically speaking, permeable. The growing popularity of yoghurt worldwide presented opportunities for Bulgaria to export licenses for manufacturing technologies and original starters.

Booming International Market

After The Second World War, soured milk became even more popular once it was transformed from a medicinal product to a delicious dessert. The manufacturer mostly responsible for that change was the Spanish-French yoghurt producer Danone. In 1937, after moving from Spain to France, Danone sought a niche in the well-established French yoghurt market by experimenting with adding strawberries.⁵³² In France, the new product, *Dany*, was advertised as “*Joie du palais, santé du corps*” (“Palate pleasure, healthy body”) and “*Le plaisir et la santé, toujours...*” (“Pleasure and health, always”). When The Second World War interrupted

business, the Jewish son of the founder Daniel Carasso fled Nazi-occupied France to emigrate to New York.⁵³³ In the U.S., he continued experimenting with strawberry-flavored yoghurt and other flavors in response to the American consumer's sweet tooth. When he returned to France in 1951, he had to rebuild the business to regain a market share among other popular brands like Balkan, Yalakta, and Suisses Gervais.⁵³⁴ Like Danone, all yoghurt producers referred to their products as delicious desserts and also sold them in many flavors. By promoting yoghurt as a dessert, Danone and other dairy producers were changing the image of yoghurt from medicine sold in the pharmacies.



Graph 3 – Annual per capita consumption of yoghurt in some European countries and the USA (1966-1988). Source: IDF Consumption Statistics for Milk and Milk Products, Doc. no 93 (Brussels: International Dairy Federation, 1977).

After The Second World War, yoghurt was still seen as a healthy foodstuff. Similarly, the association with Bulgaria and the Balkan region continued to attract consumers particularly in France, where Metchnikoff's theory on the health benefits of yoghurt still resonated. One leading French-based and internationally operating yoghurt producer, Yalakta, advertised its products by continuing to exploit Bulgarian traditions. An advertisement in 1955 stated: "*Le bon yaourt! A Paris comme en Bulgarie, dans le monde entier comme à Paris*" [Excellent yoghurt! In Paris, as in Bulgaria, around the world as in Paris]. The slogan promoted the company's ferments and yoghurt for home preparation by telling consumers that good quality yoghurt could be made anywhere, but that Bulgaria remained the standard.

In the 1950s and 1960s, what Bulgarians referred to as the Western capitalist market including the non-communist European countries like France, Italy, West Germany, Great Britain, and the United States saw a growing assortment of plain and flavored yoghurt (from strawberry, raspberry, and peach to pineapple, cherry, and vanilla). The following decade, producers further modified the product; they began offering whole-milk, skim-milk, butter-milk, and low-fat yoghurt and included additives like gelatin, pectin, and colorants.⁵³⁵ Those variations were a result of the constant increase in yoghurt consumption (Graph 3) and producers seeking to diversify the market and sell even more. In the 1970s and 1980s, French, Dutch, and Swiss consumers bought the most yoghurt in Western Europe, with annual consumption rising to almost 15 kilograms per capita. The spectacular increase provided a welcome opportunity for Bulgaria to export its products, policy makers believed.

The existence of a potential international market, however, did not guarantee the quick success of Bulgarian yoghurt abroad. Yoghurt's characteristics, Bulgaria's centrally planned economy, export politics and commitment to the communist bloc all complicated the quick popularization internationally. The existing restrictions at various levels hampered the exchange of communication and cooperation between East and West. Stalin's death in 1953 heralded a new era in East-West relations as Moscow liberalized trade relations with the rest of Europe, a phenomenon defined as "easing the atmosphere of international tension."⁵³⁶ The political thaw prompted the establishment of Bulgarian international trade agencies because the Comecon market did not provide the full range of necessary technologies, machineries, and know-how. Like the other communist bloc countries, Bulgaria suffered from a foreign currency deficit that only international trading outside Comecon could solve.⁵³⁷ The global oil crisis of 1973 as well as the internal crisis of centrally planned economies made both sides of the Iron Curtain even more willing to co-operate. In 1975, representatives of East and West European countries discussed security, industrial and economic cooperation, including the creation of joint ventures, know-how exchange, technological information, patents, licenses, and bilateral agreements for scientific research.⁵³⁸ Along with the liberalization of trade exchange with the West, the need for hard currency became decisive for the export of yoghurt's know-how and technology. The already well established international yoghurt market seemed prominent, but the significant divergence between the market and a planned economy hampered exports.

The activities in a planned economy were strictly divided into production and distribution spheres. While the dairy plants' main focus was to achieve production targets, the distribution and placement of products on the market was not

their responsibility. As a result of this overall policy, the dairy industry was not only divorced from its consumers but the factories were only passive actors in the distribution of their products, as well as in the export negotiations.⁵³⁹ Emil Hristov, economic advisor to Bulgaria's communist leader Todor Zhivkov from 1971 until the end of the regime, remembered: "that was an absurdly structured economy with the producers divorced from the marketing of their production, quite indifferent to it." Likewise, he continued, "the tradesmen were unfamiliar with the problems of production and were indifferent to its results."⁵⁴⁰ Manufacturers were not aware of consumers' responses, while consumers lacked the channels to influence the development and production of goods.

The same was true for Bulgarian international trade. The state monopolized all foreign trade, regulated by the Council of Ministers. Producers were absent in international trade activities, substituted by large numbers of mediating organizations that complicated the dialogue between producers and international partners. Only state-governed trade organizations were allowed to carry out transactions. In the 1960s, the Communist party established intermediary organizations called International Trade Enterprises (ITE) [*Външно търговски организации*] to lead negotiations and explore foreign markets. Operating at many different levels, the ITEs established contact with ministries, trade organizations, and firms abroad to market Bulgarian products. They helped to introduce technological innovations from abroad and vice-versa. They also attempted to develop trade relations with non-communist countries, even though establishing contact with "ideological enemies" officially went against Cold War animosity and the government's restrictions of free movement of people and goods.⁵⁴¹ Bulgaria's export and import policies, however, show that the state was less of a monolithic actor and operated on many levels. Civil servants working in the foreign trade area were entwined with Bulgarian embassies and state security agencies. Most employees working for the trade organizations abroad were screened for their loyalty to the Party.⁵⁴² For this reason, the Party recruited thousands of employees from the army and police (*милиция*) for a brief period between 1961 and 1963. Engineering graduates were also employed but they could not meet the demand.⁵⁴³ Although the government recognized that only qualified people would guarantee success in promoting Bulgarian products abroad, the demand for "trusted" trade agents threatened to compromise their expertise. In the early 1960s, the Ministry of Foreign Affairs addressed the competence issue by stating: "The majority of foreign trade staff has indispensable trade qualifications backed by theory training, even though quite a few do not have the requisite foreign trade experience."⁵⁴⁴ In response to the Minister's criticism of the agencies' effectiveness, foreign trade employees

pointed out the major flaws in Bulgaria's export policy at their national meeting in 1963. The potential to export Bulgarian goods was not being exploited to the full because: "no research is done on foreign markets, and no adequate knowledge is readily available on our exported goods; the people in the field are not doing their best to get to know those markets and improve our access to them."⁵⁴⁵ Similarly, the foreign firms negotiating with Bulgarian trade agents were not always properly investigated, which was also true for local markets. More economists, engineers, chemists, and specialists needed to be trained in international trading. In response to the critique, two-year university courses were set up to train those in charge of foreign trade.⁵⁴⁶

The trade agencies mediated between Bulgarian firms and potential international partners, but they were also restricted by the communist regime, which prohibited local and international firms or legal persons to conduct international trade.⁵⁴⁷ The trade agents had the authority to sign agreements and reported directly to the Council of Ministers. Although centralization sought to facilitate control and distribute resources efficiently, in practice, the state produced a number of mediating organizations. Because of these contradictions, the organizations could not function efficiently in carrying out international trade and advertising campaigns.⁵⁴⁸ Only a limited number of people from the State Security Services, Ministries of Foreign Trade, and Food and Agriculture had access to information about foreign trade organizations and their representatives.⁵⁴⁹ The monopoly over information provided ample opportunity for manipulating and creating success stories of Bulgarian goods on foreign markets, further reinforcing the nationalist propaganda and official discourse, and celebrating the superiority of communist production over the capitalist economy.⁵⁵⁰ One such story created the image of the extraordinary success of Bulgarian yoghurt abroad. In practice, the yoghurt trade suffered many problems, however.

The early 1960s marked a new era in Bulgaria's international trade. A decade earlier, Bulgaria had exported mostly tobacco and agricultural products. Once the newly-developed construction sectors strengthened, the state shifted its focus in foreign trade to the placement of heavy industry products such as machinery, chemicals, and electronics. Adhering to the Party line, trade agents put light industry in a subordinate position.⁵⁵¹ Nevertheless, the Bulgarian dairy industry managed to reach the international market.

Domestically, food production had given rise to various branch organizations such as the Dairy Industry; the giant state-owned Rodopa enterprise controlled foreign trade in Bulgarian food products through a decree in 1965 that established its international trade department, the Directorate of Foreign Trade. Three

years later, the state established the foreign trade agency Rodopaimpex (BTO “Родопаймпекс”).⁵⁵² The agency was in charge of trading dairy products, animal products, and canned food as well as machinery and materials necessary for their production.⁵⁵³ In these trade relations with foreign firms, Bulgaria’s largest producer, the Serdika-Sofia dairy plant, however, had little control over the negotiation process and prices. Export was strictly controlled by the ministries. The main actors in the export of yoghurt technology and ferments were the “Dairy Industry” enterprise that governed the entire sector and Rodopaimpex’s trade agents in the “Export of Dairy Products” department (кантора “Износ млечни продукти”).

Maria Kondratenko leading the Central Experimental and Production Laboratory for Pure Cultures from 1963 and Todor Minkov an engineer at dairy plant Serdika-Sofia until 1971, recall that Serdika-Sofia’s limited control over the negotiation process was one of the export issues, while others focused on the very nature of yoghurt. Vibrating trucks and airplanes changed the consistency of yoghurt while in transit, making it very difficult to export jars.⁵⁵⁴ Nevertheless, Serdika successfully exported products to its French client Danone, to whom they delivered yoghurt in trucks and airplanes for a year (1963-1964).⁵⁵⁵ At that time Danone led the French yoghurt market, but was far from its present position as global giant. The company benefitted from yoghurt’s growing popularity in Western Europe, while Bulgaria’s dairy industry – as part of Comecon – could not due to the EEC regulations and agrarian production quotas. Minkov warned that the new laws impeded the export of Bulgarian yoghurt.⁵⁵⁶ Another export destination for yoghurt was the United States, where it traded with the New York based firm Standard Importing.⁵⁵⁷ In the late 1960s, Bulgaria’s “Dairy Industry” went into partnership with a firm to export white Bulgarian cheese to the American market, where it competed with Greece and Rumania.⁵⁵⁸ The only information we have is that in 1967, one ton of yoghurt priced at US\$320 was sent by plane via Istanbul. In 1968, “Dairy Industry” granted exclusive rights to Standard Importing to trade the product in the United States.

Girginov’s work on the innovative technology for industrial yoghurt manufacturing (1964-1965) was parallel to the first export efforts. The patents for the manufacturing technology and later for yoghurt starter cultures did mark the first step towards the international market and showed the Bulgarians’ orientation in that direction. Documents on Rodopaimpex shed light on the wide variety of negotiations, contracts, and destinations of the technology and starter exports since 1967.⁵⁵⁹ The first license agreement in 1967 was concluded between Rodopaimpex and French dairy producer Yoplait. Minkov remembered that to prove the quality of the yoghurt, in that year he organized a tasting session at the Bulgarian

Embassy in Paris, to which Yoplait representatives and diplomats were invited. He recalled preparing the Bulgarian yoghurt in a room at the embassy, using samples of *Lactobacillus bulgaricus* and *Streptococcus thermophilus* produced in Bulgaria.⁵⁶⁰ Minkov believes that the product's superior quality presented at the embassy played a crucial role in convincing Yoplait. Although Yoplait's marketing strategy never mentioned the transfer of Bulgarian know-how and technology, it did refer to Bulgaria and the Balkans by launching plain yoghurt branded "Balkan." Yoplait employed the name of the Balkan mountain range in Bulgaria after which the Balkan Peninsula was named, even though the license agreement did not require the company to promote Bulgaria as trademark of the technology it was using. In retrospect, that was a glaring omission in the license agreement. At the time, the state did not value the potential income of products labeled as Bulgarian.

Kondratenko and her team's research and selection of the unique collection of Bulgarian isolated starter cultures for industrial yoghurt production from 1968 to 1970, followed those first exports. Neither the documents nor the recollections of the actors involved clarify the causal relationship between the decision to invest in yoghurt research, innovation, and production, and the decision to export the product. Yet, what export representatives and scientists promoted were the technological innovations in yoghurt and starter culture production. By exporting the technology and microorganisms, Bulgaria sought to attract the world of business and science. Rodopaimpex targeted the main Western European dairy producers like France, Western Germany, and Great Britain. The selection depended entirely on the competency and acumen of individual trade agents.⁵⁶¹ Through a network of trade agents in Europe, the U.S. and the Middle East, Rodopaimpex mediated between Bulgarian firms and international businesses. In 1971, executive director Angel Ganchev claimed that Rodopaimpex maintained trade relations with 134 international firms in 49 countries. Almost half (47%) of its export was oriented towards the Western market.⁵⁶² These figures illustrated growing trade relations between West European firms and Socialist governments during the 1960s and 1970s.⁵⁶³

Beside the international traders, the Bulgarian embassies as well as state and Dairy Industry representatives at major international trade fairs and specialist food exhibitions also promoted with fluctuating success the products and technologies that made Bulgarians proud.⁵⁶⁴ The export of yoghurt as a national product was further amplified. The stereotypes about yoghurt were re-produced at organized tastings to promote Bulgarian technologies and starters internationally.⁵⁶⁵ Together with the Bulgarian Dairy Industry's presence at international trade and food exhibitions, Rodopaimpex organized yoghurt tastings at foreign supermarkets.⁵⁶⁶

These marketing activities did not seek to create new consumer demand, but promote the technology and microorganisms for yoghurt manufacturing responsible for the distinct taste of Bulgarian yoghurt. Focused on exporting know-how and proud of the high quality of scientifically cultured lactic strains and the innovative technology of yoghurt production, all the influential actors from trade agents, dairy plant managers to the governmental elite, were initially not interested in the commercial opportunity that the West European market presented. Until the 1970s, these actors were focused on science. They therefore supported copying the original and authentic product for commercial purposes, which they claimed the science produced. Bulgaria, although part of the Communist bloc, where national identities were frowned on and international socialism was celebrated as a matter of principle, actually shook off that ideological limitation when it sought to export yoghurt starters and technology as unique national products. The agency promoted Bulgarian yoghurt abroad as a national delicacy without attributing any socialist or communist connotation.

In 1972, Dairy Industry signed a contract with Meiji Dairies Co. for a period of 20 years, which was the first significant success for Bulgarian yoghurt abroad.⁵⁶⁷ The contact with the Japanese firm had resulted from the Bulgarian presentation of yoghurt samples in its pavilion at the World Expo70 in Osaka as a clear indication of the state authorities' willingness to invest in international trade.⁵⁶⁸ The Bulgarian delegation chose to present yoghurt as a typical Bulgarian food representing Bulgarian culture, offering samples to visitors as well as customers at the pavilion restaurant and in Japanese supermarkets.⁵⁶⁹ The pavilion was a miniature version of the Balkans. Its frescos communicated the ideological and nationalist messages about the success of the Bulgarian economy under socialism, but also referred to the rich cultural heritage and centuries-old traditions.⁵⁷⁰ The Japanese dairy producer was so impressed by the tasting and the supermarket tests that it approached Bulgarians on the spot, which resulted in negotiations for the export of Bulgarian technology and know-how to Japan.⁵⁷¹

The Bulgarian state did not have a strategy to promote its products, but the Japanese Meiji Dairies Co. created the entire advertising campaign for its new product MEIJI Bulgarian yoghurt, based on its Bulgarian characteristics.⁵⁷² Bulgaria and yoghurt became synonymous for Japanese consumers, who were aware that the product was made with Bulgarian bacteria using traditional Bulgarian technology. Bulgarian anthropologist Maria Yotova concludes that "its Bulgarian story of origin has become the key to the brand success. Meiji created an image of Bulgaria as a country with beautiful nature and a healthy life-style, a yogurt superpower."⁵⁷³

With the introduction of Meiji Bulgarian yoghurt, Metchnikoff's claim was resonating decades later. In launching its new product, the Japanese producer referred back to Metchnikoff and his claims of Bulgarians' longevity as a result of the large quantities of yoghurt they consumed. Meiji not only revived Metchnikoff's theories but it also established a direct and explicit connection between Bulgaria, yoghurt, health, and longevity. In Japan, Bulgaria and yoghurt became – and remain until this day – almost synonymous.⁵⁷⁴

The innovation and selection of unique starter cultures for yoghurt production did not seal Bulgaria's global success. The two major stumbling blocks for export were the state's disinterest in protecting its trademarks and know-how and the cumbersome export system. Moreover, EEC policy on the so-called designation of origin was still in development, inviting abuse of unprotected geographical names of agricultural products and foodstuff like Bulgarian yoghurt. In 1958, the EU countries agreed on legislative protection of the geographical indication that was set in article 30 of the Lisbon Agreement. The Agreement defined it thus: "the geographical name of a country, region or locality, which serves to designate a product originating therein, the quality and characteristics of which are due exclusively or essentially to the geographical environment, including natural and human factors."⁵⁷⁵ Trademark protection was part of international trade and commerce that communist ideology disavowed. In practice, the protected designation of origin was a political and economic construct of the EU member states to protect usurpation and imitation of local products and technology considered specific to the region. Products whose labeling was widely popular were considered as generic terms and as such not protected by the convention. In exporting Bulgarian products like yoghurt, Bulgarian trade agents and politicians were forced to reconsider the need for intellectual property protection. That unfamiliarity and experience with trademarks affected Bulgarian yoghurt's technology and ferments export: the country faced many hurdles and in the end lost many potential markets.

Indeed, from the 1960s to the 1980s, the legal protection of the exported technologies was the weak link in Bulgaria's foreign trade. What the Bulgarian specialists did not anticipate was that the claim of the product's origin, which they had assumed was self-evident and therefore did not need any defense, might be questioned or even ignored. The "Bulgarian yoghurt" designation, claiming the origin of the product, was legally unprotected. The Bulgarian research and development community believed in the very construction of authenticity they had created, claiming that the real Bulgarian yoghurt was the one produced in Bulgaria or at least with the exported Bulgarian know-how, technology, and ferments.

In 1974, Bulgaria already had a well developed structure for international trade, yet Deputy Minister of Foreign Trade Andrey Lukanov indicated the unreflective promotion and legal protection of Bulgarian export goods.⁵⁷⁶ Following the Party line of centralization, he put the blame for ineffective trading on the decentralization of export promotion abroad and the incompetence of the trade agencies. Lukanov advised restructuring this vital aspect of foreign trade into an organization specializing in entire patent policies, integrating product promotion to the creation of trademarks. He felt that the range of advertising techniques was not being fully utilized to promote Bulgarian goods abroad nor were there enough competent specialists.⁵⁷⁷ The distinct lack of cooperation, coordination, and dialogue between the trade agencies, the Bulgarian Chamber of Commerce, and the producers made promotion also ineffective.

The Deputy Minister of Foreign Affairs warned likewise that the country had failed to adopt measures to protect its products and trademarks. Many Bulgarian products had already been patented by foreign producers and firms. The same applied to the Bulgarian designation of origin. Lukanov identified the problem that until then, the Bulgarian state had only registered two Bulgarian products under the EU's designation of origin: Shumensko Pivo ("Шуменско пиво") claimed by the state economic enterprise "Balgarsko Pivo" (ДСО "Българско пиво") and Bulgarian Starter Culture for the Production of Bulgarian Soured Milk ("Българска закваска за производство на кисело мляко) claimed by "Rodopa" (ДСО "Родопи").⁵⁷⁸ The selection of those two particular products was not discussed publicly by Lukanov, but must have been the outcome of the Bulgarian state entering into a trade exchange with the West when officials reconsidered what might solve their lack of foreign currency. Probably the economic potential of the Bulgarian Starter Culture for the Production of Bulgarian Soured Milk led to their registration under European law to protect intellectual property. Although the technology and the starters were legally protected, the phrases "Bulgarian Soured Milk" or "Bulgarian Yoghurt" were not. Some European companies took advantage of this hiatus: from 1963 the French firm Chambourcy was using the name Bulgaria to promote its products, claiming its yoghurt was the most Bulgarian of all the yoghurts with a Bulgarian taste. In France the term "au goût Bulgare," referring to all kinds of plain natural yoghurts, was popular. The advertising played on that, claiming the superiority of the product. A Bulgarian trade partner since 1967, the French producer Yoplait had registered the trademark "Balkan" in 1972. Similar labels were used by Danone. In Portugal, producers were selling "*farinha lactobulgara*" and in the Netherlands, Dutch firm Menken had a product called "*Bulgaarse yoghurt*."

Lukanov concluded that all these cases “go against the interests of this country and jeopardize its positioning on the international market.”⁵⁷⁹

In response, the Bulgarian Chamber of Commerce reorganized *Bulgarreklama* into an independent agency in 1974 to improve Bulgarian advertising abroad by offering a full range of advertising services.⁵⁸⁰ The organization became the only agency authorized to promote Bulgarian products on the international market via the media. While concentrating activities in a single state-regulated agency was a typical feature of communist policy, the organization provided the necessary resources even though its creativity and scope for innovative advertising were restricted.⁵⁸¹ Promoting specialized products like yoghurt starters and know-how required a dedicated approach and competency; neither the trade agents nor *Bulgarreklama* were up to the task.

The same year, considering the potential of yoghurt know-how, technology, and microorganism export, but also realizing the need for specialized promotion, Rodopa instituted an “Export of Yoghurt” department (кантора „Износ кисело мляко”) within the trading agency. That department facilitated negotiations with foreign firms, prepared proposals for the starter cultures or persuaded clients to purchase the patented technology with foreign firms. After its establishment, two important figures emerged: Todor Minkov and Georgy Stoikov Georgiev. Minkov, born in 1928 in the village of Ostrec, had studied at the Higher Institute of Food Industry in Plovdiv.⁵⁸² From 1961 until 1971, he was involved with dairy plant *Serdika*. In 1972 he became general manager of the state enterprise “Dairy Industry,” before his appointment in 1984 as manager of Comecon’s Food department.⁵⁸³ As executive director of Dairy Industry, he worked closely with the international trade agent Georgy Georgiev, the head of the Directorate of Yoghurt Export at *Rodopaimpex* since 1974. An experienced international trade agent, Georgiev was intimately familiar with export policies. The Directorate of Yoghurt Export benefited from *Rodopaimpex*’s wide international network.

West European firms’ exploitation of the designation “Bulgarian” signaled that producers viewed yoghurt as originating from Bulgaria; for marketing purposes at least, its Bulgarian character served to guarantee the product’s quality but also attracted yoghurt consumers. Bulgarian economic and political isolation reinforced by the communist regime’s neglecting to protect the intellectual property rights deprived the country of profiting commercially from Bulgarian yoghurt’s popularity abroad. The country’s interests were in selling the scientific and technological innovations they were proud of, instead of direct commerce and product marketing. The patenting of Girginov’s yoghurt manufacturing technology and industrial starter cultures were the national products that Bulgaria needed to

derive profit. The Bulgarian state did not even get actively involved in introducing yoghurt to the European and world market. The main agents of yoghurt promotion, popularization, and image creation were the dairy firms, the trade agencies, scientists like dairy specialists and microbiologists, and the Bulgarian Advertising Agency. However, their contacts were limited to business, political, and scientific circles, and did not control the way producers promoted yoghurt or Bulgarian ferments. Another significant problem was the lack of control over the name Bulgarian yoghurt (or derivatives) being used by firms that neither had direct trade relations with Bulgaria nor imported Bulgarian starters, technology and know-how.

The fact that foreign firms used Bulgarian labeling for yoghurt on their products was not solely a legal issue. Those producers were also creating images of how Bulgarian yoghurt should look and taste. Bulgarian actors had little to no involvement in creating these images. The state had neither control nor interest in the use of the name, symbols, or interpretation of Bulgarian yoghurt. The establishment of the “Export of Yoghurt” department along with the national advertising organization were the distinctive signs of changing national politics. The registration in 1975 of “LB” as Bulgarian’s Dairy Industry trademark was the outcome of centralized state politics towards protecting national products by patent policies, product promotion, and creation of trademarks. The trademark “LB” was a stylized form of the microscopic image of *Lactobacillus bulgaricus* and *Streptococcus thermophilus* – the two bacteria in yoghurt (Fig. 8). Selecting yoghurt bacteria to symbolize the entire Bulgarian dairy industry conveyed yoghurt’s claim to a rightful place in Bulgarian food and culture.

Lukanov’s report on the unreflective protection of Bulgarian export goods resulted in further state activities. In 1976, Georgiev and his deputy director Yovcho Russev met the French attaché Jean-Pierre Dubois in Sofia to discuss the “abuse of Bulgarian in relation to yoghurt.” Georgiev and Russev insisted that the issue should be resolved similarly to when France demanded Bulgaria should stop using the terms “cognac” and “champagne.”⁵⁸⁴ However, France ignored the Bulgarian claims

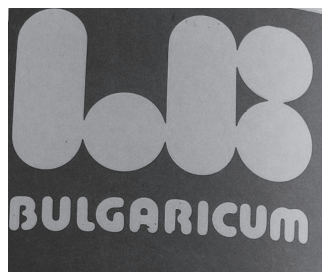


Figure 8 – Trademark “LB” representing a stylized view of the microscopic image of LB and TS. Source: State Archive Sofia, fund 1851, registry file 1, file 9.

on the grounds that French producers had used “yaourt au goût Bulgare” so frequently that it had become a generic term.⁵⁸⁵ This case showed that the Bulgarian state had missed the opportunity to benefit from the use of its name and thus better promote the national character of the exported products and technologies. The state, in contrast to EU member states like France and Italy, had assumed that products linked to national pride could be taken for granted and did not need active promotion abroad.⁵⁸⁶

The belated reaction to the exploitation of the name “Bulgarian” in relation to yoghurt, came in the late 1970s from Bulgaria’s Trademarks and Industrial Samples department (“Търговски марки и промишлени образци”) at the Institute for Patents and Rationalizations (Института за изобретения и рационализации) (Fig. 14 in the Appendix) that applied for Bulgarian yoghurt as a trademark. In 1978, *Bâlgarsko Kiselo Mljako* and *Bâlgarska Zakvaska za Kiselo Mljako* were pronounced “designated origin” owned by Dairy Industry and Rodopaimpex. That action failed to provide the essential legal protection for the designation “Bulgarian yoghurt” and was limited to “Bulgarian Sour Milk” and “Bulgarian Leaven for Sour Milk,” both popular in Bulgaria, but not recognized abroad.

In short, communist Bulgaria’s neglect of intellectual property and national product protection were re-evaluated during the intensified trade exchanges with the West. When state leaders realized that such politics were actually depriving Bulgaria of commercial profit, they enforced the legal protection of exports. Even then, it was hard to adhere to the principles of the free market when the state protected technologies and know-how but neglected the end product, as was the case with Bulgarian yoghurt. In the late 1970s, enforced state protection acts for Bulgarian yoghurt had dubious effects, partly because they came too late. Scientists and dairy producers, deprived of national and international markets could not alter state politics even if they contacted Western firms when offered licensee technical assistance to guarantee the efficiency of the patented technology. The end product and the technological competence were not the crucial attributes to set the Bulgarian product apart. Its uniqueness, the Bulgarian specialists believed, was hidden in the invisible world of microorganisms. In a recent assessment of Bulgarian yoghurt export, microbiologists Kondratenko and Nikolov insist: “One major distinction between the Bulgarian yogurt starters and the starters with the same species content applied in other countries, is the continuous symbiotic relationship existing between the two species.”⁵⁸⁷ Exactly that proto-cooperation between *Lactobacillus bulgaricus* and *Streptococcus thermophilus* is responsible for the specific taste and aroma of Bulgarian yoghurt, the scientific establishment believed. Examples of symbiotic relationships between the two microorganisms

were typical for the wild yoghurt leavens isolated from Bulgarian wild sources or home-made yoghurt. Evidence was provided in a few articles published also internationally.⁵⁸⁸ Using those combinations, the specialists collected what they believed to be the best samples found in the wild. They believed that Bulgarian cultures had several advantages over those produced elsewhere: exceptional flavor, higher activity, and genetic stability of the *Lactobacillus bulgaricus* and *Streptococcus thermophilus* association.⁵⁸⁹ The microorganisms were perceived as a combination of Bulgarian nature, culture, and traditions. They claimed that the exported starters embodied the best of all three. That fascination in respect of the scientific achievement affected not only export politics but also the only understanding of what is Bulgarian yoghurt. Bulgaria's culture and traditions remained in the background when Bulgarians promoted yoghurt abroad. This strategy was related to their urgent need for hard currency, forcing Bulgaria to focus on selling high priced technologies instead of direct commerce and product marketing.

Exporting Bulgarian Yoghurt Technology

The establishment of a specialized department to export yoghurt technologies and know-how intensified the trade with the West. Rodopaimpex also started to use the trademark "Bulgaricum" seen in negotiations with the Austrian firm Omoelk based in Vienna. Initially, the use of the trademark "Bulgaricum" was the only subject of discussion, however, Deputy Director of Rodopaimpex Asen Aleksandrov and Georgy Georgiev convinced the Omoelk representatives Thomas Burger and Andreas Rosberg, to purchase the license. The agreement, signed in 1975 for a period of five years, was for the production of Bulgarian yoghurt using Bulgarian technology under the supervision of Bulgarian experts. The prices and amount of yoghurt produced annually were negotiated every year.⁵⁹⁰ Rodopaimpex also succeeded in selling its patent for yoghurt production to German milk producer Gesellschaft zur Förderung des Absatzes Milchprodukte in Munich.⁵⁹¹ The German company produced 60,000 yoghurts in 175 gram packaging daily using Bulgarian technology, but also produced 140,000 other yoghurt items daily, using the same packaging. The difference was that the Bulgarian yoghurt cost two *pfennig* more than other products.⁵⁹² The combination of higher price and limited production shows that the German company was selling the Bulgarian style yoghurt as a high-end brand. By printing *Echt Bulgara Joghurt* on the packaging, the company was informing consumers that the product was produced using Girginov's technology with Bulgarian pure cultures.

Another of Dairy Industry's trade partners was the Finnish dairy leader Valio Finnish Cooperative Dairy Association.⁵⁹³ Finland occupied a specific political place in the Cold War as bridge between East and West. Valio began producing yoghurt in 1968, and later under the same brand name in the early 1970s. The dairy association achieved new yoghurt product lines by changing many different types of fermented products and offering various combinations of exotic and fruit yoghurts.⁵⁹⁴ A company retrospective wrote that "only the best survived."⁵⁹⁵ The new product Bulgarian *jogurtti* was advertised as a novelty on the Finnish market but did not become as popular as similar products in France. It retained a small but stable market share among the large diversity of dairy products in Finland, many of them produced by Valio.⁵⁹⁶ Negotiations for Finnish cooperation with Bulgaria's Dairy Industry began in 1975, first through existing contacts between the Bulgarian trade companies in Finland and reinforced by the 1973 trade relations agreement between Bulgaria and Finland, after political and economic relations intensified in the early 1970s.⁵⁹⁷ In 1975, Rodopaimpex participated in a large Bulgarian delegation to establish contact with Finnish agrarian and food production sectors.⁵⁹⁸ Atanas Petrov of the Ministry of Agriculture led the delegation consisting of Boris Dobrev, Todor Minkov and Georgy Stoikov Georgiev. Representing Valio in the negotiations were Erkki Ahola, technical and production manager, Kari Luoto, in charge of developing the technology for fermented milks, and dairy specialist Olli Lovio.⁵⁹⁹

Though clearly interested in producing Bulgarian yoghurt under a Bulgarian license, Valio found the price of the patent and yoghurt technology too high. Because the production of Bulgarian yoghurt was new for the Finnish dairy market in general and Valio in particular, the launching of such a new product posed risks; the company was willing to conclude a long-term agreement after a year of testing the technology and response from consumers. The new production required additional investment, Ahola argued when negotiating a lower price.⁶⁰⁰ Finally, both sides agreed on the patent agreement for fifteen years. The technology was adopted in two stages. In the first, the Finnish producers were required to produce 2000 tons of Bulgarian yoghurt annually using the 'classical' semi-continuous method. The initial payment for that technology was US\$15,000 instead of the US\$25,000 the Bulgarian delegation had originally demanded, and there were regular annual payments for using the technology. Once Valio had achieved the required amount, Rodopaimpex would provide the new technology of continuous yoghurt production costing US\$25,000.⁶⁰¹ The firm paid 40 dollars per ton of Bulgarian yoghurt it produced using Bulgarian technology, leavening the milk

with Bulgarian lyophilized cultures. Thus, one gram of the lacto bacilli selected at Serdika dairy plant cost 8 dollars. The required amount of lyophilized starters for producing one ton of yoghurt was about 50 grams.

Because the contract included technical support and training, a team of Bulgarian specialists went to Finland for the start-up period in 1976. One member of that team, Maria Kondratenko and head of Serdika's research laboratory, recalled that this was standard for contracts with foreign companies. The period of training and the specificity of the Bulgarian specialists' work depended on the foreign company's equipment, staff, and type of production. In the case of *Valio* it lasted 45 days. The Bulgarian specialists were impressed by the quality of raw milk, the good technological base, strict hygiene, and level of development in Finland's dairy industry. Kondratenko referred to her Finnish colleagues as "punctual and diligent."⁶⁰² She remembered: "The quality of the cow's milk in Finland was surprising to me. A better raw material for yoghurt production does not exist. The yoghurt produced with that milk has the aroma, consistency, and microbiological picture as if it was produced with sheep's milk."⁶⁰³ The product "*Valio* Bulgarian yoghurt," launched in 1977, has been on the market as natural yoghurt ever since. *Valio* attempted to produce Bulgarian yoghurt with honey and fruit or fruit-on-the-bottom, but consumers preferred the plain product because of the unfamiliar addition of sugar. *Valio* Bulgarian yoghurt was also successful because it was the only plain yoghurt in Finland. Relatively high in fat with 3.9% compared to other yoghurts in Finland with 0.3 to 2.0%, the Bulgarian yoghurt tasted milder.⁶⁰⁴

In the 1980s, *Valio* advertised Bulgarian *jogurtti* in popular Finnish journals and magazines.⁶⁰⁵ Like Meiji, *Valio* created an image of Bulgaria by highlighting its naturalness and traditions in yoghurt making. In the advertisements, it was the beauty of unpolluted nature, or else a girl dressed in traditional costume, that was identified as Bulgarian. The product name "Bulgarian yoghurt" was directly related to its alleged origin and that differed from other fermented milk products: "*Bulgarian jogurtti on erilainen Valio jogurtti*" [Bulgarian yoghurt is different *Valio* yoghurt] (Fig. 15 in the Appendix). Even though producers promoted certain ideas about the Bulgarian character of a product, the most successful clue was not the scenic background. Apparently what attracted consumers most was the picture of the girl in traditional costume, which was kept in the company's advertisement for years. Children knew it as "the girlish yoghurt" and the packaging became an inseparable part of the product. When in 1984 *Valio* decided to target business and working people, the yoghurt was presented as a quick, healthy, and delicious fast food: a "snack when your stomach starts to rumble" and "a nice sociable dessert for two"⁶⁰⁶ (Fig 16 in the Appendix). What the advertisement promoted was a specific

practice for a business-related lifestyle – of having a break in the busy working day schedule. Valio presented the product not only as tasty and healthy nutrition but as a social event similar to drinking a cup of coffee or lunching for two. The campaign thus introduced a social intimacy of sharing yoghurt consumption. The image makers relied on the yoghurt's name and packaging; what Valio wanted was to capture a stable market segment attracting the younger generation and active working people.

In 1986, Valio created a shrewd campaign incorporating old-fashioned advertising and a competition with as prize, a trip to Bulgaria for ten customers.⁶⁰⁷ Consumers were asked to send in their own original yoghurt recipe. The ten best recipes won a trip to Bulgaria while the remaining suggestions would be published in a booklet.⁶⁰⁸ The judges included a Bulgarian commercial attaché, a teacher, a dairy producer, and a fashion journalist.⁶⁰⁹ Valio hoped to use this specific marketing to integrate the new Bulgarian yoghurt into Finland's food culture, thereby transforming the Finnish diet. Indeed Valio's test kitchen produced a lot of recipes for Bulgarian yoghurt targeting both female consumers and cookery lovers.⁶¹⁰

Similar tactics were used in other European countries where yoghurt was not part of Western consumers' food habits and attitudes. In the 1970s, many cookery writers helped to overcome this by including yoghurt in a wide variety of dishes described in their books.⁶¹¹ In response to the active involvement of Finnish consumers, Valio introduced Bulgarian cooking yoghurt – *Valio Bulgarian ruokajogurttia*. This was a cross between crème-fraîche and yoghurt, considered more aromatic than fermented cream, and thicker than the regular yoghurt. Cooking yoghurt became popular for preparing cold sauces, soups, marinades, pastes, stuffing, desserts and drinks. The fact that both types of Bulgarian yoghurt still exist today, is testament to Valio's ability to create a stable market segment in combination with successfully promoting specific yoghurt consumption.⁶¹²

The successes of Bulgarian type yoghurt in Finland and Japan meant national pride remained untested. Yet foreign buyers did not always consider Bulgarian technology and starter cultures superior, as Stoyan Stoyanov, dairy specialist at the Institute of Dairy Industry in Vidin, experienced. In 1976, he organized Bulgarian yoghurt tasting sessions at the Swiss supermarket chain Migros, "to specify the advantages and disadvantages of the starter cultures used in Bulgaria and Switzerland."⁶¹³ By then, tastings had become common practice to promote Bulgarian technology. The reputation of the Bulgarian end product created with the know-how and microorganisms, appealed to European dairy producers seeking new products. The representatives of the Swiss firm in Zurich were

Heinz Kiss and Klaus Veymut, while Bulgaria was represented by Nedyalkov and a trade agent in Bern.⁶¹⁴ The Bulgarians presented a variety of yoghurts that adhered to their country's State Standards – *Balgarski Darzhaven Standart*, BDS [Български държавен стандарт, БДС]: natural Bulgarian yoghurt from cow's and sheep's milk (BDS 12-72), "Snezhanka" yoghurt (BDS 6032-74), a yoghurt drink "Mladost" (BDS 12-72), a yoghurt drink flavored with raspberry syrup, and yoghurt with strawberry jam. Migros already produced a wide variety of flavored yoghurts unknown to Bulgarian consumers. Nedyalkov was impressed, concluding that Swiss Migros "is very advanced in the production of fruit yoghurts, the packaging of which seems to be terribly important, even more so than their quality."⁶¹⁵ Because packaging as a strategy to attract consumers was considered pointless in centrally planned economies, Nedyalkov insisted that product quality was more important. Nevertheless, he admitted that the supermarkets had made great progress with flavored yoghurts compared to Bulgaria. This highlighted the different specialization in yoghurt between Switzerland and Bulgaria, mirroring consumer preferences. The Swiss-Bulgarian commission concluded that the Bulgarian yoghurt was of higher quality, but this did not guarantee that the Swiss would decide to buy the Bulgarian patent and starters. Instead, Kiss and Veymut argued that the better quality of the Bulgarian product was down to the raw material, not the technology and starters. Nedyalkov confided that Migros used technology similar to that of the Bulgarians and was already relying on a Danish supplier for starters.⁶¹⁶ This case confirmed Bulgarian yoghurt's excellent quality, but also shattered the myth of the uniqueness of Bulgarian microorganisms and know-how.

Advertising the Bulgarian Original in France

Bulgarian politicians, neglecting the economic values of the geographical indications allowed international producers to exploit Bulgarian yoghurts. By investing in research, the country competed for a leading position among the international dairy producers. The Communist Party, encouraging technological competition with the West, succeeded in exporting know-how, starter cultures, and technology for yoghurt manufacturing, promoting the image of extraordinary Bulgarian yoghurt thanks to scientists' innovations. Competing in science and technology not in commerce, meant Bulgaria did not control the use of the name, symbols, or interpretation of what Bulgarian yoghurt was. As for profit organizations, Western producers were more attuned to how exotic products could be made more appealing by creating an image of Bulgaria when advertising their products.

In 1963, before any agreement with Bulgarian producers, Chambourcy actively promoted their product as “*le yaourt au goût bulgare*” [yoghurt with a Bulgarian taste] in TV and newspaper advertisements. Their slogan emphasized the truly Bulgarian nature of the product: “*Le vrai yaourt au goût bulgare c’est Chambourcy*” [The real Bulgarian tasting yoghurt is *Chambourcy*] and the picture of a beautiful young girl wearing an embroidered blouse and a kerchief gave the impression of a Bulgarian girl consuming a traditional product. To make the message even more effectual, the caption explained that the yoghurt with “*le goût bulgare*” was produced with the same starter culture as in Bulgaria (Fig. 17 in the Appendix). Thus, the connection with Bulgaria guaranteed good quality yoghurt, while signifying the product’s authenticity. With the direct references to Bulgarian traditions, Chambourcy assured potential consumers that the product was “real yoghurt,” suggesting it was close to the traditions of the product’s country of origin. Only producers borrowing directly or indirectly from Bulgarian traditions in yoghurt making could offer good quality yoghurt on the French market. Through their advertisements, Chambourcy fashioned the image of Bulgaria as the place where the best quality yoghurt was manufactured. The messages in Chambourcy’s campaigns punned on the phrases used to denote plain yoghurt in France, “*yaourt au goût bulgare*” or “*yaourt brassé*” [creamy yoghurt].

A 1969 TV commercial used a different strategy but still highlighting the excellence of the product with “*le goût bulgare*.” The advertisement reproduced the process of making a commercial video clip where the director is seen to be annoyed at the young actress eating the product too quickly. She apologizes, saying: “*Yaourt le goût bulgare du Chambourcy, c’est ma folie!*” (“Chambourcy’s Bulgarian tasting yoghurt, I am just crazy about it!”). It was not the connotations of Bulgaria that were paramount here but rather the yoghurt’s superior taste. The notion of “*yaourt au goût bulgare*” already in common use, was given a new meaning. The company launched yoghurts with two different flavors – cherry and strawberry, which were also described as “*au goût bulgare*,” suggesting that Bulgarian yoghurt was widely recognized and approved and could be applied to a variety of yoghurt types, even those not common in Bulgaria.

In 1972, Chambourcy launched a new type of set yoghurt called “Kremly,” promoted as “*nouveau yoghourt [sic] goût bulgare du Chambourcy*” [Chambourcy’s new Bulgarian tasting yoghurt] A similar successful promotional campaign emphasized the Bulgarian character of the product, claiming the new brand used “*la recette des bergers bulgares*” [Bulgarian shepherds’ recipe] (Fig. 18 in the Appendix). How the company pictured “*bergers bulgares*” [Bulgarian shepherds] was a far cry from what the real Bulgarian shepherds looked like. The horse-riders

resembled Tatars rather than Bulgarians, perhaps evoking the nomadic life of Proto-Bulgarians. The advertising strategy seemed intent on representing traditions and a healthy life-style, which involved being close to nature, having a free spirit, and consuming a significant amount of yoghurt. The TV commercial featured Bulgarian folk music and the basic characteristics of the new product were spoken in Bulgarian: “*усеицам* [I feel], *вкусно* [delicious], *студено* [fresh], *българско* [Bulgarian]. *Le plus doux, le plus léger, le plus rafraîchissant yaourt bulgare, le goût le plus bulgare*” [The smoothest, lightest, and most refreshing Bulgarian yoghurt. The most Bulgarian taste].

The later version of the Kremly advertisements (1985) took the idea of Bulgarian style yoghurt even further: the national characteristics of yoghurt were portrayed to distinguish each product. Nomadic riders were associated with the love of freedom, for which Chambourcy chose the slogan “*yaourt avec du caractère*” [yoghurt with temperament]. In the commercial, a middle-aged “Bulgarian” man, mustached, healthy looking but a bit uncouth, declared with a strong Slavonic accent: “*Kremly, moi j’aime!*” [Kremly, I love it] The late 1980s advertisements featured new female characters and the references to Bulgarian origin were more discreet. This could be taken to indicate, that for the French consumer, the associative link between Bulgarian origin and natural yoghurt was well established, and needed no emphasis. Furthermore, Chambourcy’s reference to the Bulgarianness of plain yoghurt was adopted as a marketing strategy by many brands of yoghurt. Plain yoghurt was referred to as “*le goût bulgare*,” and consumers took it for granted that Bulgaria was the country of origin. Influenced by consumers’ assumptions, Chambourcy began to create images of Bulgarianness in its advertising, without mentioning Bulgaria. Several TV ads showed Bulgarians with their horses in the countryside, thus turning horsemanship into a form of Bulgarian authenticity. Chambourcy employed the horse to symbolize freedom, power, and nobility so that the symbol became firmly associated with Kremly; the horseman even appeared on the product packaging in 1994.

A 1990 advertisement described how people imagined Bulgaria: “*Il existe un pays fait de force et de pureté où l’homme a découvert yaourt. C’est l’yaourt Kremly. Il n’a rien oublié de ces origines. Kremly le yaourt du pays de yaourt*” [There is a country of strength and purity where man discovered yogurt. That yogurt is Kremly. It has remained true to its place of origin. Kremly Yogurt from the country of yogurt]. Yet Bulgaria was not mentioned by name. People wondering which country was described, could find it encoded in the product name “*le goût bulgare*” on the packaging. This policy of presenting Bulgaria and its traditions as symbols of

superior yoghurt producers was discontinued in 1996 when Chambourcy became part of Swiss food giant Nestlé. The Swiss-founded international company had been producing yoghurt since the 1900s, promoting it as an exotic oriental product originating from the Balkans. However, the new owner withdrew Kremly from the market.

By the 1970s, French consumers had enjoyed a long tradition of associating yoghurt's healthy qualities and specific taste with Bulgaria's popular image as the home of plain soured milk. With increasingly more types of fermented milk products entering the market, consumers were overwhelmed with the vast choice, forcing producers to adopt more aggressive advertising techniques to attract customers. In a 1977 episode of a popular television series on TF1, a French cartoon questioned the difficulties in appropriating a new product and technology for its production; it also commented on the complexity of traditional versus imported (non-traditional) products.⁶¹⁷ The cartoon featured the cow Noiraude, who is constantly worried about social issues, and her very patient veterinarian. In the 'Bulgarian Yoghurt' episode, Noiraude had to leave for Bulgaria on a traineeship as she had been asked to make Bulgarian yoghurt. She voiced resistance against the training because it was not appropriate for a French cow. The veterinarian reassured Noiraude that innovation was inevitable and there was nothing wrong with learning a new craft. The demands of the global market were hard to comprehend, hence the cow's conclusion: "it would be much easier to ask the Bulgarian cows to make Bulgarian yoghurt... and so leave me to make butter."

The TV series presented the issue of authenticity in a very intriguing way, by questioning the competence of a foreign producer to offer Bulgarian yoghurt produced in France. It was not just a question of new technology; it was a different food culture. In the form of entertainment, the "Bulgarian Yoghurt" episode introduced a topical issue of the French reality. French consumers and producers saw plain yoghurt as Bulgarian yoghurt, regardless of the alternative countries with traditions in yoghurt production, such as Turkey and Greece. That connection between Bulgaria and yoghurt was established first by Metchnikoff, who also construed the image of Bulgarians as living long thanks to the health benefits of daily portions of yoghurt. That assumption was commercialized in the 1920s and 1930s, before being used again successfully in the booming yoghurt market of the 1970s and 1980s. In Japan and France, in particular, the strong connection between yoghurt and Bulgaria achieved immense public recognition and approval. The symbols and meanings embodied from the time of Metchnikoff up till the present were appropriated, exploited, and reinforced in many dairy producers' promotional campaigns offering Bulgarian (plain) yoghurt.

Conclusion

Notwithstanding the limitations of the Cold War in terms of travel and trade, socialist Bulgaria accomplished the export of technical know-how and products to various countries beyond the Iron Curtain. These forms of export successfully promoted Bulgarian yoghurt abroad in part because the Western yoghurt market was already well developed. Science not only helped construct and launch the notion of Bulgarian yoghurt's superiority but also gave credence to the national myth of Bulgaria being the home of yoghurt. Geographical conditions together with the technologies that sought to capture and reproduce centuries-long traditions, became key trading arguments for Bulgarians that they "produced" the best yoghurt in the world. When Bulgarian producers exported yoghurt or its technology, they were also exporting stereotypes, myths, and symbols. For their part, West European dairy companies further reinforced the image. When yoghurt started "travelling," any expectations or preliminary plans had to be checked against the outcome. By appropriating yoghurt, considered a traditional Bulgarian product, the European market changed the context of yoghurt consumption and adapted it to the specificity of the local markets. Therefore the export of yoghurt that initially conveyed national pride did transform European taste.

Chapter 6

Contesting Authenticity after the Fall of Communism

After its 1970s heyday, the export of know-how and starter cultures for producing Bulgarian type yoghurt went downhill. The decline was a result of the internal collapse of the Bulgarian economy, and exports only intensified after the fall of communism in 1989. The country's shift to a market economy had severe social, political, and economic consequences that put Serdika in dire straits. The liberalization also led to a diversification of the Bulgarian yoghurt market and attracted foreign companies like the multi-national dairy company Danone. Danone's entry into the dairy market challenged Bulgaria's understanding of yoghurt as a national and authentic foodstuff. When the company introduced EU quality and safety standards, it challenged what local regulations had defined as "Bulgarian soured milk." A contest ensued between the multinational and the Bulgarian government over who had the right to determine what should be considered real and authentic. At the same time, the state was no longer capable of ensuring domestic quality. Producers and consumers started asking questions about the authenticity of the products on the market. As a result, the trust in the superiority of Bulgarian yoghurt was shaken for the first time.

Serdika-Sofia's Fight for Survival

After the political changes of 1989, Bulgaria's economy was reorganized including the dairy sector.⁶¹⁸ The deep economic crisis that followed the political and economic transformation affected the agrarian sector. In 1990, in order to protect the know-how, patents, and technology in dairy, the state governors split the Sofia Dairy Industry into two separate companies: one for production and one for research. Its research company, LB Bulgaricum (LBB), had been patented as a trade mark in 1984.⁶¹⁹ LBB was granted the right "to be the legal successor of the intellectual property, licensing activity and export positions," in order to protect over

700 lactobacilli and many patents for Bulgarian dairy products and trademarks.⁶²⁰ In saving the unique collection from the communist era, the government underscored the importance of the sector as a national interest and source of national pride. Despite the crash of the national economy, the patent agreements generated much needed foreign-currency that prevented LBB from financial ruin.⁶²¹ Without such income, by contrast, the company's production units were either quickly privatized or went bankrupt. The largest dairy plant in Bulgaria, Serdika-Sofia, suffered a similar fate. Starting a year or two before the political changes, its economic and technical problems only deepened.⁶²² After 1989, Serdika struggled to survive and to provide the capital because of "the national question, the reduced supply of raw milk, the significant difficulties in providing basic materials and, last but not least, the unstable political situation." The socialist collective farms ceased to exist when the state returned the land to their former owners, resulting in milk crises.⁶²³ Serdika's 1989 annual report concluded that "despite the current events that rocked the country...the plant employees did considerably better than the annual plan with reference to the basic economic indicators."⁶²⁴ One year later, however, the problems had become more serious: yoghurt production dropped by almost 700 tons compared to the previous year, and fell short by over 1300 tons compared to the annual plan.⁶²⁵

Political changes undermined the five-year plan to raise Serdika-Sofia's annual yoghurt production to 90,000 tons. In 1991, it barely reached 37,000 tons, in a city where annual yoghurt consumption reached 70,000 to 80,000 tons or 220 tons a day. The dramatic drop reflected the kind of problems facing the entire agrarian sector. The shortage of good quality raw milk was a typical problem for all Bulgarian dairy plants.⁶²⁶ Bulgarian economist Malinka Koparanova, employed by the United Nations Department of Economic and Social Affairs, analyzed what led to a "drastic decrease in the sale of milk and dairy products."⁶²⁷ The decline after 1989 was reflected in the "falling consumers' purchasing power....the decline in the output of agriculture has made suppliers' conditions even worse, and in 1992 and 1993, this sector experienced both shortages of inputs and financial problems," she wrote.⁶²⁸

Indeed in 1990, the Ministry of Economics still demanded that dairy producers achieve their planned annual production from before the regime change. To meet the challenge, Serdika-Sofia, like other dairy factories, decided to accept raw milk of any quality. As the director Alexander Rangelov wrote to the Ministries of Health, Economics and Planning: "We are forced to accept any milk, including supplies,

Table 2 – Amounts of plain yoghurt planned and produced at the Serdika-Sofia dairy plant (1988-1991).

Year	Planned / tons	Produced / tons
1988 (first half)	37,84	37,472
1989	72,323	70.100
1990	70,787	69,436
1991	89	37

Source: CSA, fund 1581, registry file 9, file 5: Plant “Serdika” Sofia, financial reports and analyses of economic activity from 1987 to 1990 and CSA, fund 1581, registry file 6, file 9: Letter from “Serdika-1” to the Ministries of Health and Economics and Planning, January 25, 1990, 18-19.

Note: Some numbers have been rounded off in the official document.

which are unhygienic, watered down, microbiologically contaminated, or contain antibiotics and pesticides.”⁶²⁹ Such traces of antibiotics repressed the microorganisms and hampered the fermentation of the milk.⁶³⁰ In her report, Koparanova concluded that Serdika-Sofia faced “problems both in the supply of milk and in maintaining sales.”⁶³¹ In 1993, those problems acerbated. The refrigeration systems and filling equipment at the plant malfunctioned.⁶³² Only two compressors with a capacity of 1,000,000 kilowatt/hour were operational at a third of the required capacity.⁶³³ Serdika reported that the plant was forced to use natural sources like ice blocks for cooling; with the imminent warmer weather, the managers expected they would have to cease the production of milk and yoghurt altogether.⁶³⁴

As a state-owned enterprise, the dairy plant did not have the means to deal with the shift to a market economy. To protect consumers from the rising milk prices, in 1992 the country’s Council of Ministers added milk and yoghurt to the price control list, which included bread, flour, and oil – all basic grocery products.⁶³⁵ Although the Serdika-Sofia management wanted to adapt to the new market pressure, state ownership made any re-organization a slow bureaucratic process.⁶³⁶ In 1991, Polina Milkova, interim director of Serdika, spelled out the problem. The Minister of Economics supported half-hearted measures, while the Serdika-Sofia management embraced de-monopolization of the dairy market: “We could say that this company has had enough of being a monopolist on the market in the capital city. We would like to participate in the milk and dairy market in Sofia.”⁶³⁷ Although the company needed to respond quickly to maintain its market share, it was impossible to do so, she wrote, because all significant changes required Ministry approval.⁶³⁸

In 1992, Serdika reported on its competitor Simko (Симко ЕООД): An exporter of dairy products, the firm offered farmers higher prices.⁶³⁹ In the early 1990s, while farmers in the Sofia region produced 250,000 liters milk a day, only 100,000 liters reached Serdika because Simko offered better prices.⁶⁴⁰ Serdika sought to convince the Ministry to grant them more freedom. The government’s

price control, a measure not applicable to Simko because it relied on export, prevented Serdika from competing. In 1992, the company reported to the Ministry that the factory could no longer meet consumer demand for the autumn-winter season because of the bottleneck in the raw milk supply, “[that] causes the drop in the production of fresh milk and yoghurt.”⁶⁴¹

In this crisis situation, Serdika sought to increase the supply of milk in 1992. Without additional state subsidies, Serdika attempted to cut costs by offering brewer’s gruel to stock-breeders.⁶⁴² The company was prepared to purchase dairy animals and dairy farms as well as modernize its cooling systems with new tanks for milk preservation.⁶⁴³ The approach demonstrated the company’s shift towards the vertical integration of agricultural production as a way of dealing with the crisis. When the plant’s situation deteriorated further, however, the management asked the state for a loan of one million dollars for a period of five years.⁶⁴⁴ To compensate for the milk shortage, Serdika also began to add powdered milk, a cheaper substitute, to its yoghurt. The company informed the Ministry of Agriculture in writing that it was forced to violate the national standard for yoghurt production in order to keep yoghurt prices low.⁶⁴⁵ Devised as an emergency measure, the powdered milk additives changed the taste and aroma of the yoghurt. The microorganisms also acted differently when the fresh milk was mixed with powdered milk. Serdika justified its methods of compromising the yoghurt quality by pointing to the bottleneck in milk supply.

Despite the state’s inability to protect the company’s large dairy unit from closure, the Ministry of Economy prevented the privatization of its research unit LBB.⁶⁴⁶ As a safeguarding measure in 1993, it became a sole-owned joint-stock company under Ministry control.⁶⁴⁷ While Bulgarians welcomed the changes at first, by the fifteenth anniversary of the collapse of state socialism, many felt disappointed about the slow pace of changes. The disappointment fed nostalgia for the past.⁶⁴⁸

Danone to the Rescue

The Serdika-Sofia plant was the pride of the nation’s dairy industry. That made the acceptance of a foreign investment to rescue the plant very controversial. In 1992, multinational dairy giant Danone announced its intention to invest in Bulgaria’s largest dairy producer and establish a joint venture.⁶⁴⁹ Economist Koparanova described why the state officials initially rejected the offer: “Bulgaria was considered the homeland of yogurt, and the French offer proposed new packaging and French yogurt recipes, which would require the venture to pay royalties for the

technology.”⁶⁵⁰ Filip Kegels, executive director of the joint venture Danone-Serdika, remembered: “it was very difficult and delicate to explain to them [Bulgarian management] that Danone was a world market leader who could bring something to the yogurt in Bulgaria.”⁶⁵¹ The argument that the French – or rather multinational – Danone might teach them how to make yoghurt was hard to swallow. Still, the negotiations were not abandoned. Realizing that the sector needed direct investment to privatize large-scale industrial plants, Liuben Berov’s government soon accepted the Danone offer in 1993.⁶⁵² The efforts to prevent large-scale unemployment were also a significant factor in the negotiations. Serdika-Sofia and Danone Group signed an agreement for the joint production of yoghurt, and a year later, in 1994, a joint stock company was registered under the name Danone-Serdika.⁶⁵³ Originally, Serdika-Sofia retained 50% of the shares, providing the yoghurt production units, while Danone Group invested in modernization.

Several factors shaped Danone’s decision. While the Bulgarian government sought to increase foreign investments, the French multinational wanted to enter the East European market. Like other Western firms, Danone saw the potential of the ex-communist countries as a large market for dairy products. In 1990, the French firm had already entered the markets of former Eastern Germany, Hungary, and Czechoslovakia through joint-ventures.⁶⁵⁴ Describing its company policy in 1994, Danone Group stated: “In strategic terms, we pursued a very active acquisition policy throughout the year, targeting markets outside Western Europe.”⁶⁵⁵ The Bulgarian dairy market was of interest thanks to the high consumption rates of white cheese, kashkaval, yoghurt, and others dairy products.

At the same time, Danone also faced the challenge of selling its products in a country where yoghurt was immensely popular and which considered itself the home of yoghurt. In an interview for the French newspaper *Libération*, Filip Kegels confirmed: “*Notre présence au pays du yaourt est une question de prestige pour le groupe*” [The presences of our business group in the country of yoghurt is a matter of prestige].⁶⁵⁶ As a global player, Danone saw its entry to the Bulgarian yoghurt market as a significant step, a matter of prestige.⁶⁵⁷ In 1996, for the Bulgarian newspaper *Pari* (*Пару*), Kegel introduced the main obstacles for foreign investment in Bulgaria. He criticized the Bulgarian government’s unattractive investment climate. Still, he thought the labor costs were attractively low and workers well trained. He summarized Danone’s motives to invest thus: “Firstly, Bulgarian consumers eat plenty of yoghurt due to the traditions of its production and consumption.” Secondly, he thought the quality of the yoghurt produced domestically at the end of 1993 was “extremely poor and Danone had the potential to bring knowledge and know-how.” Thirdly, Kegel pointed out, “we are a world dairy leader,

well established in 46 countries; to have our production in Bulgaria was extremely important, as it is the homeland of yoghurt.”⁶⁵⁸ He believed foreign investors could introduce the much needed knowledge and experience to Bulgarian producers to help them adjust local production to foreign consumer habits and expectations.⁶⁵⁹

What Danone failed to anticipate was that even a multinational might encounter difficulties selling yoghurt to Bulgarians. In 1996, the French journalist Blandine Hennion aptly described the advent of Danone in Bulgaria: “*la multinationale française a eu la drôle d’idée en 1993 de venir apprendre aux Bulgares à faire des yaourts. Un pari gonflé, comme si un étranger allait apprendre aux Normands à mouler le camembert*” [in 1993, the French multinational had the silly idea to come and teach Bulgarians how to make yoghurt. What an audacious gamble, just like a foreigner trying to show the people of Normandy how to make camembert].⁶⁶⁰ What Danone managers defined as a matter of prestige, the journalist thought was a comical idea. Hennion compared the French firm entering the Bulgarian yoghurt market as foreign yoghurt producer, to foreigners coming to teach the cheese makers of Normandy how to produce their traditional camembert. For a French audience, the example of camembert was aptly chosen to convey what authentic food is all about – traditional local character. Danone offered Bulgarians not only the Western quality in yoghurt production, but also the Western technology and consumer patterns. The westernized product did not match Bulgarians’ perception of yoghurt or how it should be manufactured and consumed. The negativity was mutual; with its significant experience in yoghurt production, Danone considered the Bulgarians’ industrial yoghurt production backward. It questioned their technical competence.

In their first year of the joint venture, Danone-Serdika continued to face the drop in milk supply in the winter of 1993.⁶⁶¹ They had to create a more reliable network to guarantee the ready supply of good quality raw milk. The French investments allowed the company to offer farmers regular payment and higher prices. To accomplish such backward vertical integration, the company “preferred to seek inputs far from Sofia, because there were only small farms around the capital,” U.N. researcher Koparanova observed.⁶⁶² It valued not just the quality, but also the control over the supply that was easier with dairy herds of more than 20 cattle. Therefore, the company preferred to pay “transport costs to obtain these inputs from larger but more distant suppliers.”⁶⁶³ The company also adopted new assortments such as Danone’s specialty – flavored yoghurts.⁶⁶⁴ Michael Spies, general manager from 1996 to 1999, thought Serdika’s problem was also due to its narrow assortment of “plain white yoghurt of very poor quality.”⁶⁶⁵ The French, shocked at the limited variety of yoghurts and short shelf-life, questioned Bulgaria’s self-image

as world dairy leader, even while it recognized the main international achievements of Bulgarian products from the late 1960s. In the mid-1980s, Serdika-Sofia had been touted as “the most modern dairy plant in the Balkans,” but without investments and state support, all that remained in the early 1990s, were the echoes of its glorious past.

Nevertheless, the Western company also faced many challenges in the transition from a planned to a market-driven economy. As Kegels put it, “the market in Bulgaria is unique, and the competition in milk and dairy products is a specific case.”⁶⁶⁶ Most dairy producers were still state-owned in the 1990s; the prices for milk and yoghurt were fixed.⁶⁶⁷ Kegels admitted: “The atmosphere is difficult. You have to be very brave and tough to invest in Bulgaria. You must fight to be able to put your money in.”⁶⁶⁸ Indeed, in 1994 Serdika’s share actually dropped to 31.8%, even after Danone had invested more capital and the European Bank for Reconstruction and Development (EBRD) had joined Danone-Serdika as a sleeping partner with a 15% share. These investments reduced the Bulgarian state’s share, making Danone the biggest shareholder.

In 1994, Bulgarian economist Bojana Todorovska, consulting with the European Bank, explained that the bank investment “will enable the upgrading and modernization of Danone-Serdika’s existing product line and equipment, and will lead to major improvements in the quality of the current range and extend the shelf-life of fresh products. New products can be launched on the local market. On the whole, this investment will help Danone-Serdika become a leading player in Bulgaria’s food industry.”⁶⁶⁹ These words in fact described the joint venture’s aim to achieve at least 25% of the market and lead the domestic market, which was no mean feat.⁶⁷⁰ By the end of 1993, Serdika-Sofia had managed to secure short-term loans in spite of high interest rates. At the same time, the investment on the Bulgarian side decreased because other state-governed organizations and companies failed to fulfill their financial obligations to the company. The main defaulter was state enterprise *Foodstuffs* [Хранителни стоки] with debts of over 25 million *levs*. On the other hand, Serdika-Sofia owed 30 million *levs* in taxes and customs duties.⁶⁷¹ The financial crisis, the collapse of the agrarian sector, and growing inflation, all affected the company but also reduced Bulgarian consumers’ purchasing power.⁶⁷²

Serdika’s problems only intensified. According to the Ministry of Agriculture 1995 report, the daily production of yoghurt had dropped to 10 tons per day compared to 66-67 tons in 1991.⁶⁷³ The privatization of land, farms, and animal breeding ultimately raised the price of raw milk. Serdika was forced to fire workers and limit its production to the basic dairy products of milk and yoghurt and to close down the cheese, kashkaval, and ice-cream units in 1995. Danone

chose this moment to invest 300 million *levs* and take over part of the Bulgarian share.⁶⁷⁴ Although Serdika was forced to sell its milk production units in order to rescue its share, executive director Alexander Rangelov nevertheless expected Danone's investment would "raise production to European levels. It will guarantee employment and enable the company to continue and expand in these difficult circumstances."⁶⁷⁵ Such a large investment was unusual for the dairy branch, "[t]herefore, we consider the offer extremely interesting and advantageous."⁶⁷⁶ Rangelov expressed a new Bulgarian sentiment of the need for the nation's dairy industry to achieve European standards.

By 1996, when Serdika was on the brink of financial collapse, Rangelov argued that even though the plant no longer had its own production line, it was still supplying other companies with materials. When he appealed for a subsidy, the state rejected this because the entire Bulgarian economy and banking system had gone into free fall.⁶⁷⁷ From May 1996 to February 1997, inflation rose to 365%, which led to the establishment of a Currency Board in June 1997.⁶⁷⁸ Serdika's slow and painful descent ended up with Danone Group becoming the major shareholder of the joint venture in 1999.⁶⁷⁹ The transfer of 54 employees to Danone-Serdika demonstrated that not only the technical but also the human potential for the factory's rebirth hinged on Danone.

As soon as the new joint venture was established, Danone-Serdika began targeting consumers to seduce them to pay 30% more for their products. The company justified the higher price by claiming better quality yoghurt.⁶⁸⁰ Yet in 2010, Euromonitor, an international market research agency reported: "[a]s a result of consumer insecurity and the economic downturn, dairy products with an up-market appeal suffered from declining demand. This was because consumers were wary of spending significantly on non-necessity items."⁶⁸¹ Facing production problems in Bulgaria's dairy industry and lower yoghurt consumption, Danone nevertheless admitted that yoghurt had a symbolic value in Bulgaria. What no-one had anticipated, was that yoghurt might be a different thing in Bulgaria than elsewhere. The challenge for the French company was to "show that it is possible to produce yoghurt of Western quality" that would meet Bulgarian consumers' expectations.⁶⁸² In fact, Danone introduced EU quality and safety standards.

The company began to challenge the Bulgarian State Standard (BSS) 12:82 (БДС 12:82 Българско кисело мляко), which had standardized the production technology and the product's characteristics so that it could be labeled as Bulgarian Sour Milk.⁶⁸³ The foreign investor believed that the range of yoghurt-type fermented milk products on the Bulgarian market was restricted by government

standards. The only Bulgarian yoghurt that could carry the name had to adhere to the “State Standard for Sour Milk” (БДС 12:82) or Bulgarian Sweetened Yoghurt “Snezhanka (БДС 6032:74 Мляко кисело подсладено “Снежанка”).⁶⁸⁴ Danone’s formula deviated from the nation’s BDS standards: they stipulated that any product undergoing a different technical process required a separate label; thus the Danone product could not be called “Bulgarian Sour Milk” or the shortened form “Sour Milk.” The catch was that no alternative word existed for sour milk, while the international term “yoghurt” covering all types of fermented milk products, was unfamiliar to most Bulgarians, who refused to admit that other nations might produce “real yoghurt” or soured milk. Yoghurt was considered a non-Bulgarian product and therefore unauthentic. Avoiding the standard Turkish term “yoghurt” was also a way of suppressing the Turkish heritage from the national mind. Through the state standards, the country’s legislation expressed Bulgarians’ conviction that the only real yoghurt was “Bulgarian Soured Milk.”⁶⁸⁵

Indeed, the State Committee for Standardization announced in 1998 that “the sour milk products produced by Danone-Serdika cannot be considered for BDS 12:82.”⁶⁸⁶ In response, Danone’s Vice-president Günther Mauerhofer, the director of Central and Eastern Europe dairy markets, lobbied the Bulgarian Council of Ministers to change the standards in yoghurt production.⁶⁸⁷ According to their technical specification (TC), Danone introduced dry milk into all their products, while Ministry of Agriculture and Food Industry Regulation 4885 prohibited any additives. Since 1995, Danone had been producing a varied assortment: Danone yoghurt (TC 01-95), Danone-Serdika yoghurt (TC 02-95), Danone Fruit yoghurt (TC 03-95), and mixed yoghurt (TC 05-95). None were approved by the governmental Committee for Standardization based on the Bulgarian State Standards, thus prohibiting Danone to sell them in Bulgaria as “soured milk.”⁶⁸⁸

Official documents show that previously Serdika had compensated for the shortages in raw milk and rising prices by adding powdered milk. State officials condoned the practice because the political and economic chaos weakened the state’s ability to control domestic producers. The state’s rejection in 1998 of Danone’s technical specifications on the basis of Bulgarian standards was thus a show of power, national pride, and protectionism. Officials failed to apply the standards and regulation domestically; at the same time they assumed that enforcing the standards to foreign competitors would protect domestic products; the government’s inability also showed Bulgarians’ resistance to admitting that yoghurt was no longer a Bulgarian specialty. Bulgaria’s main priority after the political changes of 1989 became safeguarding its EU membership, a political position that predetermined the end of those Bulgarian state’s power games. Before entering

negotiations, Bulgaria's 1970s and 1980s food laws and food quality and safety regulations were the target of EU policy makers. Bulgarians were offended when EU food specialists condemned the technical specifications of the Bulgarian food products as inconsistent with the internationally accepted standards such as U.N. *Codex Alimentarius* or EU standards. Yoghurt production was not an exception in the EU Experts' negative evaluation. EU membership required a reevaluation of what national products were, as well as changes in industrial yoghurt production to achieve the standards set by the EU. Danone was the first international player that made it obvious, also showing the transformative forces of international business and politics on the national markets.

When Danone's request for changes in Bulgarian standards for yoghurt was turned down, the company redirected its marketing strategy. Instead of adapting its production to Bulgarian state standards, it tried to re-shape the Bulgarian yoghurt market.⁶⁸⁹ The episode also demonstrated the power of a multi-national company to shape the market. Danone engaged in attractive marketing and socially engaging campaigns to weaken the resistance of Bulgarian consumers to the company's new standards and tastes. Danone built a European brand, while empathizing with local consumer needs. The company had rapid success. Already in 1996, a survey conducted by a Bulgarian private marketing agency to see which advertisement the public preferred, ranked Danone yoghurt commercials in third place; first was Coca-Cola.⁶⁹⁰ The survey showed that Bulgarian housewives were the main purchasers of Danone products. In Sofia and other large Bulgarian cities, the company sponsored the building of children's playgrounds called The Kids and branded with Danone logos, as part of their socially orientated campaign. It also organized educative shows and published booklets introducing healthy infant nutrition in its obvious attempt to target housewives.⁶⁹¹ Danone targeted various consumers groups as well. In this way, the company maintained active advertising campaigns and became one of the leading investors in advertising in Bulgaria.

To consumers, Danone seemed to be everywhere. In 1997, Danone cooperated with movie distributor Alexandra films, which promoted the Warner Brothers blockbusters Batman and Robin. Danone was selling its plain yoghurt in containers branded with the movie's main characters. The marketing campaign, unfamiliar to Bulgarian consumers, was combined with a lottery – by collecting fifteen images from Danone packaging, they could play for a new Škoda Felicia car.⁶⁹² The involvement of the automobile and film industries in food advertisements was meant to attract young consumers and their parents to buy a product in attractive packaging and with the lure of winning a family car. Thus Danone positioned itself as a family product during the time of economic collapse when such an easy

opportunity to win a luxury car seemed too hard to ignore.⁶⁹³ Inspired by the Football World Cup in 1998, Danone organized a national football tournament for kids, demonstrating the company's social engagement.⁶⁹⁴ The company also engaged Bulgaria's most beloved sportswoman, an Olympic and world champion in the high jump, Stefka Kostadinova for its advertising campaigns. Introducing national and internationally celebrated sport figures in Danone advertisements not only played on Bulgarian national pride, but also sent strong messages claiming the connection between yoghurt and health. That was a step further in adjusting the product's global image to the local market. It was a reversal of the earlier attempt to position yoghurt as a national product made by Bulgarian-based multinational production methods adjusted to local taste.

Thanks to powerful advertising and the emphasis on diversity, Danone managed to establish its products independently from the government regulated standards. The company range of yoghurt products included: yoghurt with 2% and 3.6% fat, fruity yoghurt with strawberry, apricot, banana, pineapple, and coconut flavors.⁶⁹⁵ Moreover, the Danone episode showed how Bulgaria had been transformed from an exporter to an importer of yoghurt technology. In Bulgaria, Danone offered a product specifically developed in the 1950s for the non-Bulgarian consumer: less sour and thinner yoghurt than what Bulgarians preferred. Not only was the taste different. Part of yoghurt's appropriation in Western Europe was the transformation of yoghurt consumption and embodied meanings. The non-Bulgarian yoghurt was a snack, a dessert, and a health food. By contrast, for Bulgarians, yoghurt was a basic staple food. Furthermore, West Europeans and Scandinavians were attaching increasingly more importance to the health benefits of the food they consumed. The new concerns resulted in a lifestyle of taking care of one's health and avoiding foods considered unhealthy. These processes not only brought about strict standards of quality and safety control; the recently embodied meanings gradually created a new Europeanized Bulgarian yoghurt consumer in the years after the Cold War.

Market Competitors and the Fight over National Standards

The new Europeanized trends in yoghurt consumption that Danone introduced not only reworked what was considered characteristically Bulgarian yoghurt during the communist era. They were also part of the dramatic transformation of that national product. At first, the liberalization led to many small-scale private

dairy companies producing local brands. The product diversification and sector competition transformed yoghurt distribution and retailing. When the large-scale state dairy plants which marketed their products locally were either privatized or shut down, the same structure of distribution was maintained. Yet, this diversification and segmentation were followed by a period of consolidation. Local brands began to compete. By the late 1990s and early 2000s, several larger dairy companies emerged like the United Milk Company (*Obedinena Mlechna Kompania, OMK*), a merger of several small dairy producers into a joint-company; the state-owned LB Bulgaricus (LBB); Mlekimex – Elena (*Млексимлекс – Елена*) company; and the Bor Chvor firm (*Бор Чвор*).⁶⁹⁶ Unlike the smaller regional dairies, these larger companies established their own distribution system to sell their products nationwide.⁶⁹⁷ Even so, the large variety of local brands, and several nationally distributed yoghurt brands did not form real competition to Danone. Because of its joint venture with Serdika, the French multinational gained a significant share of the Bulgarian market from the very start, rising further from 14% to 20% between 1997 and 1999. With its new products and packaging, Danone's aggressive advertising campaigns appealed to consumers. The French food giant redefined both yoghurt production and consumption in Bulgaria. It was the first to introduce the EU dairy quality and safety standards for production and distribution in its Sofia-based plant. It also succeeded in extending their products' shelf-life from three to ten days. That change was also adopted by competing producers and finally approved by the Bulgarian state administration in 1996.⁶⁹⁸

Table 3 – Danone-Serdika's market share 1997 to 1999.

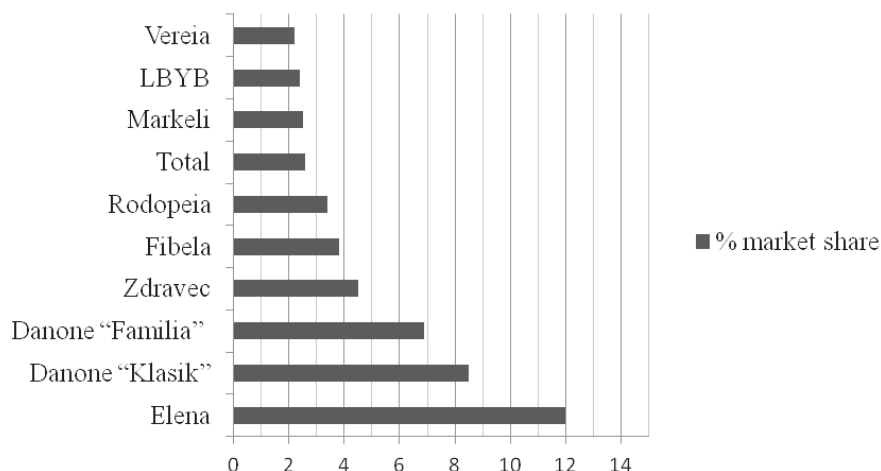
	1997	1998	1999
turnover (€ million)	8.7	17.0	18.2
volume (tons)	17	25	27,7
market share	18%	19%	21%

Source: "Description of Professional Activities – Michael Spies."

<http://www.michael-spies-consult.de/cv2.pdf>. Accessed March 9, 2012.

Note: Michael Spies was general manager of Danone-Serdika from 1996 to 1999.

Around 2000, Danone was already leading the Bulgarian plain yoghurt sector with two different brands: Danone Classic (Данон класик) and Danone Familia (Данон Фамилия). In 2002, Elena (Елена) yoghurt produced by Mlekimex-Elena succeeded in challenging Danone's monopoly by gaining a 12% market share. Despite these successes, Danone yoghurt retained its share at 16%, divided between Danone Classic (8.5%) and Danone Familia (6.9%).⁶⁹⁹ Other producers accounted for the remaining 70% (Graph 4).⁷⁰⁰ Even though the plain yoghurt that Bulgarians



Graph 4 – Market shares of yoghurt brands, 2002.

Source: Тодорова, "В сянката на *Lactobacillus Bulgaricus*," *Тема 32* (2002): 30-33, тук 32.

(Todorova, "In the Shadow of *Lactobacillus Bulgaricus*," *Tema 32* (2002): 30-33, here 32.)

considered the only "natural" one still dominated (90%), several producers began offering different kinds of yoghurt. The "probiotic" yoghurt achieved a 7% market share, flavored yoghurts, fruit yoghurts, and drinking yoghurts only 3%.⁷⁰¹ A market research agency showed that most plain yoghurt (90%) was sold in 400 g packaging. Few (6%) used plastic 370 g containers.⁷⁰² The change in packaging was an indirect result of the 1990s agrarian crisis when the shortage in milk supply had raised prices. Because consumers were not willing to pay more for their yoghurt, a compromise was found by reducing the standard amount of 500 g per container to 400 g.⁷⁰³

In 2009, evaluating the last decade of the transformation of the Bulgarian yoghurt market, Maria Kondratenko, the dairy specialist with years of experience in research and development at the state laboratory, expressed her concern regarding the vanishing Bulgarian soured milk as an "original Bulgarian product." She indirectly suggested that the lack of strict state control over foreign techniques and know-how in yoghurt production after the introduction of the free market would lead to Bulgarian product extinction. Kondratenko articulated her concerns about producers' uncontrolled use of non-Bulgarian starters: "regretfully, we do import and use in our industry starters that are genetically modified, non-symbiotic, or modified." She warned by rallying the ultimate nationalist argument, "The product manufactured with them is not the original Bulgarian product with [specific] taste, aroma, dietary, and therapeutic characteristics. It is important to ask the question – is their use permitted, by whom, and who controls the import of foreign, non-Bulgarian starters?"⁷⁰⁴ Indeed what the transformation of the Bulgarian

yoghurt market in the 1990s and 2000s does show, is that the free market economy led to a reversal of what Bulgarian yoghurt was and who produced it.

With the opening up of the Bulgarian market and the country's desire to join the EU, the transformation of local yoghurt was affected by global politics. In 2003, the European Commission reported on the significant differences in production technology and taste of yoghurt in various member states. The Working Group on Creams, Dairy Spreads and Fermented Milks required a particular definition of "yoghurt" because the companies which heat-treated yoghurt after fermentation claimed that their product had the same properties as the non-heat-treated yoghurt.⁷⁰⁵ To encourage trade, the Commission demanded shared standards and legislation. So did international organizations: to guarantee the safety and good quality of food to end consumers, the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) set an international standard for fermented milks.⁷⁰⁶ The Codex required active and viable microorganisms to the end of the yoghurt's shelf-life. It dealt with this subject of labeling by differentiating "yoghurt" and "heat treated fermented milk" as two different products. The product labeled yoghurt had to contain viable symbiotic cultures of *Streptococcus thermophilus* and *Lactobacillus delbrueckii ssp. bulgaricus* no less than 10^7 cfu/g (colony forming unit per gram). The Standard approved only starter cultures from these microorganisms to be introduced into the raw milk without any additives.⁷⁰⁷

Bulgarians' desire for EU membership further exposed the country's dairy industry to the dynamics of global trade. To qualify for EU membership, Bulgaria was forced to align its legislation with European food laws.⁷⁰⁸ The politics to harmonize food legislation for all member states was not just another step towards integration. It also meant creating common practices based on shared knowledge as well as abandoning national standards. These EU requirements resembled the standard for Bulgarian Sour Milk that the Bulgarian government had set in 1982. The similarity of the 2003 Codex Standard for Fermented Milks to the 1982 Bulgarian State Standard for yoghurt at first reinforced Bulgarian claims about the superiority of the local product. In fact, consumers' faith in Bulgarian yoghurt was not dampened by the lower quality of the various local brands and virtual absence of government food inspections. But in 2005, the Bulgarian National Consumers Association published shocking facts about the yoghurt on the domestic market that gave good reason to doubt any superior quality. An analysis of eleven leading Bulgarian plain yoghurt brands revealed that many had no *Lb. bulgaricus* and *St. thermophilus*, or at least not in the requisite quantities.⁷⁰⁹

In testing samples, the Bulgarian Consumer Association discovered that the yoghurt sold in stores had increasing numbers of *St. thermophilus* and decreasing levels of *Lb. bulgaricus*. Danone brands, for example, had predominantly *St. thermophilus* and almost no *Lb. bulgaricus*. As the number of microorganisms varied, so did the ratio between the two types of bacteria in each brand.⁷¹⁰ The Association believed the low numbers of viable microorganisms indicated the heat-treatment of yoghurt after fermentation. Such a product guaranteed a long shelf-life, but destroyed the beneficial microbes. The use of heat treatment after yoghurt fermentation was a sign that Bulgarians had adapted technologies developed abroad in local yoghurt production. Thus many Bulgarian producers no longer recognized Girginoff's production methods as the only way to manufacture yoghurt. Experts warned that stabilizers, preservatives, and all sorts of chemical substances added to the milk, destroyed or repressed the development of *Lb. bulgaricus* and *St. thermophilus*. Moreover, the use of starter cultures containing an insignificant number of microorganisms or none at all also explained why some samples showed low numbers of *Lb. bulgaricus* and *St. thermophilus*.⁷¹¹

Table 4 – Number of live cells of *Lb. bulgaricus* 105 and *Str. thermophilus* 107 in 1gram of yoghurt.

Brand	Producer	Viable cells LB 10 ⁵ in 1g.	Viable cells ST 10 ⁷ in 1g.
Top Milk (Топ милк)	Serdika 94 (Сердика 94)	9500.0	95.00
Germa (Герма)	Serdika 94 (Сердика 94)	9500.0	250.00
Na Dyado ot Selo (На дядо от село)	Bor Chvor (Бор Чвор)	9500.0	95.00
Pursheviza (Пършевица)	Zorov 97 (Зоров 97)	4500.0	45.00
Elby Natural (Елби натурално)	ElBy (ЕлБи)	4500. 0	250.00
Vereia (Верея)	ОМК (ОМК)	1500. 0	45.00
Bor Chvor (Бор Чвор)	Bor Chvor (Бор Чвор)	950.0	45.00
Elena (Елена)	"Elena" ВСС Handel ("Elena" Би Си Си Хендел)	950.0	95.00
Rodopea (Родопея)	Rodopeia (Родопея)	250.0	95.00
Rossa (Роса)	Fama (Фама)	95.0	45.00
FF Taste (FF вкус)	Familia (Фамилия)	45.0	25.00
Dobrudzhansko (Добруджанско)	Dobrudzhansko Eko Mliako OOD (Добруджанско Еко Мляко ООД)	25. 0	9.50
Danone (Данон)	Danone (Данон)	4.5	250.00
"Na Baba" Danone (На баба)	Danone (Данон)	2.5	250.00

Source: "Тест на български кисели млека." Активен потребител (2005), http://www.aktivnipotrebiteli.bg/p/tests/c/view_test/id/14/fl/995/. ("Testing Bulgarian Yoghurts," Active Consumer (2005).

The director of the Consumer Association, Bogomil Nikolov, publicized the dairy specialists' analysis in an internet newspaper *E-vestnik* to show that many dairy producers preferred cheaper, "European" starters, as he called them. These differed considerably from the Bulgarian cultures used before 1989. In 1992, the first private laboratory for starter cultures Genesis Laboratory was established by Maria Kondratenko, former head of the Central Experimental and Production Laboratory. Genesis and LBB remained the only Bulgarian suppliers until 2000 when Kondratenko's successor as leader of the Production Laboratory Georgy Georgiev established the company Lactina Ltd. International competitors were the Italian Sacco; German Hansen; Danish Danisco; and Dutch DSM.⁷¹² The imported starters differed from the Bulgarian starters by failing to follow the 1:2 ratio of *Lb. bulgaricus* to *St. thermophilus* and using non-Bulgarian strains of those microorganisms. The correlation between *Lb. bulgaricus* and *St. thermophilus* differed radically from the communist era: the numbers of *Lb. bulgaricus* were considerably lower in the imported starters, which are responsible for producing the yoghurt's sourness. The *St. thermophilus* gives more of a sweet taste. According to the Director of the Consumer Association Nikolov in 2009, the correlation between both cultures reached 1:9 to 1:10 (*Lb. bulgaricus* to *St. thermophilus*).⁷¹³ Companies lowered *Lb. bulgaricus* to produce less sour yoghurt and attract new consumers.⁷¹⁴ Some even introduced different bacilli such as *Streptococcus acidophilus*.⁷¹⁵ The different micro-flora changed the taste of the yoghurt. Specialists had been alerting state officials to these problems but their warnings were ignored.⁷¹⁶ Nikolov warned Bulgarian consumers: "In recent years, marketing has become prevalent, and the logic of the market is about to wipe out traditions in the production of soured milk in Bulgaria. I am not against the reasoning, but people should be aware of what is traditional and what is innovative. Still, some would prefer to purchase the imitation soured milk that can last for three months in the fridge, but they would be making an informed choice."⁷¹⁷ Other Bulgarian dairy specialists informed the public at large about the transformations of what was considered Bulgarian yoghurt.

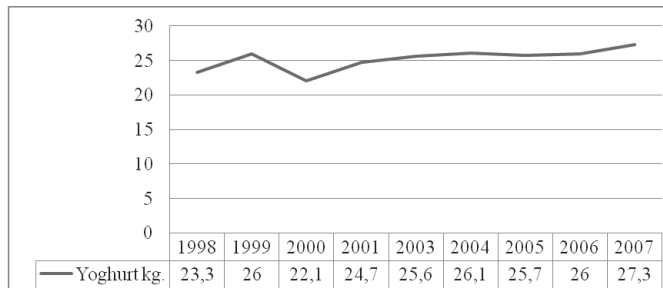
In 2008, Svetlana Minkova, research director at LBB, sounded the alarm over the fundamental change in taste: "Nowadays Bulgarians increasingly opt for the creamier, less sour, milder-tasting yoghurts preferred by Western consumers."⁷¹⁸ By 2010, the Association of Active Consumers food expert Asen Nenov believed: "Formerly, there was soured milk that was close to the real Bulgarian soured milk. Nowadays that is not the case. What is consumed is mostly the sweetened version of the Bulgarian soured milk."⁷¹⁹ Professionals were not the only people concerned about the changing yoghurt quality. The rise in home-made yoghurt was another

way that Bulgarians sought to preserve the taste of yoghurt to which they were accustomed, or alternatively, to reject the new taste on offer in the supermarket.

The contest over taste and the Bulgarian authenticity of yoghurt and changing consumer preferences were not the only signs of the transformation. A survey on the “Structure and Competitiveness of the Milk and Dairy Supply Chain in Bulgaria” carried out in 2006 by Central and Eastern European Countries (CEEC) Agri Policy, a project financed by the European Commission, showed that yoghurt consumption in Bulgaria had been progressively declining. The 40 kg annual per capita consumption in the 1980s dropped to an average of 22 kg in 2000. Nevertheless, the per capita consumption was still the highest of the European countries.⁷²⁰ The survey does not indicate what caused that enormous drop. What the statistics do not convey is the rise in home-based yoghurt production. During the financial crisis in 1997-1998, the amount of home produced yoghurt reached 50%; once the economy stabilized, it dropped to 20% in 1999, but yoghurt making in people’s homes continued.⁷²¹ It was practiced mostly in the smaller towns and villages where home producers owned milk-producing animals. Unsurprisingly perhaps, a 2002 Market Survey on consumption patterns in Bulgaria showed that farmers preferred yoghurt prepared at home or purchased from neighbors or people they knew.⁷²² Home-made yoghurt was considered cheaper and of better quality than the industrial mass product. It was an economic reaction to the rising milk and yoghurt prices, but also a sign of consumers’ tacit criticism.⁷²³ In 2005, the Bulgarian daily newspaper *Standard* stated that home-made yoghurt production significantly accounted for more than 100,000 tons. Comparing the 270,000 tons produced by around 220 private dairies shows that the international statistics agencies missed a significant amount of produced and consumed yoghurt. However high the home-based yoghurt production, the numbers indicate that yoghurt consumption had become less popular due to changing nutrition patterns, or was replaced by other yoghurt-like products.⁷²⁴

Despite the overall declining popularity of yoghurt and consumers’ preference for plain yoghurt, a market survey by Euromonitor International showed that yoghurt drinks were making inroads in 2009, having increased by 14%.⁷²⁵ For 2008 and 2009, product development focused more on enhancing packaging and flavor variations than the launch of new products.⁷²⁶

In contrast, the Consumers Association disputed the benefit of choice and was mostly concerned with the threat to the typical Bulgarian taste.⁷²⁷ In 2009, the Association warned against the introduction of additives like hydrogenated fat that producers used to improve the consistency and texture of what they called, “the so desirable national and universally known product.”⁷²⁸ Resorting to hydrogenated



Graph 5 – Per capita consumption of yoghurt in Bulgaria from 1998 to 2007.

Source: National Statistics Institute, Ministry of Agriculture and Food.

fat as a cheap ingredient to compensate for the rising milk prices kept the product at a reasonable price. Visually, the product's thickness, the Association insisted, misled the consumer about its quality because it differed significantly from yoghurt produced exclusively from raw milk and starter culture. The Consumers Association warned that producers were failing to provide information on the use of additives: "Mostly, the information on the packaging mentions only cow's milk and viable starters and does not indicate the preservatives and emulators, which are, in fact, numerous and varied."⁷²⁹ Notwithstanding the Association's objections, the former dairy specialist at Serdika-Sofia, Kondratenko, admitted that in the 1980s, despite the Bulgarian State Standard for Bulgarian Yoghurt, food technologists used additives like flour and dry milk to compensate for the low quality of milk, even if only occasionally.⁷³⁰ As she recalled, the decision to use dry milk was at times unavoidable in practice, however she insisted that those practices were strictly controlled in theory. Dairy experts and the Consumers Association equally regretted the loss of yoghurt expertise and taste.

We have almost no written accounts of how consumers responded to these debates. Interviews, however, show that consumers remembered the good taste of yoghurt in the past. A 65-year old woman from Razgrad in North East Bulgaria recalled: "My home-made yoghurt had almost the same taste as that of the yoghurt in the glass jars. The yoghurt of today is different. Not that the milk is of poor quality, but the taste is different."⁷³¹ The Internet has become one of the platforms for nostalgic discussions about losing the past. In 2010, the blogger Бу (By) conducted an experiment called "Is the Soured Milk Sour?" (Кисело ли е киселото мляко?). The blogger tried to trace the transformation in taste of seven different leading brands of yoghurt, which were kept out of the refrigerator for three days. She explained the experiment: "I have been wondering for a long time now how real the different

types of soured milk are,” elaborating, “I do not mean whether or not you can use them as starters; I am more interested in their endless shelf-life. Many types of the so called real yoghurt are actually everlasting ... weeks after the expiry date they are still good.”⁷³² At the end of the third day, only four of the products had changed their taste and consistency. She and her husband preferred the products whose sourness increased when out of the refrigerator. She described her sensation when testing: “Excellent taste, similar to that of the sour milk in the glass jars. My husband and I were celebrating like little children, remembering that taste,” only to discover a possible generational divide. “Maia [their 10-year old daughter], reacting to our enthusiasm, tried some and pulled a horrified face – she is only used to the sweetish and tasteless yoghurt that has been flooding the market for years,” she posited to explain the difference. The long shelf-life and the sweet taste were considered the characteristics of something new, not common, that had somehow lost the traditional (or real) taste of Bulgarian yoghurt.

Specialists defended the product against such consumers’ doubts. They claimed that the long-lasting yoghurt was the result of the improved overall hygiene in product manufacturing. Kondratenko confirmed that a plain product might actually have a shelf-life of nearly a month, if the raw milk and starter cultures were of great quality and if the hygiene during all the production stages remained faultless.⁷³³ She emphasized that the supply of good quality raw milk was still a challenge for the industry; as a scientist she greatly appreciated how Danone had established the supply chain, which paid farmers regularly and well – an exception for the Bulgarian dairy market.⁷³⁴

In the late 1990s, both the harmonization of Bulgarian dairy producers with EU regulations and the inability of the state to exercise control over the domestic milk and yoghurt production, fed consumers’ distrust of the yoghurt’s quality. The interventions in yoghurt standards also created a conflict between the dairy producers and the state. Yoghurt producers who followed EU standards claimed they had to compete unfairly with the cheaper and low-grade products, which contained additives to reduce costs. The lack of state control was not only due to the Bulgarian state’s inability to set regulations. By 1998, when Bulgarian food legislation was aligned with EU standards, the Bulgarian State Standards for yoghurt production had become invalid. Because the EU did not allow its members to set binding national standards, Bulgaria’s State Standard for yoghurt production could only serve as an industry guideline. This protected consumers and regulated the safety and quality of foods, but did not protect regional products such as Bulgarian yoghurt.

The lack of regulation allowed producers not to mention the additives they used. To offset the practices and marketing by global players, Bulgarian dairy

producers tried to protect their market. They sought state help in setting technical standards for products considered typically Bulgarian like yoghurt, white cheese, and sausages, to promote their products as traditionally Bulgarian. Positioning themselves as speaking on behalf of consumers alarmed by the quality of the yoghurt on the market, the Association of Dairy and Milk Producers embarked on initiatives to restore the Bulgarian State Standard for producing yoghurt in 2005.

What affected the Bulgarian dairy industry more than the lack of standards and powerful foreign producers, however, were the problems in agriculture and the reduced quality and quantity of raw milk after 1989. Producer and consumer dissatisfaction escalated in 2009, when the French supermarket chain Carrefour introduced a yoghurt for a dump price of 9 stotinki (4.5 Euro cents), while the average price was 60-70 stotinki (30-35 Euro cents). Consumers' concerns caused public debates calling for stricter control and protection of Bulgarian yoghurt as a national product. In response, the Bulgarian "green" online journal dealing with healthy living and environmental issues *Biolife*, organized a public discussion entitled "The Quality of Milk and Dairy Products." Journalists brought together consumer organizations, yoghurt producers, and state authorities to take stock of the Bulgarian dairy industry.

The 2009 public debate finally revealed the problems in yoghurt production. The president of the Bulgarian Association of Milk Producers, Dimitar Zarov, fanned the doubts journalists and consumers had expressed earlier about the low quality of most types of yoghurt. He attacked the inability of the National Veterinary-Medical Service and Regional Inspection for Prevention and Control of Public Health to control the dairy market. Zarov admitted that many yoghurt producers were adding significant percentages of dry milk and vegetable oil to compensate for the high raw milk prices, imitate the taste and maintain the consistency of the product made only with milk and starter cultures.⁷³⁵ The Association's president stated that these practices were possible only because of the many years of inadequate state control.⁷³⁶ The representatives of the controlling bodies like Maya Makaveeva, head of the Department for food control at the Ministry of Agriculture and Food, and Tatyana Nikolova, head of the Department "Milk and Dairy Products" at the National Veterinary-Medical Service, defended the state's inability to exercise proper control: the state lacked financial resources to hire more sanitary and quality control inspectors.⁷³⁷

The state quickly responded to the debate. Less than two months later, after intensified negotiations between dairy producers and state authorities, the new national standard (BSS 12:2010), based on the early standard of 1982, was

established for Bulgarian soured milk to guarantee the real Bulgarian taste.⁷⁴⁰ The new standard defined Bulgarian yoghurt made with raw milk: from cow, sheep, buffalo, or goat (which was an addition to the old standard) or mixed. To guarantee the traditional taste, the standard only allowed products cultured with symbiotic cultures of *Lb. bulgaricus* and *St. thermophilus* selected in Bulgaria from Bulgarian strains and not genetically modified. The norm of viable microorganisms for yoghurt's shelf-life, now extended to 20 days, were $1,0 \cdot 10^7$ *Lb. bulgaricus* and $1,0 \cdot 10^8$ *St. thermophilus*. The new norm of limiting microorganisms was a considerable change to the 1982 standard, which had not specified the origin of the starters: the only ones available at that time came from the Central Laboratory in Sofia. The extension of the product shelf-life from 3 days in 1982 to 20 days in 2010 was another fundamental change. The head of The National Center of Public Health and Analysis "Food Microbiology," microbiologist Rossica Enikova said the standard differed as a result of much stricter hygiene norms and new technologies for milk treatment. It also differed because of new EU production standards.⁷⁴¹ However, because the national standards were not mandatory, preserving the "real Bulgarian taste" depended on the producers' willingness to adhere to the standard and the consumer's readiness to purchase a product with such a label and higher price thanks to the claimed higher quality and raw milk instead of powder.

Safe Home-made versus Dangerous Industrially Processed

Despite the product variations and the overall decline in yoghurt consumption, Bulgarian consumers of the 1990s and 2000s remained traditional in their preference for plain yoghurt. And despite fundamental challenges to the idea of the uniqueness of Bulgarian yoghurt, the notion did not disappear. The plain product manufactured by a local producer, using Girginov technology, was characterized as authentic or "real" yoghurt. Despite the fact that the starter cultures selected and tested in the government's Central Research Laboratory together with Girginov's production technology had been among the main achievements of Bulgaria's dairy industry exports in the 1970s, the technology and even the selected yoghurt starters claiming authentic Bulgarian origin were a scientific and political construct. Those scientific achievements were the means of adapting a non-industrial food product to large-scale industrial production.

In the late 1990s and early 2000s, home-made yoghurt seemed to make a fashionable come-back both in the countryside and Bulgaria's larger cities. In 2005, marketing research by marketing agency GfK Bulgaria showed that 16%

of yoghurt consumed in Bulgaria was home-made.⁷⁴² That percentage remained stable and increased gradually in the following years. In 2012, United Milk Company (*Obedinena Mlechna Kompania*), one of Bulgaria's yoghurt leaders since the 2000s, carried out a survey of yoghurt consumption in the Plovdiv region, where the company production and administrative base was situated. The data confirmed the significant proportion of home-made production and consumption. One fifth of the yoghurt consumed in this region was prepared in peoples' homes.⁷⁴³ Researching the recent trend, the Bulgarian based marketing and consulting company Market Links conducted national representative research dealing with the phenomenon of rising consumption and production of home-made foods and drinks. The results were published in 2013 by Bulgarian lifestyle magazine *Regal (Pezan)*. Their data showed an increase in home-made yoghurt consumption to 28%. Only 27% of the people consuming home-made yoghurt purchased the product, the rest produced (60%) or obtained it from family members or relatives who produced it themselves (13%).⁷⁴⁴ According to Market Links, home production of yoghurt was only possible through direct and personal contacts with raw milk producers or persons selling the end product. The information about reliable raw milk producers was distributed through informal networks formed among friends, relatives, or neighbors. The appreciation of the purchased raw milk and home produced products suggests these consumers do not consider such products as harmful or dangerous. Not only the selection of supplier but also the acceptance of the milk quality and safety is based on trust.⁷⁴⁵ Those direct purchases contrasted with the model set by the food chains' provisioning, establishing distance between the production site and the consumer. The personal contact with raw milk or yoghurt producers became crucial for establishing trustworthiness when consumers repeatedly experience that their purchase is of the expected quality. British sociologist Anthony Giddens points out that trust has to do with familiarity.⁷⁴⁶ Trust can be defined as consumer confidence in the reliability of the producers of food, and thus the product they produce.⁷⁴⁷ Besides the people living in villages and breeding animals, most home-made producers/consumers are urban families with above average incomes.⁷⁴⁸ What motivates those urban consumers to produce or purchase home-made yoghurt was their assumption that it tastes better, is healthier, and fresher.⁷⁴⁹ Their preference for more delicious, healthier, and fresher produce therefore revealed other reasons for their trust in home-made products, namely significant opposition between healthy non-industrial food and unhealthy, mistrusted industrial products.

The pre-industrial technology attracted attention and many bloggers and

Internet users shared their experiences online. Typical queries were, “How to make home-made yoghurt?” and featured in culinary, women’s, and lifestyle forums.⁷⁵⁰ Young mothers appeared to be the most interested group. Home-made yoghurt was also discussed by different genders and age groups. Many young urban professionals, influenced by the health movements and skeptical about the quality of industrially produced food, expressed a similar interest. A third group were the elderly in the city and in the countryside, who shared the knowledge of home-made yoghurt with family members. The search for the traditional Bulgarian yoghurt and its preparation was a re-authentication initiated by consumers. That search also re-connected consumers with the consumed product through its production.

Contemporaries considered traditional technology as either tasting like the “yoghurt from the glass jars,” referring to the communist era, or “home-made.” Indeed, as one blog response to the experiment with the shelf-life of industrial yoghurt, someone called Pesho, specified after experimenting “by leaving the real soured milk for weeks, I mean home-made soured milk,” with the product: “it does not go off, it only becomes sourer. This means that the number of lactobacilli increases. In my opinion this is the healthiest type of yoghurt – with many bacteria of the beneficial type.” The discussant continued: “The fact that the industrial yoghurt does not go off is no proof that it contains preservatives – simply the bacteria in it represses bad bacteria that make it expire,” and concluded: “The real soured milk and the yoghurt from the shop are characterized by different bacterial species, that’s all.”⁷⁵¹ This response resurrected the tradition of home-made yoghurt, juxtaposing the intimately personal home-made result with the de-personalized industrial product. We can see it as a peculiar reversal of the discussion about traditional versus industrial in the 1930s and 1940s, when industrially produced yoghurt first came to Bulgaria. Half a century later, the industrial product had acquired a negative connotation, no longer associated with modernism and progress. The home-made practices, once considered non-scientific, primitive, and dangerous in the 1940s were now hailed as extremely valuable, authentic, and healthy.

Conclusion

The transition from a centrally planned economy with large state-owned dairy plants as monopolist producers, to a market-driven economy dominated by private producers, went hand in hand with the adaptation and application of EU directives. The EU and government policies to encourage a free market allowed foreign producers to enter the Bulgarian yoghurt market. For the first time, Bulgarians faced a challenge to their trust in the superiority of Bulgarian yoghurt caused by the diversification of the Bulgarian market after the collapse of communism in 1989. Instead of a limited number of state-produced products, within a short period many new and unknown yoghurt flavors were on offer. Essentially, during the communist era of the 1970s and the 1980s, Bulgarians strongly believed that they were consuming yoghurt of exceptional quality. Later in the 2000s, the global distrust in industrially produced food had its local manifestation in Bulgaria. The variety of natural yoghurt types emerging in 1990s, each relying on a different strategy to promote what a “Bulgarian product” was, eventually produced a sense of insecurity and distrust. The multi-national yoghurt market made the identification of the product problematic: it fanned consumers’ feelings of uncertainty about the “authenticity” and “naturalness” of industrial yoghurt.

Recently, critical Bulgarian consumers have questioned the quality, production methods, and origin of yoghurt. This is not only a manifestation of active consumers. It is also part of a more general response and growing skepticism about the quality and “traditional” character of yoghurt. These trends in recent decades evoke memories of the past in an attempt to prevent the de-mythologization of Bulgarian yoghurt. Bulgarian consumers still remember the yoghurt produced “then” and the nostalgic feeling that became the trusted image of what is truly Bulgarian yoghurt. In their reminiscences, consumers identify yoghurt produced in the glass jars by farm women as “the real” Bulgarian yoghurt. Goods packaged in glass jars became the criteria for good industrial yoghurt; the nostalgic home-production recalled a type of Bulgarian yoghurt considered authentic, produced according to the local technological practices and raw material – a home-made yoghurt in contrast with the industrial dairy product. New communication technologies made the once tacit and localized knowledge of yoghurt widely available. This product information is now communicated through global media or the old-fashioned word of mouth exchange of expertise and knowledge among friends and relatives. The new movement to restore the pre-industrial practices of yoghurt production led to a re-evaluation of traditions and set new criteria for what constitutes the real Bulgarian yoghurt.

Conclusion

In 2006, the Bulgarian branch of Danone Company launched a yoghurt product called “На баба” [“Grandmother’s”], claiming its adherence to tradition. The advertisement depicted an elderly woman, who was meant to represent everyone’s granny (Fig. 9) and the oldest female member of Bulgarian families. The slogans: “На баба млякото е най-хубаво” [“Grandmother’s yoghurt is the best”] and “От златните ръце на баба” [“From Granny’s golden hands”] and the image of the grandmother, were meant to recall traditional sentiments and play on memories of consumers’ childhood, in other words evoke familiarity and sentimentality. Danone conveyed those meanings through a congenial, smiling old lady in traditional costume, even using more explicit messages to create a product with a local identity. “Grandmother’s yoghurt” fostered the relationship between tradition and modernity, featuring the Bulgarian character of a product manufactured by a multi-national dairy company. Thus, the producer used notions of local and



Figure 9 – The image for Danone “Grandmother’s yoghurt.” Picture: Elitsa Stoilova.

foreign, past and present, traditional and modern to mask global production with home-grown myths. Questioning why a multinational dairy company like Danone was intent on creating “traditional” or “national” food, illustrates that national foods can become a political issue and different meanings can be embedded in a product claiming authenticity.

The book challenges the national origin of a seemingly ordinary foodstuff, by asking how Bulgarian yoghurt acquired its identity. Closer examination of how people have come to see yoghurt as Bulgarian over the past hundred years shows that various actors at different times played their part in the meanings attributed to and the social and cultural creation of this foodstuff as national product. Despite the large number of actors involved, they all shared the conviction of the primordial relationship between Bulgaria and yoghurt. That unquestioned belief in the unique and exclusive Bulgarian character of true yoghurt, however, masks the very process of its social and cultural creation as national product.

My historical exploration of the social and cultural processes representing yoghurt as a product of traditional Bulgarian culture reveals a surprising phenomenon. It was not Bulgarian consumers or actors representing their nation, but non-nationals who first made the connection between yoghurt and Bulgaria. These non-Bulgarian actors were the first to designate Bulgarian yoghurt as the country's exclusive, healthy foodstuff. In the 1900s, French, British, and American scientists such as microbiologists, chemists, and medical doctors working in transnational settings raised the question about the composition of traditional Bulgarian yoghurt. French-Russian biologist and Nobel prize-winner Elie Metchnikoff was the key figure in yoghurt's introduction to broad European table. In his publications and research in the 1900s, he had highlighted the benefits of fermented milk consumption. In particular, he believed yoghurt consumption was the key ingredient for connecting food and place, health and nation. Laboratory tests by Metchnikoff's colleagues and other scientists in the international community suggested the beneficial role of yoghurt consumption on enteric microflora; they recommended yoghurt for treating intestinal indispositions. These discoveries based on scientific knowledge – supported by Metchnikoff's authority as well-known microbiologist and popular figure – fuelled yoghurt production and consumption popularization among scientists, dairy producers, and consumers.

The next step in creating the social and cultural image of yoghurt as healthy food was the association between the Bulgarian nation and longevity. The causal link, based on conjecture rather than direct scientific evidence such as clinical trials, became immensely popular thanks to Metchnikoff's scientific authority. Metchnikoff shared the view that certain food might arrest the ageing process of

the human body – a hypothesis based on his speculation about the connection between people's longevity and the food they consumed. He interpreted the statistics showing large numbers of centenarians among people whose staple food was yoghurt, as evidence that this caused Bulgarian citizens' longevity. To further bolster his claim, Metchnikoff jumped at the chance to use the lab samples brought to him by a Bulgarian PhD student. Medical student Stamen Grigoroff had identified the composition of yoghurt in the laboratory at Geneva's Medical University in 1905, using samples brought from his homeland. He was able to isolate the agent – unknown until then – responsible for the fermentation of yoghurt. Grigoroff also provided information about the longevity of the population of his native village in the Trun region, whose diet included the daily consumption of yoghurt. He offered Metchnikoff both his discovery of yoghurt's agent and the aspect of longevity; again the links between the product, place, and longevity were suggestive, at most circumstantial.

Next, the scientific community settled on labeling Grigoroff's discovery of the organism based on geography and recent political history, by associating the laboratory results with the young European nation state of Bulgaria: *Bacillus bulgaricus* (the Bulgarian bacillus). This labeling led to attributing Bulgarian origin to yoghurt despite the fact that it was traditional food for the inhabitants of the entire Balkan Peninsula and the Middle East. Metchnikoff ignored the product's widespread consumption among diverse ethnic groups in these regions. Some data suggested Bulgaria was not the only country with relatively many centenarians. In promoting the image of the Balkan peoples' longevity, Metchnikoff focused on just one country: Bulgaria. In this selection process, the availability of one data set proved important. He singled out "Bulgarian yoghurt" because, in experiments conducted at the Pasteur Institute, he and his colleagues used Grigoroff's "Bulgarian" samples. Moreover, based on the research with samples from Trun, Metchnikoff claimed that other local yoghurt products from the Balkans and the Ottoman Empire did not have the same characteristics as the Bulgarian product. Although yoghurt's link with longevity was never established beyond doubt, Metchnikoff used the merely tangential connections to create the new product's image – Bulgarian yoghurt as "the elixir of long life." This was how the young Bulgarian nation state and Bulgaria's national character were connected. The apparently scientific connection jumpstarted the process of creating the "Bulgarianness" of yoghurt by singling out Bulgaria as its homeland and excluding non-Bulgarian examples.

Establishing an image of Bulgarian yoghurt as exotic curative food connected the country to a cultural tradition far from what was considered as European

civilization – that of the Ottoman Empire. This begs the question whether the history of yoghurt would have been different if Bulgaria had never been part of the Ottoman Empire. Yoghurt consumption and production dissemination in countries like France, Great Britain, Spain, Germany, and the Netherlands show that the exchange of dairy goods between European countries led to the technological and consumption patterns transferring butter and various types of cheese. The intensification of those trade exchanges since the eighteenth century was crucial for the establishment of a common European dairy market. Bulgaria would probably have taken part in those exchanges and possibly yoghurt would have reached other parts of the continent. In that scenario, Bulgaria would not have been stripped of its pan-European identity, and the aura of exotic product would not have been attributed to yoghurt or even have the same seductive power as the images of the Orient.

Yoghurt became a popular health food in France, Germany, the Netherlands, Switzerland, and Spain as a result of the technological transfer of foreign food to a new milieu. By claiming the benefits of consuming yoghurt, microbiologists and chemists played a significant role in popularizing the product; as did physicians, who prescribed it as a medical cure for gastroenterological problems. All these actors not only contributed to establishing the legitimacy of yoghurt but also generated its initial commercial promotion. They boosted the consumption of what would otherwise have been an exotic foreign product for many Europeans. In addition, these experts succeeded in adapting yoghurt production technology to the requirements of industrialized Western milk production.

Transferring the yoghurt-making technology and know-how was not simply a matter of taking it from one European region to another. What was considered Bulgarian yoghurt was also a Geneva and Paris laboratory construct of science. The implication of a scientifically created yoghurt devalued tacit (and local) knowledge. The transfer from home production to laboratory also isolated the science-based product from the home-made practice. In order to transfer home-made technology to standardized industrial dairy production, fundamental changes were required. Taking yoghurt production out of the hands of farm women into those of laboratory scientists transformed what peasant women had been producing with basic farm equipment and estimating by sight, into strict formulas in the laboratory setting.

The changes included standardization, which enabled the mass-production of yoghurt for consumption in Europe appearing in the markets of France, Germany, Switzerland, Spain, and others. The laboratory or dairy plant became the new setting where standardized scientific production took place. Thus dairy producers also

supported the new style of yoghurt production and consumption. Entrepreneurs in mass production presented Bulgarian yoghurt as both synonymous with an entire range of yoghurt-like products and a specific product seen as healthy and exotic. Associating yoghurt with a specific country was a marketing strategy to differentiate the product from the competition. Entrepreneurs exploited the claim, linking Bulgarians' longevity to their daily yoghurt consumption. In that sense, yoghurt was connected to Bulgaria not just as a specific place, but also to Bulgarian cultural and historical traditions, built around the name of Bulgarian yoghurt. Such links between the food product, the particular space and tradition created the claim that Bulgarian yoghurt differed from the varieties produced elsewhere.

In the 1930s and 1940s, the Bulgarian state entered the scene for the first time when its government began to claim yoghurt was a characteristic Bulgarian product. This nationalization of yoghurt saw the transformation of the "traditional" homemade local product into an industrial mass product. The "Bulgarianization" of yoghurt happened in the context of the parallel processes of industrialization, urbanization, and modernization – processes that were not specific to Bulgaria, but international. The introduction of the technological and scientific achievements brought back home by young Bulgarian specialists trained abroad, intensified the growth of yoghurt from ordinary daily food into a national icon with traditionally Bulgarian production methods.

Attributing a Bulgarian identity to yoghurt was a process influenced by Central and Western Europe, insofar as it was part of the overall European modernization and industrialization of the dairy sector. Throughout Europe, technological advances affected local food products. In order to reform Bulgaria's small-scale and non-mechanized dairy farming, state officials and dairy specialists borrowed West European models and technologies. Unlike the yoghurt promoted in Central and Western Europe as an elixir of long life in the 1910s and 1920s, the product in Bulgaria was simple daily food prepared by the farmer's wife. In the 1930s and 1940s, Bulgarian state officials forced the dairy sector to modernize and reorganize in order to guarantee sufficient and good quality dairy products for the growing urban population. Along with the state, Bulgarian doctors, chemists, veterinary and agrarian specialists were major social actors in this process. They helped launch changes which influenced the logistics of milk production centralization, hygiene and quality control. The transformations in the dairy sector significantly affected yoghurt production and consumption. It was this modernization of dairy production that generated practices to demonstrate the Bulgarian origin of the yoghurt as part of its national identity and image. Having started in Western Europe, the process of creating yoghurt's Bulgarian origin found its way in Bulgaria too.

The standardization of yoghurt production applying scientific methods turned out to be a vital step in promoting yoghurt's national characteristics. The dairy specialists defined the product as meeting modern scientific production standards and sanctioned home-based production as non-relevant to the requirements of mass consumption. Part of the standardization process was the masculinization of the dairy industry, legitimized by the science discourse, technological tools, and new-born professional ethos. The replacement of home-based women producers with trained dairymen who produced yoghurt in a scientific way, dismissed women producers as outdated in their attempt to reproduce their practices and generate an "authentic" Bulgarian product. The modern approach established alternative yoghurt production know-how and practices. As yoghurt standardization in the 1910s in Europe continued to devalue tacit knowledge, the modernization of Bulgarian yoghurt production in the 1930s and 1940s followed the same logic. The scientific and modernist ethos excluded the know-how of the home-produced yoghurt from the realm of production. Consequently, a nationalized, scientifically rationalized, standardized, and homogenized yoghurt appeared, which was defined by microbiologists, chemists, agrarian and dairy specialists as "typical Bulgarian yoghurt."

The standardization and scientification of yoghurt production intensified in the communist era after the Second World War in the search for new technology to help Bulgaria's yoghurt industry compete as a European and world leader. After coming to power, the Communist Party established a policy of nationalization, forced modernization, and industrialization of all production sectors. In the 1950s and 1960s, yoghurt production also fell under these requirements: large technological state-owned dairy plants replaced small-scale dairies. The new policies required yoghurt technology to adapt to the intensified mass production and guarantee an industrial product of good quality, produced in a minimal amount of time. The mechanization of the craftsman's yoghurt making was a significant challenge. The manufacturing requirement was met in 1965 by Professor Girginov's innovation. His new technology of mechanically-produced yoghurt which attempted to integrate craftsmen and farmers wives' methods into a new, fully automated production process, managed to solve the industrial plants' technological problems. By inculcating that innovative technology in all the state-owned dairy plants, the communist government, supported by scientists, was promoting the creation of a standardized industrial product as a national foodstuff.

The socialist state's policies intensifying industrialized yoghurt production and scientific innovations shaped Bulgarians' national pride in yoghurt. Their pride was also bolstered by the significant amount of scientific research conducted to improve export and prove the Bulgarian product was superior to the other fermented milks

already popular in Western Europe and the U.S. Thus policy makers gave further credence to the national myth of Bulgaria being the home of yoghurt. They also helped to launch the idea of Bulgarian yoghurt's superiority. Scientific research on the continuous cultivation of starter cultures for producing industrial Bulgarian yogurt became the new way of highlighting the yoghurt's Bulgarianness. A 1960s large-scale project was set up by the Central Experimental and Production Laboratory for Pure Cultures in Sofia, led by scientist Maria Kondratenko. The team explored the countryside to collect samples of homemade yoghurt from different regions of Bulgaria, then isolated natural leavens with the efficient technological characteristics of *S. thermophilus* and *Lb. bulgaricus*. These were later selected and cultivated into industrial strains for yoghurt production. That search for the "real Bulgarian yoghurt," ironically meant that scientists left the laboratory to go back to the countryside. The scientists' quest implied that they defined Bulgarian yoghurt's authenticity as a sense of place and rural tradition rather than a product of the lab.

In the process of standardization, scientists created an ideal product and image with the characteristics of nationalized yoghurt that could only come from Bulgaria. At the same time, the scientification and introduction of the laboratory had divorced the product from its geographical surroundings altogether. These geographical conditions together with the technology striving to capture and reproduce centuries-long traditions became key trading arguments for Bulgarians that they produced the best yoghurt in the world. The Bulgarian state's claims that yoghurt was a scientific and national product actually excluded local knowledge as, at an earlier point, the standardized industrial yoghurt production denied the practices and resources of peasant women. Seeking local knowledge for scientific and patent purposes did not change the situation: homemade production remained underestimated as a source of superior knowledge and driver of economic change and progress.

In short, scientists were not the sole actors responsible for making yoghurt a national product after the Second World War. Bulgaria's state export policy was geared at the economic and symbolic valorization of a product labeled Bulgarian yoghurt, provoked by the need for foreign currency. The communist state encouraged technological competition with the West. It succeeded in exporting patented know-how, starter cultures, and technology for yoghurt manufacturing, by promoting the image of extraordinary Bulgarian yoghurt thanks to scientific innovations.

The popularization of yoghurt as a health food in the early twentieth century had created a consumption niche which intensified after the Second World War. The 1950s, however, saw yoghurt finally being transformed from a medical cure to a dessert: by adding a variety of fruity tastes, entrepreneurs expanded the yoghurt market in Europe and the U.S. The connection between Bulgaria, yoghurt,

and health was still popular, particularly in France, yet faded in other European countries after Metchnikoff's death. The Bulgarian government's desire to export yoghurt to the dynamic international dairy market in the 1970s and 1980s proved difficult. The way to attract foreign currency and promote Bulgarian yoghurt on the international market was by exporting the know-how for yoghurt production, laboratory selected starter cultures and Girginov's technology. Bulgarian export agents succeeded in creating a positive image of the Bulgarian product to create new markets. The socialist state strategy in the 1970s was to compete with yoghurt's science and technology, not the marketing of the end product. While this choice made sense ideologically, in the international arena, it also meant that the Bulgarian state did not control the use of the name, symbols or interpretation of what constituted Bulgarian yoghurt; nor did the state succeed in protecting Bulgarian yoghurt as a trademark. With the weakening of the Bulgarian communist regime in the 1980s, export almost came to a standstill. The 1990s economic crisis after the regime collapse rearranged Bulgarian economic priorities. Claims about legally protecting Bulgarian yoghurt were put to one side.

After the break-up of the socialist state and market liberalization policies, the national strategy to protect Bulgarian yoghurt as a trademark seemed a losing battle. Bulgarians' pride in what they considered their national product was being challenged by other states claiming similar kinds of national products, such as Greek and Turkish style yoghurts. Furthermore, unlike in the socialist era, domestic markets were now following the logic of the free-market economy. This led to national dairy plants being privatized and multinational dairy producers like Danone entering Bulgaria's domestic market, making it hard for national producers to compete. The failure to protect the national product was also down to the weakening state control over production and distribution, which encouraged sales of yoghurt of dubious quality. Consequently, Bulgarian consumers felt uncertain about the "naturalness" of industrial yoghurt. They began to question Bulgarian yoghurt's uniqueness.

By the 2000s, public distrust in Bulgaria was focused on their national symbol. Consumers felt that a "real" taste was missing in commercially produced products. This sense of loss inspired a search to reclaim traditions and cultural roots. Bulgarian consumers nurtured their nostalgia for past traditions by demanding that real Bulgarian yoghurt should meet certain criteria. Their idea of authentic Bulgarian yoghurt involved a food product of good quality combined with the "traditional" character. However, the concept "traditional" embraced two contradictory meanings. One referred to the pre-industrial home-made yoghurt, the other the taste of the industrially produced yoghurt of the communist era. In the 2010s, these both connected the "real Bulgarian yoghurt" to the past. The idea of genuine Bulgarian

yoghurt linked food, traditions, and quality. These associations functioned as building blocks for a nostalgic recall of technological traditions distant from the modern industrialized mode of yoghurt production. Thus the tradition of homemade yoghurt production by urban consumers was resurrected as a means of reviving the authentic taste and rural yoghurt-making technology. Producers, specialists, state-officials, and non-profit organizations also embraced traditions to reinvent the myth of Bulgarian yoghurt.

In this cultural context, Danone used the allusion to grandmother's yoghurt. However, it was not the only company to exploit traditional symbols. Over the past decade, all Bulgarian yoghurt producers have begun to use references to tradition and authenticity in their marketing strategies. They have eagerly exploited the traditional symbols, myths, and rural folklore either through the product name, the image on the packaging, or explicit advertising slogans. Such advertising strategies were not only an attempt to overcome consumers' distrust in industrialized yoghurt. The strategies also sought to protect the national market under pressure from EU standards and multinational markets by claiming local characteristics and technologies.

As a multinational dairy industry leader seeking to establish local trust, Danone employed images that confirmed the association between food, nostalgia, memory, and identity. The company's marketing campaign is a perfect example of how nostalgia is mobilized to sell an industrially produced product, but also how multinationals exploit national symbols and myths to endorse their products. Despite its significant market share by the late 1990s and early 2000s, the company was generally seen as an invader. Many Bulgarian consumers criticized Danone products as "not-real-yoghurt," ascribing negative characteristics such as artificial and tasteless. One internet user nicknamed LB declared: "Never, not even once, have I purchased Danone. From the very beginning it was clear that Danone doesn't have anything in common with the classic yoghurt, only dry milk and preservatives."⁷⁵² The internet user thus expressed general Bulgarian skepticism about a foreign firm's ability to meet local demand. In response to consumer resistance, the French multinational has cleverly used the myth created by the Bulgarians themselves: they invented a product to match Bulgarian consumers' expectations of locally produced Bulgarian yoghurt. Thereby, Danone masked its global operations; it normalized its product as local; and it adapted the global market product to the local consumer demand where yoghurt was marketed.⁷⁵³

While in the 1990s Danone was a key player in opening up the Bulgarian yoghurt market by moving it towards European standards, by the 2010s, the company was endorsing 'Grandmother's yoghurt' as a local Bulgarian product. The

emphasis on local production occurred even – or more precisely – when the company’s financial and legal structure was multinational. Producing Grandmother’s yoghurt according to Bulgarian state standards questioned the meaning of global and local when it comes to food. The references to “real-Bulgarian-Danone-made-yoghurt” displayed the ambiguity of food authenticity. It also revealed the shifting actors, politics, and meanings involved in its construction, recreation, and reproduction. The case study demonstrates that the identification and preservation of local food are firmly linked to national and international political and global economic exchanges.

Recent developments have shown once again that Bulgarian yoghurt’s authenticity is something that will continue to be negotiated, depending on the socio-political context and the actors involved. The process of creating images of yoghurt’s authenticity and rise to national symbol was always related to negotiations, validations, and re-evaluation of the meanings behind the labeling. The same was true for what was defined as yoghurt not only on a technological basis being home-made, artisanal, industrial, and science based but also on its materiality produced from sheep, cow, buffalo, or goat milk. This thesis has proven that there is not just one reason why yoghurt became an authentic Bulgarian foodstuff. Many actors and many factors were involved. Ultimately, the social and cultural creation of yoghurt as an authentic food product resulted from the interaction among citizens, consumers, producers, scientists, and politicians; the meanings attached to Bulgarian yoghurt were defined in different ways at different times but always linked yoghurt as food product to its homeland Bulgaria.

Appendices



Figure 1 – Metchnikoff (in suit) and his colleagues. Source: L'Archive de l'Institut Pasteur, Paris, France, MTC.1, photographies.

THE SOUR MILK TREATMENT
of Dyspepsia, Entero-Colitis, Gastric Ulcer, Rheumatism, &c.

PARTICULAR attention is directed to the proved superiority of the Specialities prepared in our Milk Laboratories under the direct control of a skilled bacteriological staff.

THESE SPECIALITIES COMPRISE :

"SAUERMILCH"' (Bacillus of Massol and Streptococcus Lacticus.)
As recommended by Professor Metchnikoff—see "Observations on Curdled-Milk" etc.

"SAUERMILCH" WHEY. "SAUERMILCH" CHEESE.

"FERMENLACTYL" BUTTERMILK.

CURDLED MILK BUTTERMILK
(S. Lacticus.) (Freshly Churned.)

Orders and Communications to— **WELFORD & SONS, LIMITED.**
Chief Offices and Milk Laboratories : : : : ELGIN AVENUE, LONDON, W.
Principal Telephone: "Paddington 5440" (2 Lines). Telegraphic Address: "Welford's, London."

Figure 2 – Advertisement for tablets and artificial ferments "Sauermilch," Produced by Welford and Sons (Dairy Company) Ltd, London. Source: The British Medical Journal (December 25, 1909): 14.

LACTOBACILLINE MILK

is the only form of Soured or Curdled Milk manufactured under the immediate direction of the Société "Le Ferment," from cultures supplied by them and prepared under the scientific supervision of Prof. Metchnikoff.

LACTOBACILLINE MILK is prepared in the United Kingdom only by the
LONDON PURE MILK ASSOCIATION, Limited,
2, HALKIN PLACE, BELGRAVE SQUARE, LONDON, S.W.
Telegrams: "PUREMILK LONDON." Telephone: 334 Gerrard (2 lines)."

under an exclusive contract with the Société "Le Ferment" of Paris.

SOLE PURVEYORS TO PROFESSOR METCHNIKOFF.

Figure 3 – Advertisement for "Lactobacilline" tablets, Source: The British Medical Journal (December 25, 1909): ii.



Figure 4 – Advertisement of yoghurt by Nestlé (1923). Source: Virtual Museum of the Oficina Española de Patentes y Marcas, Collection: International Treadmarks, file 29245 “Applicant, Nestlé and Anglo-Swiss Condensed Milk Company.



Figure 5 – A picture of the 126 year old Baba Vasilka and her son Tudor. Source: Douglas Loudon, *The Bacillus of Long Life: A Manual of the Preparation and Souring of Milk for Dietary Purposes* (New York and London: G.P. Putnam's Sons, 1911): i.



Figure 6 – Leaflet “La Maya Bulgare,” Source: *Bibliothèque de la Musée des art décoratif*, 256. (17) *Adresses et prospectus publications, étiquettes, emballage* (1908-1909).



Гр. Разградъ. Предъ „Момина чешма“—пазаръ за кисело мляко отъ с. Борисово.

Figure 7 – Illustration of women from Borisovo village selling yoghurt at “Momina cheshma” market in the city of Razgrad. Source: *Сепдука* 1 (1938): 12 *Serdica* 1 (1938): 12.



Figure 8 – Homemade practices of yoghurt production. Source: Сердика 1 (1938): 12, Serdica 1 (1938): 12.



Figure 9 – Pre-industrial yoghurt production- a craftsmen dairy. Source: Сердика 1 (1938): 14, Serdica 1 (1938): 14.

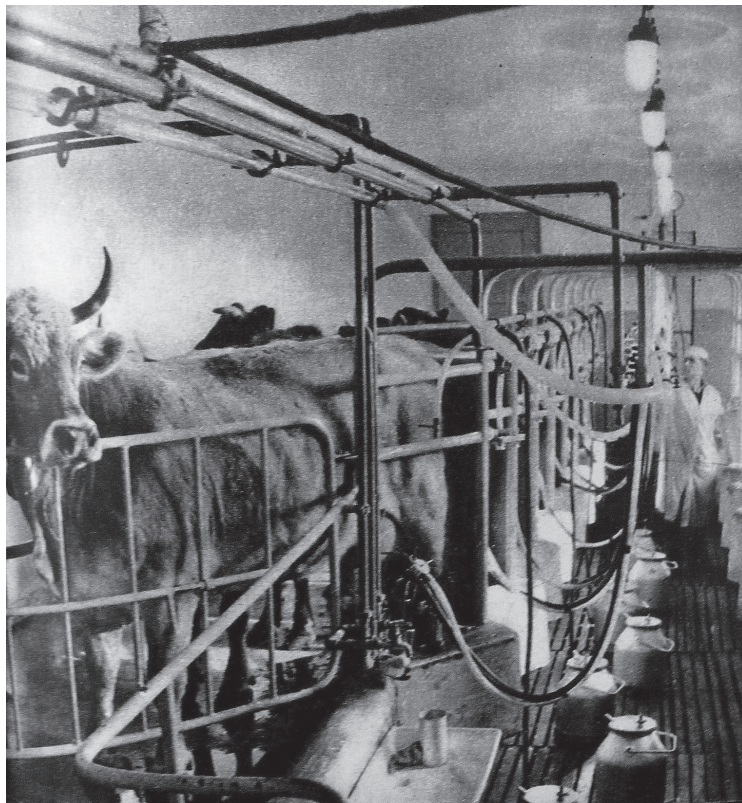


Figure 10 – Mechanized cow milking (1961). Source: Христо Попов, “Пазете млякото чисто,” *Здраве* (1961): 5. Hristo Popov, “Keep the Milk Clean” *Health* (1961): 5.



Figure 11 – Yoghurt glass jars from the 1960s with cardboard lids. Source: Т. Ташиев, “Млякото незаменима храна за детето,” *Здраве* 5 (1966): 5. T. Tashev, “Milk – Children’s Indispensable Nutrition,” *Health* 5 (1966): 5.



Figure 12 – Yoghurt production line. Source: *Хранителна промишленост 10* (1971): 1. *Food Industry 10* (1971): 1.



Figure 13 – Productive line for automatic filling of yoghurt jars. Source: *Хранителна промишленост 9* (1971): 1 (*Food Industry 9* (1971): 1).

Le recueil se vend au numéro
Le prix du présent numéro est de
8 francs suisses
Compte de chèques postaux en Suisse 12 - 50 00

Direction et administration:
Bureau international
de l'Organisation Mondiale de la Propriété
Intellectuelle (OMPI)
34, chemin des Colombettes
Case postale 18
1211 Genève 20 (Suisse)
Adresse télégraphique: « OMPI »

Les appellations d'origine

N° 12
Juin
1978

Publication du Bureau International
de l'Organisation Mondiale
de la Propriété Intellectuelle (OMPI)

ENREGISTREMENTS

Pays requérant:

RÉPUBLIQUE POPULAIRE DE BULGARIE

Administration compétente:

Institut d'inventions et de rationalisations
52, boulevard G.A. Nasser, Sofia 1156

Date d'enregistrement N° d'enregistrement
6 mars 1978 **649**

Titulaires:

1. Dържавно-stopansko obedinenie « Mlečna promišlenost », 9, boulevard Al. Stambolijski, Sofia
2. Văšno tărğovsko obedinenie « Rodopaimpex »
2, rue Gavril Genov, Sofia

Appellation d'origine:

BĂLGARSKO KISELO MLJAKO
БЪЛГАРСКО КИСЕЛО МЛЯКО

Produit:

Yogourt (lait caillé)

Aire de production:

Tout le territoire de la République populaire de
Bulgarie

*Titre et date des dispositions législatives ou réglementaires
ou des décisions judiciaires reconnaissant la protection dans
le pays d'origine:*

Loi du 1^{er} janvier 1968 sur les marques de commerce, modèles industriels et appellations d'origine, ainsi que les certificats N° 6-1 du 18 juillet 1974 et N° 6-2 du 1^{er} octobre 1974, délivrés par l'Institut d'inventions et de rationalisations

Date d'enregistrement N° d'enregistrement
6 mars 1978 **650**

Titulaires:

1. Dържавно-stopansko obedinenie « Mlečna promišlenost », 9, boulevard Al. Stambolijski, Sofia
2. Văšno tărğovsko obedinenie « Rodopaimpex »
2, rue Gavril Genov, Sofia

Appellation d'origine:

BĂLGARSKA ZAKVASKA
ZA KISELO MLJAKO
БЪЛГАРСКА ЗАКВАСКА
ЗА КИСЕЛО МЛЯКО

Produit:

Ferment de yogourt

Aire de production:

Tout le territoire de la République populaire de
Bulgarie

*Titre et date des dispositions législatives ou réglementaires
ou des décisions judiciaires reconnaissant la protection dans
le pays d'origine:*

Loi du 1^{er} janvier 1968 sur les marques de commerce, modèles industriels et appellations d'origine, ainsi que les certificats N° 5-2 et N° 5-3 du 1^{er} octobre 1974, délivrés par l'Institut d'inventions et de rationalisations

Figure 14 – Acknowledgment of Bulgarian yoghurt and Bulgarian starters as designations of origin. Source: Appellation d'Origine, June 1978.



Figure 15 – Valio's advertisement for Bulgarian yoghurt. Source: Yhteishyvä (1982).

BULGARIANJOGURTISTA



Bulgarianjogurtista saat nopsasti pienen aterian silloin, kun vatsa alkaa nurista. Vaikkapa oivan seurusteluruoan kahdelle tai hunajaisen herkun voileivän kera.

Illan makuburmio

1 tuore kurkku
1 prk (2 dl) Bulgarianjogurttia
2 rkl hienonnettua tilliä
1-3 valkosipulin kynttä
Raasta kurkku - jos kuori on karvas, poista se. Valuta raasteesta lika neste. Lisää jogurtti ja mausteet. Tillin sijaan voit käyttää 1 tln kuivattua minttua. Nauti kylmänä ystäväsi kanssa kasteen siihen vaaleata leipää.
MUIUNNOS: Käytä tuoreen kurkun tilalla kahta herkkukurkkua. Jätä tällöin suola pois ja lisää sitruunamehua vain 1 dl.

Hunajaherkku Hemmo

Lorauta Bulgarianjogurtille juoksevaa hunajaa. Kiteytyneen voit pehmittää ensin kattilassa liedellä tai lisätä siihen tilkan vettä. - Älä kuumenna hunajaa kuin hetki.

Bulgarianjogurtti pitää pikkunälän poissa!



Figure 16 – Valio advertisement for Bulgarian yoghurt. Source: Anna (1984).



Figure 17 – Advertisement for Chambourcy's “au goût bulgare” yoghurt. Source: Paris Match (1963).



Figure 18 – Advertisement for Chambourcy's “Kremly” yoghurt. Source: Paris Match (1972).



Notes

Introduction

- 1 In accordance with the Trade-Related Aspects of Intellectual Property Rights Agreement, the geographical indications were those “which identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin.” World Trade Organization, “Agreement on Trade-Related Aspects of Intellectual Property Rights,” (April 15, 1994), http://www.wto.org/english/docs_e/legal_e/27-trips.pdf. Accessed September 2, 2012.
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- 58 Ibid., 263.
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- 62 Ibid., 234.
- 63 Ibid., 244-45.
- 64 Ruth Oldenziel, Adri A. de la Bruhèze, and Onno de Wit, "Europe's Mediation Junction: Technology and Consumer Society in the 20th Century," *History and Technology* 21, no. 1 (2005): 107-39; Adri A. de la Bruhèze and Ruth Oldenziel, "Theorizing the Mediation Junction for Technology and Consumption," in *Manufacturing Technology, Manufacturing Consumers. The Making of Dutch Consumer Society*, ed. Adri A. de la Bruhèze and Ruth Oldenziel (Amsterdam: Aksant, 2009), 9-40.
- 65 De la Bruhèze and Oldenziel, "Theorizing the Mediation Junction," 23.
- 66 Ibid.
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- 70 Małgorzata Mazurek, "No More Wasting Time: Home Economics and the Fight Against Queuing Up in Communist Poland, 1966-1970," in *Technology and Rethinking of European Borders* (Lappeeranta 2005).
- 71 Małgorzata Mazurek and Matthew Hilton, "Consumerism, Solidarity and Communism: Consumer Protection and the Consumer Movement in Poland," *Journal of Contemporary History* 42, no. 3 (2007): 315-43.
- 72 Breda Luthar, "Remembering Socialism: On Desire, Consumption and Surveillance," *Journal of Consumer Culture* 6, no. 2 (2006): 229-59.

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- 74 Peter Atkins, *Liquid Materialities: A History of Milk, Science and the Law. Critical Food Studies* (Farnham: Ashgate, 2010), 5.
- 75 Ibid., 49.
- 76 Ibid., xx.
- 77 Ibid.
- 78 Anne Mendelson, *Milk: The Surprising Story of Milk Through the Ages* (New York: Knopf, 2008); Hannah Velten, *Milk: A Global History* (London: Reaktion Books, 2010).
- 79 The article is included in the edited volume Sarasuà, Scholliers, and Molle, eds., *Land, Shops and Kitchens*.
- 80 Orland, "Milky Ways," 214.
- 81 Ibid.
- 82 Adnan Tamime and Richard Robinson, *Yogurt: Science and Technology* (Cambridge: Woodhead Publishing, 2000); Фондация "Д-р Стамен Григоров", *Българското име на дълголетие. 100 години от откриването на Lactobacillus bulgaricus* (София: Фондация "Д-р Стамен Григоров," 2005). (Foundation "Dr. Stamen Grigorov, *The Bulgarian Name of Longevity. A Hundred Years from the Discovering of Lactobacillus bulgaricus* (Sofia: Foundation "Dr. Stamen Grigorov," 2005); Коста Катранджиев, *Българско кисело мляко* (София: БАН, 1961). (Kosta Katrandziev, *Bulgarian Sour Milk* (Sofia: BAN, 1961); Мария Кондратенко и Желязко Илиев Симов, *Българско кисело мляко* (София: Асоциация на Млекопреработвателите в България, 2003). (Maria Stefanova Kondratenko and Jelyazko Iliev Simov, *Bulgarian Soured Milk* (Sofia: Asociacia na Mlekoпреработvatelite, 2003); Мария Кондратенко, съст. *Българско кисело мляко* (София: Земиздат 1985). (Maria Kondratenko, ed. *Bulgarian Sour Milk* (Sofia: Zemizdat, 1985).
- 83 Ramesh C. Chandan et al., *Manufacturing Yogurt and Fermented Milks*, 1st ed. (Ames, Iowa: Blackwell, 2006), 19.
- 84 Ibid.
- 85 Ibid., 7-10.
- 86 Mendelson, *Milk: The Surprising Story of Milk Through the Ages*; Velten, *Milk*; Andrea Wiley, *Re-imagining Milk* (New York: Routledge, 2011); James C. Whorton, *Inner Hygiene: Constipation and the Pursuit of Health in Modern Society* (Oxford: Oxford University Press, 2000).
- 87 Scott H. Podolsky, "Cultural Divergence: Elie Metchnikoff's *Bacillus bulgaricus* Therapy and His Underlying Concept of Health," *Bulletin of the History of Medicine* 72, no. 1 (1998): 1-27, here 1-2.
- 88 Ibid., 1-27, here 1.
- 89 Yavuz Köse, "Nestlé in the Ottoman Empire: Global Marketing with Local Flavor 1870-1927," *Enterprise and Society* 9, no. 4 (2008): 724-61.
- 90 Ibid., 724.
- 91 Ibid.
- 92 That was how authors in the 1900s and 1910s referred to the micro-flora originating from the Balkans – "Oriental microbes," as opposed to the microorganisms isolated from samples from Central and Western Europe, commonly known as European microbes.
- 93 K. Popdimitrov, *Bulgarian Soured Milk. Origin, Manufacturing, Nutritiousness, and Control* (Sofia: Spas Iv. Bozhinov, 1938), 13.
- 94 Bulgarian editions use the term *sour milk* instead of *yoghurt*. That is also a yoghurt designation.
- 95 Георги Атанасов и Иван Машаров, *Млечната промишленост в България в миналото и днес* (София: Земиздат 1981). (Georgi Atanasov and Ivan Masharov, *Bulgarian Dairy Industry: Past and Present* (Sofia: Zemizdat, 1981).
- 96 *Lactobacillus bulgaricus* is one of several bacteria used to make yoghurt. First identified in 1905 by Bulgarian doctor Stamen Grigoroff (1878-1945), the strain was named after Bulgaria: *Lactobacillus bulgaricus* by the scientific community.
- 97 Dr. Stamen Grigoroff Foundation, *The Bulgarian Name of Longevity*.
- 98 Here I use the terms 'qualitative' and 'quantitative' as they are understood in sociology. Qualitative research involves an understanding of human behavior and what governs it, whereas qualitative research looks at the reasons behind various aspects of behavior. The process of measurement is crucial in quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships.

- 99 As Codex Alimentarius Commission, "Codex Standard for Fermented Milks" in *CODEX STAN 243-2003* ed. Codex Alimentarius Commission (Rome: FAO, 2003); The International Dairy Federation, *Understanding the Codex Alimentarius*, Codex Alimentarius. Joint FAO/WHO Food Standards Programme (Rome: FAO, 1999); White Paper on Food Safety (Brussels: COM, 2000); "The General Principles of Food Law in the European Union - Commission Green Paper," in COM (97) 176 (April 1997); Regulation (EC) No 853/2004. "Laying down Specific Hygiene Rules for Food of Animal Origin;" *Official Journal of the European Union* L 139 (April 30, 2004): L 226/22-82; Regulation (EC) 178/2002, *Official Journal of the European Union* L 31 (April 28, 2002): 1-24; and others.
- 100 Jaber F. Gubrium and James A. Holstein, eds., *Handbook of Interview Research: Context and Method* (London: Sage, 2001).
- 101 Metchnikoff's ideas about longevity were presented in nutrition and medical journals, as well as in popular newspapers.

Chapter 1

- 102 Some examples of foreign media that published articles describing Metchnikoff and his research on soured milk consumption are: France - *Les Hommes du jour*, *L'Enseignement ménager*, *Le Journal du dimanche*, *La France illustrée*, *L'Humanité nouvelle*; Great Britain - *Newcastle Journal*, *Evening Telegraph*, *Luton Times and Advertiser*, *Western Times*; The Netherlands- *Leeuwarder Courant*, *Utrechts Nieuwsblad*, *Algemeen Handelsblad*, *Het nieuws van den dag voor Nederlandsch-Indië*, *Rotterdamsch nieuwsblad*; Germany: *De Rijnboode* and many others.
- 103 Charles Dawbarn was well known for his books *France and the French*, *France at Bay* and *Joffre and His Army*.
- 104 Dawbarn, ed. Elie Metchnikoff, 104.
- 105 Ibid., 106.
- 106 Dawbarn referred to Metchnikoff as "the apostle of longevity" and this title was also used by the European and American press. Ibid., 112.
- 107 According to the phagocytic theory, microorganisms are destroyed by the activity of cells in the human organism. Certain types of cells in the body are supposed to detect and destroy disease-inducing microbes, which have succeeded in penetrating the human organism, and also of rendering certain bacterial poisons harmless. See Metchnikoff's presentation at the Nobel Prize nominations published as Elie Metchnikoff, *Sur l'état actuel de la question de l'immunité dans les maladies infectieuses* (Stockholm: Norstedt et fils, 1908).
- 108 See L'Archives de l'Institut Pasteur, MTC.1, Invitation from Louis Pasteur to Elie Metchnikoff for a position at the Institute.
- 109 The opportunity to work at the Pasteur Institute was a great honor for Metchnikoff, but his decision to work in France was related to his conviction that research in Russia was always influenced by many external factors. In her bibliography on the scientist, his wife Olga Metchnikoff revealed some of her husband's thoughts on the topic. According to Metchnikoff, "c'est à Paris que je parvins enfin à faire de la science pure en dehors de toute politique ou autre fonction publique. Ce rêve n'avait pu se réaliser en Russie à cause d'obstacles venant d'en haut, d'en bas et de côté." John Coveney, *Food, Morals and Meaning The Pleasure and Anxiety of Eating* (New York: Routledge, 2000), 125.
- 110 Elie Metchnikoff, *Old Age* (London, Smithsonian Report, 1905), 533-50; Solaville, "Les Grandes Longévités," *La Revue Scientifique de la France et de l'Étranger: Revue des Cours Scientifiques* 1(1881): 173-81.
- 111 Metchnikoff, *Old Age*, 542.
- 112 For René Villermé's research, see: Dorothy Porter, *Health, Civilization, and the State: a History of Public Health from Ancient to Modern Times* (London, New York: Routledge, 1999), 65.
- 113 Kevin Fitzpatrick and Mark La Gory, *Unhealthy Places: The Ecology of Risk in the Urban Landscape* (New York: Routledge, 2000), 86.
- 114 *Cambridge History of Medicine*, ed. Charles Webster and Charles Rosenberg (Cambridge: Cambridge University Press, 1992). George Rosen, *A History of Public Health*, (Baltimore: Johns Hopkins University Press, 1993); René Sand, *The Advance to Social Medicine* (London: Staples Press, 1952); Porter, *Health, Civilization, and the State*.
- 115 Sand, *The Advance to Social Medicine*; Porter, *Health, Civilization, and the State*; Arnaud Bauberot, "De

- la nudité thérapeutique au nudisme, les naturistes français," *Rives méditerranéennes* 2, no. 30 (2008): 101-16, here 103.
- 116 On heliotherapeutic and phototherapeutic practices, see research by historian Tania Anne Woloshyn, "Our Friend, the Sun: Images of Light Therapeutics 1901-1944," (2011), http://www.mcgill.ca/files/_nea/170546_ourfriendsun.pdf. Accessed April 27, 2007. See also: Bauberot, "De la nudité thérapeutique."
- 117 Élie Metchnikoff, *Essais optimistes* (Paris: A. Maloine, 1907), 238. Metchnikoff stated: "c'est la sobriété générale et la vie d'après les règles d'hygiène rationnelle qui doivent guider les hommes désirant conserver leur intelligence aussi longtemps que possible et parcourir le cycle le plus complet de la vie la plus normale dans les conditions actuelles."
- 118 Ibid., 237-38.
- 119 Ibid., 238.
- 120 Charles Bouchard, *Lectures On Autointoxication In Disease: Or Self-Poisoning Of The Individual*, trans. Thomas Jacques Oliver (Philadelphia, New York, Chicago: The F. A. Davis Company, 1897).
- 121 Podolsky, "Cultural Divergence," 2.
- 122 Metchnikoff presented the idea of disease as disharmony in his early book *The Nature of Man* from 1903 and research on intoxication (1907).
- 123 Metchnikoff, *Essais optimistes*, 197-98.
- 124 Lane's theories and practices as well Metchnikoff interest in them are excellently presented in Whorton, *Inner Hygiene: Constipation and the Pursuit of Health in Modern Society*, 174.
- 125 Metchnikoff, *Essais optimistes*, 209-13.
- 126 Ibid., 210-11.
- 127 Leo F. Rettger and Harry A. Cheplin, *A Treatise on the Transformation of the Intestinal Flora with Special Reference to the Implantation of Bacillus Acidophilus* (London: Oxford University Press, 1921), 1.
- 128 Whorton, *Inner Hygiene*, 33-37.
- 129 Ibid., 37.
- 130 Ibid.
- 131 Ibid.
- 132 Metchnikoff, *Essais optimistes*, 208-38.
- 133 Ibid., 226.
- 134 The Merriam-Webster dictionary (2005) suggests 1625 as the year when the word yoghurt appeared in English. How and why that happened is hard to be trace. Some Bulgarian sources claim Bulgarian origin based on doubtful evidences and linguistic connections with the language of proto Bulgarians - a nomadic tribe, who migrated from Asia to Europe in the fifth century and together with the local population of Slavs and Thracians, established the Bulgarian state in 681. Yoghurt probably became a common designation for a specific product to make a clearer distinction with other sour-tasting, fermented products. The name soured milk used as identification by many did not distinguish the product clearly from other similar products. From the late nineteenth century, fermented products from the Middle East and Asia reached Central and Western European dairy market. The variety of fermented milks, as the sources quoted in my thesis show, generated confusion with scientists and consumers about their origin and name. Commercial interests sought to dissociate those fermented products from the less familiar sour taste. Probably the label yoghurt was used deliberately to mark and market an exact type of fermented milk.
- 135 Metchnikoff, *Essais optimistes*, 238.
- 136 Metchnikoff paraphrased Ornstein who argued: "qu'il existe des pays dont beaucoup d'habitants se distinguent par un grand âge. En général on constate que l'Europe orientale (États balkaniques, Russie), malgré son moindre degré de culture, compte notablement plus de centaines que l'Europe occidentale." Ibid., 120.
- 137 Ibid.
- 138 According to Metchnikoff, "il n'en est pas moins vrai, dit M. Chemin, que l'air vif et pur des Balkans et la vie pastorale et agricole de ses habitants, prédisposent ceux-ci à une longue existence." Ibid.
- 139 Metchnikoff stated that "Un étudiant bulgare à Genève, M. Grigoroff, a été étonné de rencontrer un grand nombre de centaines dans une région de la Bulgarie, où le lait aigri —yahourth — constitue l'aliment essentiel." Metchnikoff, *Essais optimistes*, 228.
- 140 Ibid., 120.
- 141 Dawbarn, ed. *Elie Metchnikoff*, 112.

- 142 For a detailed bibliographical overview of Stamen Grigoroff's life and work, see: Фондация "Д-р Стамен Григоров", *В началото бе родовата памет. Десет години утвърждаване. Фондация "Д-р Стамен Григоров"* (София: Университетско издателство "Св. Климент Охридски, 2005); (Dr. Stamen Grigoroff Foundation, *In the Beginning Was the Family Memory... Ten Years of Confirmation. "Dr. Stamen Grigoroff" Foundation* (Sofia: Universitetsko izdatelstvo "Sv. Kliment Ohridski", 2005).
- 143 Quoted in Dr. Stamen Grigoroff Foundation, *In the Beginning*, 92.
- 144 Ibid., 94-95.
- 145 Stamen Grigoroff, "Etude sur un lait fermenté comestible. Le "Kissélo-mléko" de Bulgarie," *Revue médicale de la Suisse Romande* 25, no. 10 (1905): 714-21.
- 146 Ibid., 714- 20.
- 147 Ibid.
- 148 Grigoroff wrote, "[o]n désigne en Bulgarie sous le nom de Kissélo-mléko (littéralement lait aigre) un lait caillé dont l'usage est très répandu. Dans certaines parties de la Bulgarie, le Kissélo-mléko est l'aliment presque exclusif des paysans, dans d'autres on le consomme principalement en été." Ibid., 714-15.
- 149 Ibid., 714.
- 150 Ibid., 714-15.
- 151 Foundation "Dr. Stamen Grigorov", *The Bulgarian Name of Longevity*, 22.
- 152 According to Ibid., 22-23.
- 153 Metchnikoff, *Essais optimistes*, 232.
- 154 Ibid.
- 155 In *Essais optimistes* Metchnikoff provided the following information "[a]vec son élève, M. Grigoroff, M. Massol a isolé de ce lait plusieurs microbes, parmi lesquels un bacille lactique de grande puissance. Dans notre laboratoire ce lait aigri a fait l'objet de recherches de MM. les D^{rs} M. Cohendy et Michelson. Ils y ont trouvé un ferment lactique très actif qui a reçu le nom de bacille bulgare." Ibid.
- 156 Other names used in the scientific literature were: *Bacillus Bulgaricus*, bacillus of the Bulgarian maya (*Bacillus maya*), *Bacillus bulgaricus* (Luerssen and Kühn 1907), the bacillus of Massol (*Bacillus Massol*), bacillus of Metchnikoff, bacille A Grigoroff, *Lactobacillus bulgaricus* (Orla-Jensen); *Thermobacterium bulgaricum* 1919, *Bacterium bulgaricum* (Buchanan and Hammer 1915), *Lactobacillus bulgaricus* (Grigoroff) (Bergey et al. 1923). See Morrison Rogosa and P. Arne Hansen, "Nomenclatural Considerations of Certain Species of *Lactobacillus* Beijerinck: Request for an Opinion," *International Journal of Systematic and Evolutionary Microbiology* 21(1971): 177-78.
- 157 Later, in honour of its discoverer, the name was changed to *Lacto Bacterium Bulgaricum – Grigoroff*.
- 158 Metchnikoff, *Essais optimistes*, 233.
- 159 Rettger and Cheplin, *A Treatise on the Transformation of the Intestinal Flora*, 5.
- 160 Metchnikoff, *Essais optimistes*, 217-18.
- 161 Elie Metchnikoff, "Quelques mots sur le lactobacille," *Comptes rendus de l'Académie des sciences* (1908).
- 162 See "Dr. Stamen Grigoroff" Foundation, *In the Beginning Was the Family Memory*, 22-23.
- 163 Quoted in Ibid., 92.
- 164 Metchnikoff, *Essais optimistes*, 233-34.
- 165 Ibid.
- 166 Ibid., 232.
- 167 Ibid.
- 168 Albert Fournier, Adolphe Combe, and William Gaynor States, *Intestinal Auto-intoxication* (London: Rebman Co, 1908), 345; Élie Metchnikoff, *Quelque Remarques sur le Lait Aigri* (Paris: E. Rémi, 1907), 26.
- 169 The origin of the word yoghurt is discussed by the Canadian food researcher from the Agriculture and Agri-food Development Centre, Edward R. Farnworth in *Handbook of Fermented Functional Foods* (Florida: CRC Press, 2003), 7. The topic is elaborated by Alan Davidson, "Yoghurt," in *Oxford Companion to Food*, ed. Alan Davidson (Oxford: Oxford University Press, 1999); Christo Tchomakov, "Bulgarian Sour Milk – a Unique Probiotic," in *International Symposium on Original Bulgarian Yoghurt on the Occasion of 100 Years of the Discovery of Lactobacillus bulgaricus Grigoroff* (Sofia: Nauka, 2006); Tamime and Robinson, *Yogurt*, 3; Alan Davidson et al., *Oxford Companion to Food* (Oxford: Oxford University Press, 2006).
- 170 See Grigoroff, "Etude sur un lait fermenté comestible." In Bulgaria, there was and still is a slight difference in the pronunciation of "*kiselo mlyako*" (кисело мляко). In Eastern parts it is "*kiselo mlyako*" and in the West "*kiselo mleko*." After the orthography reform in 1945, linguists considered "*kiselo mleko*" a

- dialect form and defined “*kiselo mlyako*” as grammatically correct.
- 171 Adolphe-Auguste Lesage, *Traité des maladies du nourrisson* (Paris: Masson, 1911), 720.
- 172 Thomas Davey Luke, “The Preparation of Soured Milk,” *The British Medical Journal* 1, no. 2557 (1910): 52. For other scientific descriptions of yoghurt production according to the traditions of Bulgaria and Turkey, see: La Société de la Maya Bulgare, *Maya Bulgare. Étude sur le Yoghourt ou Lait Caillé Bulgare Obtenu par la Maya ou Ferment Bulgare* (Paris: La Société de la Maya Bulgare, 1910); Élie Metchnikoff, *The Prolongation of Life: Optimistic Studies*, trans. Peter Chalmers Mitchell (New York and London: The Knickerbocker Press, 1908); Loudon McQueen Douglas, *The Bacillus of Long Life: A Manual of the Preparation and Souring of Milk for Dietary Purposes* (New York and London: G.P. Putnam’s Sons, 1911); George Herschell, “The Therapeutical Value of the Lactic-acid Bacillus. A Discussion,” *Journal of the Royal Society of Medicine. Therapeutical and Pharmacological Section* 3(1910): 51–56.
- 173 Metchnikoff, *Essais optimistes*, 233–34.
- 174 Fournier, Combe, and States, *Intestinal Auto-intoxication*, 340–41.
- 175 *Ibid.*, 340.
- 176 “The preparation of Sour Milk. Insemination in Series,” *The British Medical Journal* 1, no. 2571 (1910): 886–87; ———, *Intestinal Auto-intoxication*, 341.
- 177 Herschell, “The Therapeutical Value of the Lactic-acid Bacillus.”; Metchnikoff, *The Prolongation of Life*.
- 178 Luke, “The Preparation of Soured Milk,” 52.
- 179 Richard Tanner Hewlett, *Serum and Vaccine Therapy, Bacterial Therapeutics and Prophylaxis, Bacterial Diagnostic Agents*, second ed. (London: J. & A. Churchill, 1910), 393.
- 180 Adolphe Combe, “Curdled Milk and Intestinal Decomposition,” *The British Medical Journal* 2, no. 3378 (1925): 47–48, here 48.
- 181 Consumers’ trust in food is a credit of confidence only possible when the consumer repeatedly experiences that the product bought is of the expected quality. That experience of reliability is connected with confidence in the expertise of the professionals responsible for setting the standards and regulations. This issue is discussed by Anthony Giddens in *The Consequences of Modernity* (Stanford: Stanford University Press, 1990), 68.
- 182 For examples, see: *La Société de la Maya Bulgare, Maya Bulgare*; Herschell, “*The Therapeutical Value of the Lactic-acid Bacillus.*”
- 183 I use Bruno Latour’s interpretative scope in his analysis of modernization. See Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, Massachusetts: Harvard University Press, 1993), 17. A separate section presents what Bulgarians considered as traditional yoghurt.
- 184 Herschell, “The Therapeutical Value of the Lactic-acid Bacillus.”; Metchnikoff, *The Prolongation of Life*.
- 185 For the technology to produce starter cultures, see К. Попдимитров, *Българско кисело мляко. Произход, производство, хранителност и надзор* (София: печатница Спас Ив. Божинов, 1938), 38–45; (Popdimittrov, *Bulgarian Soured Milk*, 38–45).
- 186 Fournier, Combe, and States, *Intestinal Auto-intoxication*, 221.
- 187 Vaughan Harley, “Discussion. The Therapeutical Value of the Lactic-Acid Bacillus,” *Journal of the Royal Society of Medicine. Therapeutical and Pharmacological Section* 3(1910): 57–58, here 57.
- 188 *Ibid.*, 57.
- 189 *Ibid.*, 57–58.
- 190 Robert Hutchison, “Discussion. The Therapeutical Value of the Lactic-Acid Bacillus,” *Journal of the Royal Society of Medicine. Therapeutical and Pharmacological Section* 3(1910): 60–61, here 61.
- 191 Herschell, “The Therapeutical Value of the Lactic-acid Bacillus,” 53.
- 192 Arthur Hertz, “The Therapeutical Value of the Lactic-Acid Bacillus. A Discussion,” *Journal of the Royal Society of Medicine* 3(1910): 62–63, here 63.
- 193 *Ibid.*, 63.
- 194 *Ibid.*
- 195 The *Lactigen* advertisement was published in the appendix of Hewlett, *Serum and Vaccine Therapy*.
- 196 Gordon Lane, “Discussion. The Therapeutical Value of the Lactic-Acid Bacillus,” *Journal of the Royal Society of Medicine. Therapeutical and Pharmacological Section* 3(1910): 62, here 62.
- 197 “Medical and Dietetic Articles. Sour Milk Preparation,” *The British Medical Journal* 1, no. 2582 (1910): 1553.
- 198 *Ibid.*, 1553.
- 199 Herschell, “The Therapeutical Value of the Lactic-acid Bacillus,” 53.
- 200 See the research by Harley, “Discussion,” 58; Hewlett, *Serum and Vaccine Therapy*, 21–23; Ernest

- Quant, "Some Observations on Preparations of Lactic Acid Bacilli and Production of Soured Milk," *The British Medical Journal* 2, no. 2555 (1909): 1738-39.
- 201 Hewlett, *Serum and Vaccine Therapy*, 396.
- 202 Quoted in William Bulloch, "Discussion. The Therapeutical Value of the Lactic-Acid Bacillus," *Journal of the Royal Society of Medicine. Therapeutical and Pharmacological Section* 3 (1910): 58-59, here 58.
- 203 *Ibid.*, 58.
- 204 Otto Grünbaum et al., "Discussion On Lactic Acid Therapy," *The British Medical Journal* 2, no. 2603 (1910); Harley, "Discussion," Hewlett, *Serum and Vaccine Therapy*, 396.
- 205 "Medical and Dietetic Articles," 1553.
- 206 The results of Goadby's research are presented in Harley, "Discussion," 58.
- 207 Herschell, "The Therapeutical Value of the Lactic-acid Bacillus," 53.
- 208 *Ibid.*
- 209 *Ibid.*, 53-54.
- 210 Otto Grünbaum et al., "On Lactic Acid Therapy," *The British Medical Journal* 2, no. 2603 (1910): 1586.
- 211 George Herschell and Adolphe Abrahams, *Chronic Colitis: Its Causation, Diagnosis and Treatment* (London, New York, Bombay, Calcutta: Longmans Green and Co., 1914), 219-20.
- 212 *Ibid.*, 219.
- 213 *Ibid.*, 219-10.
- 214 Grünbaum et al., "On Lactic Acid Therapy," 1553.
- 215 R. Lezé, *Les industries du lait* (Paris: Firmin-Diodot et Cie, 1891), 151-52.
- 216 Herschell, "The Therapeutical Value of the Lactic-acid Bacillus."

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- 217 René Lezé, *Les industries du lait* (Paris: Firmin-Diodot et Cie, 1891).
- 218 A selection of West European travelogues on the Balkans was published in seven volumes in the late 1970s and 1980s in Bulgarian (Чужди пътеписи за Балканите, Foreign Travelogues on the Balkans). French, British, German, Austrian, Hungarian and other travelers visiting the Ottoman Empire describe how yoghurt as a local food is made and consumed.
- 219 "Okka" is usually written in English as "oka" and was a measurement equal to 1.28 kilograms. Joseph Hammer-Purgstall, ed. *Histoire de l'Empire ottoman: depuis son origine jusqu'à nos jours. Depuis le traité de paix de Passarowicz jusqu'à la paix de Belgrade, 1718-1739*, vol. 14 (Paris: Bellizard, 1839), 457.
- 220 Nicolae Iorga, "Les voyageurs orientaux en France," *Revue historique du Sud-Est européen*, no. 1-3 (1927): 1-25, here 15.
- 221 The quote represents the original spelling. Bertrand de la Broquière, *Le voyage d'outremer de Bertrand de la Broquière* (Paris: Ernest Leroux, 1892), 89.
- 222 Théophile Gautier, *Constantinople* (Paris: Michel Lévy, 1853), 362.
- 223 Studying the "globalization" of consumption, social scientist Constance Classen states that "imported goods, images and terms are often reinvented within the context of their new cultural location to suit local sensibilities." One might argue that as a new commodity, yoghurt required a "reinvention of meaning" in order to be accepted. Quoted in Peter Jackson, "Commodity Cultures: the Traffic in Things," *Transactions of the Institute of British Geographers* 24, no. 1 (1999): 95-108, here 95.
- 224 Faustine Régner, "How We Consume New Products: the Example of Exotic Foods (1930-2000)," in *Global Issues in Food Science and Technology*, ed. Gustavo V. Barbosa-Cánovas, et al. (Burlington, San Diego, London, New York: Elsevier, 2009), 129-44, 142.
- 225 Fischler, *L'Homnivore : le goût, la cuisine et le corps*, 165.
- 226 Régner, "How We Consume New Products," 142.
- 227 Claude Fischler, "Pensée magique et utopie dans la science," *Cahiers de l'Ocha. Special issue. Pensée magique et alimentation aujourd'hui* 5(1996), http://www.lemangeur-ocha.com/fileadmin/contentusocha/14_C_Fischler.pdf.
- 228 Fournier, Combe, and States, *Intestinal Auto-intoxication*; La Société de la Maya Bulgare, *Maya Bulgare*; Douglas, *The Bacillus of Long Life*.
- 229 Fournier, Combe, and States, *Intestinal Auto-intoxication*, 336.
- 230 La Société de la Maya Bulgare, *Maya Bulgare*, 8-10, 15; Douglas, *The Bacillus of Long Life*, 1-15.

- 231 Fournier, Combe, and States, *Intestinal Auto-intoxication*, 337-38; Douglas, *The Bacillus of Long Life*, 1-15; La Société de la Maya Bulgare, *Maya Bulgare*, 4-10.
- 232 Martinus Willem Beijerinck, "On Lactic Acid Fermentation in Milk," *Huygens Institute-Royal Netherlands Academy of Arts and Science* 10, no. 1 (1907): 17-34, here 29.
- 233 Douglas, *The Bacillus of Long Life*; La Société de la Maya Bulgare, *Maya Bulgare*.
- 234 Fournier, Combe, and States, *Intestinal Auto-intoxication*, 337.
- 235 French sociologist Faustine Régner supports that the contemporary public evaluation of an exotic food as being good for one's health gives that product a "degree of social prestige." Faustine Régner, "Comment la cuisine française s'approprie l'étranger: discours sur l'exotisme dans la presse féminine (1930-2000)," in *Gastronomie et identité culturelle française. Discours et représentations (XIXe-XXIe siècles)* (Paris: Nouveau Monde Editions, 2005), 142.
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- 238 Régner, "Comment la cuisine française s'approprie l'étranger," 139.
- 239 "The Therapeutical Value of the Lactic-acid Bacillus. A Discussion," *Journal of the Royal Society of Medicine. Therapeutical and Pharmacological Section* 3 (1910): 51-64.
- 240 "Advertisement for Soured Milk," *Hastings and St Leonards Observer* (May 7, 1910): 10.
- 241 Félix Torres and Pierre Labasse, *Mémoire de Danone-Barcelone, Paris, New York* (Paris: Le Cherche Midi, 2003), 23.
- 242 Herschell, "The Therapeutical Value of the Lactic-acid Bacillus," 51-52.
- 243 Lisa Heldke, "Let's Cook Thai: Recipes for Colonialism," in *Food and Culture: a Reader*, ed. Carole Counihan and Penny Van Esterik (New York: Routledge, 2008), 327-41, here 30.
- 244 Ibid., 331.
- 245 Nicolae Iorga was a Rumanian who studied in Paris, Berlin, and Leipzig and was familiar with foreigners' attitudes toward the Balkans.
- 246 Iorga, "Les voyageurs orientaux en France," 5.
- 247 Ibid.
- 248 Ibid., 2.
- 249 Medical Research Council, "The Chemical Composition of Foods," *Medical Research Council Special Report Series* 773 (1940): 458-460.
- 250 J. Rivers, "The Profession of Nutrition – an Historical Perspective," *Proceedings of the Nutrition Society* 35 (1979): 225-32; Geoffrey Cannon and Claus Leitzmann, "The New Nutrition Science Project," *Public Health Nutrition* 8, no. 6A (2005): 673-69.
- 251 Coveney, *Food, Morals and Meaning The Pleasure and Anxiety of Eating*, xvii.
- 252 Ibid.
- 253 For more on that subject, see: Cannon and Leitzmann, "The New Nutrition Science Project," here 77.
- 254 An argument excellently proved by food historian Adel P. den Hartog in "Changing Perception on Milk as a Drink in Western Europe. The Case of the Netherlands," in *Drinking: Anthropological Approaches*, ed. Igor de Garine and Valerie de Garine (Berghahn Books, 2001), 96-107, here 98.
- 255 Den Hartog researched other channels promoting milk consumption and found that home economics education for girls as well as the dairy industry contributed to the increase in raw milk consumption. Ibid., 98-100.
- 256 A study of milk's transformation from medicine to food in the Mediterranean by Spanish economy historians provides a good insight: Roser Nicolau-Nos, Josep Pujol-Andreu, and Ismael Hernández, "Milk, from Medicine to Food in Mediterranean Europe: Catalonia, 19th-20th Centuries," *Working Papers Unitat d'Història Econòmica* 10(2006), http://www.h-economica.uab.es/wps/2006_10.pdf. Accessed September 10, 2012.
- 257 Den Hartog, "Changing Perception on Milk," 98.
- 258 Charles William Walker-Tisdale and Jean Jones, *Butter and Cheese* (London: Pitman, 1920), 8.
- 259 Den Hartog, "Changing Perception on Milk," 10.
- 260 Hutchison, "Discussion," 60-61.

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- 262 Hutchison, "Discussion," 61.
- 263 Combe, "Curdled Milk and Intestinal Decomposition," 48.
- 264 Ibid.
- 265 Olga Metchnikoff, *Life of Elie Metchnikoff, 1845-1916* (Boston and New York: Houghton Mifflin Company, 1921), 226.
- 266 Philippe Burlet, *Biographie d' Aram Deukmedjian, inventeur du yaourt en France* (Montreal: Lulu, 2008).
- 267 The data was collected by Deukmedjian's biographer and relative, Philippe Burlet. Ibid.
- 268 Metchnikoff, *Life of Elie Metchnikoff*, 227.
- 269 Ibid.
- 270 Ibid., 277.
- 271 Dennis P. Hupchick, *The Balkans from Constantinople to Communism* (New York: Palgrave Macmillan, 2002), 354.
- 272 Devin E. Naar, "Between 'New Greece' and the 'New World': Salonikan Jewish Immigration to America," *Journal of the Hellenic Diaspora* 35, no. 1 (2009): 45-90, here 50. On the history of Thessaloniki see also Mark Mazower, *Salonica, City of Ghosts: Christians, Muslims and Jews 1430-1950* (London: Harper Collins Publishers, 2004).
- 273 Naar, "Between 'New Greece' and the 'New World,'" 51.
- 274 Torres and Labasse, *Mémoire de Danone-Barcelone*, 23.
- 275 Ibid.
- 276 According to journalist Augustin Garcia, in 1923, Danone yoghurt received its first recognition from the College of Medicine in Barcelona. The yoghurt was officially approved as a nutritious product, beneficial for the gastroenteritis epidemic among the young children of Barcelona. Augustin Garcia, *La saga du yoghourt Danone* (Paris: Novethic, 2003), 2-3.
- 277 Danone Company, "Health: a Historic Danone Commitment," <http://www.danone.com/en/company/health-governance.html>; Sandra Lee Stuart, *The Dannon Book of Yogurt* (Secaucus: Citadel Press, 1979); Labasse, *Mémoire de Danone-Barcelone, Paris, New York* 15-51.
- 278 In 1884, Julius Maggi made a breakthrough with his packaged foods, leading to business expansion in the 1900s with offices in Germany, Austria, the Netherlands, Britain, and the USA. In 1947 the company merged with Nestlé. Monique Pivot, *Maggi et la Magie du Bouillon Kub* (Paris: Hobeke, 2002).
- 279 A large collection of antique artifacts, posters, and advertising on yoghurt can be found on the French internet site <http://yaourtophile.free.fr/>. Accessed September 13, 2012.
- 280 Köse, "Nestlé in the Ottoman Empire," 724-61.
- 281 Ibid., 727,42.
- 282 That was how authors in the 1900s referred to the micro-flora originating from the Balkans – "Oriental microbes," as opposed to the microorganisms isolated from samples in Germany, the Netherlands, France, and Great Britain, commonly known as European microbes.
- 283 Köse, "Nestlé in the Ottoman Empire," 742.
- 284 Ibid.
- 285 The idea of commodification of food is inspired by the American scholar bell hooks' analyses of the "commodification of Otherness." hooks, "Eating the Other," 181-200.
- 286 Régnier, "How We Consume New Products," 129-44; Jackson, "Commodity Cultures," 95 – 108; Emma C. Spary and Chen-Pang Yeang, *Eating the Enlightenment: Food and the Sciences in Paris, 1670-1760* (Chicago, London: The University of Chicago Press, 2012).
- 287 Fournier, Combe, and States, *Intestinal Auto-intoxication*, 338.
- 288 Combe, "Curdled Milk and Intestinal Decomposition," 48.
- 289 "Larousse universel en 2 volumes : nouveau dictionnaire encyclopédique," in *Larousse*, ed. Claude Augé (Paris: Larousse), 1272.
- 290 Fernand Corminboeuf, *Recherches biochimiques sur le Yoghourt et le lait acidophile* (Institute Agricole d' Oika, 1933), 3.
- 291 More on this topic in Maria Todorova, *Imagining the Balkans* (New York: Oxford University Press, 2007).

- 292 "Oldest Woman in the World. Bulgarian Peasant Said to Have Been Born in 1784," *New York Daily Tribune* (1910): 4. The same information appeared in "The Oldest Woman," *Popular Mechanics* (1911): 123; "For Honor of Being Oldest Woman in The World," *Hopkinsville Kentuckian* (1910): 1. In a French work *La Longévité à travers les âges*, you can read: "*Les plus vieilles femmes du monde, à la même époque, auraient été M^{me} Durkiewitz, de Posen, et M^{me} Baba Vasilka, de Bavelsko (Bulgarie). La première, née le 21 février 1785, aurait dépassé sa 125^e année; la seconde aurait eu, en mai 1910, 126 ans.*" In Maximilien Albert and Henri André Legrand, *La Longévité À Travers Les Âge* (Paris: Ernest Flammarion, 1911), 13-14. Douglas and authors commenting on the longevity of the oldest woman in the world did not provide her surname. What they used as a first name "Baba" in Bulgarian means old woman or grandmother. Hence, Vasilka was her proper name.
- 293 Douglas, *The Bacillus of Long Life*, i.
- 294 Ibid.
- 295 Ibid., 12.
- 296 Ibid.
- 297 Rettger and Cheplin, *A Treatise on the Transformation of the Intestinal Flora*, 5.
- 298 La Société de la Maya Bulgare, *Maya Bulgare*.
- 299 Danone Company, "Health: a Historic Danone Commitment."
- 300 Prodimarques, "Danone la saga," http://www.prodimarques.com/sagas_marques/danone/danone.php. Accessed November 29, 2008.
- 301 In 1932, to meet rising yoghurt consumption, Danone built a factory for yoghurt production in the Parisian suburb Levallois-Perret. In 1939, after his father's death, Daniel took over the Danone branches in Spain and France. The outbreak of World War II interrupted the company's expansion and construction of a dairy plant. Nazi-occupied France was no longer a safe place for this Jewish family and their business. When he fled to the U.S., Carasso entrusted the control of the company to his friends, Norbert Lafont for France and Shines Portobella for Spain. Gervais Danone, *Chroniques des années fraîcheur*, ed. Olivier Orban (Paris: Gervais Danone, 1987), 53.
- 302 Quoted in Prodimarques, "Danone la saga."
- 303 Information in Danone, *Chroniques des années fraîcheur*, 48.
- 304 For Danone advertising strategies, see Labasse, *Mémoire de Danone-Barcelone, Paris, New York*, Bruno Abescat, "Daniel Carasso "M. Danone," *L'express*.(2004), http://www.lexpress.fr/actualite/economie/m-danone_489990.html. Accessed October 26, 2008, and Prodimarques, "Danone la saga."
- 305 Chapter five of that dissertation offers further research on the post-World War II dairy market in Western Europe.
- 306 "Yalacta Advertisement," *Lectures pour tous* 03 (1935): 7.
- 307 Ibid.
- 308 "Yalacta!," *Journal des mutilés, réformés et blessés de guerre* (1934): 3.
- 309 "Yalacta Advertisement," 7.
- 310 Ibid; "Yalacta Advertisement," *La Pédiatrie pratique* 05 (1937).
- 311 "Yalacta Advertisement," 7.
- 312 "Advertisement of Yalacta," *Journal des mutilés, réformés et blessés de guerre* (1934): 3.
- 313 "Advertisement of Yalacta," *Journal des mutilés, réformés et blessés de guerre* 941(1935): 3.
- 314 I. Kvatchkoff, "Considérations sur le Lait Caillé Bulgare de Brebis (Kisselo Mleko ou Kvasseno Mleko)," *Le Lait* 17 (1937): 472-88.
- 315 Ibid., 473.
- 316 Ibid.
- 317 Ibid.
- 318 Ibid.

Chapter 3

- 319 According to Ivan Zafirov Masharov, Ivan Msharov's father, the co-author of *Млечната промишленост в България в миналото и днес* (*Bulgarian Dairy Industry: Past and Present*), who asserted that "until World War I, Turkish dairymen did not exist." There were successful Bulgarian dairymen even in Alexandria, like Atanas Lutov, Nikola Lutov, and Georgy Georgiev from the town of Koprivshtitza working there up till World War I. They sold goods from their dairy to consulates in the

- city. Atanasov and Masharov, *Bulgarian Dairy Industry*, 15-18.
- 320 Those cities were Ayto, Anhialo (nowadays Pomorie), Kalofer, Karnobat, Kavakli (nowadays Topolovgrad), Klisura, Koprivshitsa, Kotel, Panagurishe, Peshera, Plovdiv, Sliven, Sopot, Stara Zagora, Stanimaka (nowadays Asenovgrad), Pazardzhik, H. Eles (nowadays Parvomay), Haskovo, Chirpan, and Yambol. *Статистически известия на статистическото бюро* 1-12 (1886). (*Statistics Bureau Reports* 1-12 (1886).
- 321 The *Annual Statistics of the Bulgarian Principality* reports on cheese and kashkaval export. The data do not clarify when such trade activities started, but show that in the 1930s and 1940s the main markets of Bulgarian dairy products were Great Britain, Germany, France, the United States, Palestine, and Egypt. *Статистически годишник на българското царство* 36 (1924): 213-215. (*Annual Statistics of the Bulgarian Principality* 35 (1944): 201-203).
- 322 The listed twelve biggest Bulgarian cities, according to the national census, varied in size and population. The capital Sofia led with almost 300,000 citizens, followed by Plovdiv (about 100,000), Varna and Burgas (more than 50,000). The rest could be called small cities with 20,000 – 40,000 inhabitants. A comparison with a megalopolis like London (over 8 million), Paris (about 3 million) and other European cities with a population of 1 million like Rome, Barcelona, and Prague shows that Bulgarian cities could be characterized as small. *Annual Statistics of the Bulgarian Principality* 36 (1924) and *Annual Statistics of the Bulgarian Principality* 23 (1938): 345.
- 323 Асен Калоянов, "По въпроса за модернизацията на млекоснабдяването на столицата," *Месо и Мляко* 6(1934): 175-82, тук 76; (Asen Kaloyanov, "On the Question of Milk Supply System Modernization of the Capital," *Meat and Milk* 6(1934): 175-82, here 76).
- 324 Asen Kaloyanov was director of the Veterinary Department of Sofia region (1933-1936) and then director of the Veterinary Cattle-breeding cooperative farms (1937-1945). In the communist period he remained a leading figure in Bulgaria's veterinary control until his retirement in 1964.
- 325 Kaloyanov, "On the Question of Milk Supply System," 176.
- 326 The increase in milk consumption in Europe began in the late nineteenth century. Unni Kjærnes, "Milk: Nutritional Science and Agricultural Development in Norway, 1890-1990," in *Food Technology, Science and Marketing, European Diet in the Twentieth Century*, ed. Adel P. den Hartog (East Linton: Tuckwell Press, 1995), 103-16; Roser Nicolau-Nos, Josep Pujol-Andreu, and Ismael Hernández, "Milk, from Medicine to Food in Mediterranean Europe: Catalonia, 19th-20th Centuries," *Working Papers. Universitat Autònoma de Barcelona. Unitat d'Història Econòmica* 10(2006), http://ddd.uab.cat/pub/estudis/2006/hdl_2072_4216/UHE10-2006.pdf. Accessed November 29, 2008.
- 327 Steven J. Keillor, "Agricultural Change and Crosscultural Exchange: Danes, Americans, and Dairying, 1880-1930," *Agricultural History* 67, no. 4 (1993): 58-79.
- 328 Orland, "Milky Ways," 212-54, here 214.
- 329 On the issue of milk supply in the larger European centers, see: Hugo R. Meyer, "The Prussian Railway Department and the Milk Supply of Berlin," *The Journal of Political Economy* 15, no. 5 (1907): 299-307; H. M. Hyndman, "The Scandal of our Milk Supply," *Nineteenth Century and After* (1919): 554-66; "London Milk Supply," *Post Graduate Medical Journal* 6 (1931): 6; Kurt Schneider, "The Berlin Milk Marketing System," *Journal of Farm Economics* 11, no. 4 (1929): 653-57; Lois B. Bacon and John M. Cassels, "The Milk Supply of Paris, Rome and Berlin," *The Quarterly Journal of Economics* 51, no. 4 (1937): 626-48.
- 330 The economic rationale to impose milk quality regulations led to the creation of two international organizations that would prove crucial in dealing with agricultural, dairy, nutrition, and health issues and developing the sector in Europe. First, *Confédération Européenne de l'Agriculture* was founded in 1889. At international meetings named *Congrès Internationaux de l'Agriculture*, the organization representatives discussed the major agricultural problems in Europe. The other organization, founded more than a decade later in 1903, *Fédération Internationale de Laiterie* (International Dairy Federation) sought to facilitate international trade in dairy products by pushing to harmonize the various food standards like those for milk and dairy products.
- 331 Barbara Orland, "Cow's Milk and Human Disease Bovine Tuberculosis and the Difficulties Involved in Combating Animal Diseases," *Food and History* 1, no. 1 (2003): 185-86.
- 332 Бернар Лори, *Съдбата на османското наследство. Българската градска култура 1878-1900*, превод Лиляна Янакиева (София: AMICITI, 2002), 7; (Bernard Lory, *The Fate of the Ottoman Legacy in Bulgaria. Bulgarian Urban Culture, 1878-1900*, trans. Lilyana Yanakieva (Sofia: AMICITI, 2002), 7.) Other authors working on the subject are Maria Todorova, "The Ottoman Legacy in the Bal-

- kans," in *Imperial Legacy: The Ottoman Imprint on the Balkans and the Middle East*, ed. Carl L. Brown (New York: Columbia University Press, 1996), 45-77; Klaus Roth, "Coming to Terms with the Past? The Ottoman Legacy in Southeast Europe" (paper presented at the MESS, Mediterranean Ethnological Summer School 3, Ljubljana, 1999), 219-35.
- 333 The process of Bulgarian national identity formation started already in the eighteenth century and was influenced by the complexity of social, cultural, psychological and economic factors. For more on this topic, Иван Еленков и Румен Даскалов, съст., *Защо сме такива: В търсене на българската културна идентичност* (София: Народна просвета, 1994); (Ivan Elenkov and Roumen Daskalov, eds., *Why Are We as We Are: In the Search of Bulgarian Cultural Identity* (Sofia: Narodna Pros- veta, 1994); Диана Мишкова, съст. *Балканският XIX век. Други прочити* (София: Рива, 2006); (Diana Mishkova, ed. *The Balkan Nineteenth Century. Other Readings* (Sofia: Riva, 2006); Richard J. Crampton, *A Concise History of Bulgaria* (Cambridge: Cambridge University Press, 1997), 45-49.
- 334 Bacon and Cassels, "The Milk Supply of Paris, Rome and Berlin," 634. Larger Bulgarian cities faced similar problems of milk falsification.
- 335 Those periodicals were: *Dairy Enlightenment* (Млекарска просвета) 1940-1943; *Meat and Milk* (Месо и мляко) 1936-1942; *Chemistry and Industry* (Химия и индустрия), 1920-1950; *Agriculture Reviews* (Сведения по земеделието), 1920-1934; *Agriculture* (Земледелие), 1908-1944; *Journal of the Agricultural Chambers* (Списание на земеделските камари), 1941-1943; *Veterinary Collection* (Ветеринарна сбирка), 1892-1958 and others.
- 336 Млекопроизводител 1, 1935: 1-2, тук 1 (*Dairy Producer* 1, 1935: 1-2, here 1).
- 337 Млекарска просвета 1, 1940: 1-2, тук 1 (*Dairy Enlightenment* 1, 1940: 1-2, here 1).
- 338 Иван Михайлов, "Млечни централи," *Кооперативно дело* 3-4(1931): 488-95(Ivan Mihailov, "Dairy Centrals," *Co-Operative Affair*, no. 3-4(1931): 488-95); Д. Данаилов, "Кооперативното производство на млечни продукти," *Кооперативно дело* 3-4(1931): 149-55(D. Danailov, "Co-operative Production of Dairy," *Co-Operative Affair* 3-4(1931): 149-55); "Върху въпроса за организираните кооперативни кашкавалджийници," *Кооперативно дело* 3-4(1931) ("On the Question Of Cooperative Dairies for Cheese Production Organization," *Co-Operative Affair* 3-4 (1931): 853-56); Сава Кръстев, "Производство на млечни продукти и кооперациите," *Месо и мляко* 1-10 (1936): 9-11; (Sava Krastev, "Cooperative Farms and Their Dairy Products," *Meat and Milk* 1-10 (1936): 9-11); Героги Задгорски, "Контролът на хранителните продукти от животински произход," *Химия и индустрия* 1(1937): 263-68; (Georgi Zadzorski, "The Control of Animal Products," *Chemistry and Industry* 1(1937): 263-68); Асен Кантарджиев, "За същността, развитието и задачите на млекарството изобщо и в България," *Годишник на Софийския университет. Аграро и лесовъден факултет*, бр. 1 Земеделие (1937): 486- 93; (Asen Kantardzhiev, "On the Essence, Development and Mission of the Dairying in General and in Bulgaria," *Annal of Sofia University. Agro-forestry Faculty* no. 1 Agriculture (1937): 486- 93); А. Фарфоров, "Млекопроизводство и млекопреработване," *Аграрни проблеми* 4 (1938): 148-51; (A. Farafarov, "Dairy Manufacturing and Dairying Processing," *Agrarian problems* 4 (1938): 148-51); Никола Димов, "Разумна контрола на млякото," *Млекарска просвета* 1(1943): 3-9; (Nikola Dimov, "A Wise Milk Control," *Dairy Enlightenment* 1(1943): 3-9); Гр. Диков, "Кооперацията в общите преработки и специално в млекопреработването и намесата на държавата," *Списание на земеделските камари* 2(1942): 12-16; (Grigor Dikov, "Co-operative in Manufacturing as a Whole and in Dairy Production in Particular; the State Intervention," *Journal of the Industrial Chambers* 2(1942): 12-16); Ст. Тенев, "Млечни Централи," *Млекарска просвета* 6(1940): 1-3; (St. Tenev, "Dairy Centrals," *Dairy Enlightenment* 6(1940): 1-3).
- 339 For research on the development of European and national dairy industries, see Orland, "Milky Ways"; Sally McMurtry, *Transforming Rural Life. Dairying Families and Agricultural Change, 1820-1885* (Baltimore and London: Johns Hopkins University Press, 1995); Patricia Lysaght, *Milk and Milk Products from Medieval to Modern Times*, Proceedings of the Ninth International Conference on Ethnological Food Research (Edinburgh: Canongate Press, 1994); Alexander Fenton, "Milk and Milk Products in Scotland: The Role of the Milk Marketing Boards," in *Food Technology, Science and Marketing. European Diet in the Twentieth Century*, ed. Adel P. den Hartog (East Linton: Tuckwell Press, 1995), 89-102; Kjærnes, "Milk"; Nikola Delbaere, *L'économie laitière dans le Nord-Pas-de-Calais : de l'âge rural à l'âge des marques* (Lille: Université de Lille III, 2007); Nicolau-Nos, Pujol-Andreu, and Hernández, "Milk, from Medicine to Food in Mediterranean Europe."
- 340 British philosopher Stephen Toulmin problematizes the classical understanding of modernity. He dis-

- cusses five key features, and his understanding of modernity has become a 'standard account' or 'received wisdom.' According to Toulmin, received wisdom locates the beginning of modernity in 17th-century Europe with the physics of Galileo Galilei and the epistemology of René Descartes, which led to intellectual movements flourishing. The weakening of the Church's control and the adoption of 'rational' methods in science and philosophy, he considers as characteristics of modernity, together with the appearance of the nation state and the development of worldly culture. Toulmin identifies the development of science and industry, including industrialization as the modernity process in which modernity becomes a political ideology directed towards progress. Stephen Toulmin, *Cosmopolis: The Hidden Agenda of Modernization* (Chicago: University of Chicago Press, 1992), 10-19.
- 341 Carin Martiin, "Swedish Milk, a Swedish Duty: Dairy Marketing in the 1920s and 1930s," *Rural History* 21, no. 2 (2010): 213.
- 342 The transformation of Denmark from a grain-exporting nation to an exporter of animal products occurred between the 1870s and the 1890s. This attracted the attention of US dairy leaders as described by Keillor, "Agricultural Change and Crosscultural Exchange"; Martiin, "Swedish Milk."
- 343 Martiin, "Swedish Milk," 214. The article offers interesting insight in the "propaganda" of milk consumption, showing how European countries established national organisations to educate consumers on the benefits of milk consumption. Leaders were Britain's "National Milk Publicity Council" and Sweden's "Milk Propaganda" in 1920. The state owned German association for milk propaganda appeared later in 1927. Similar organisations were set up in Finland and Norway in 1927 and 1928 respectively. The establishment of a Danish Milk Promotion Association was delayed until 1932.
- 344 See the article by a veterinarian at the communal laboratory in Anvers R.N. Göransson, "L'Inspection du lait dans une ville Hollandaise," *Le Lait* 1, no. 2 (1921): 70-75.
- 345 "L'emploi du Lait," *Le Lait* 6 (1921): 316.
- 346 Hyndman, "The Scandal of our Milk Supply." For detailed analyses on the development of the milk industry, see Atkins, *Liquid Materialities*.
- 347 Hyndman, "The Scandal of our Milk Supply," 555.
- 348 Danailov, "Co-operative Production of Dairy," 154.
- 349 Ibid., 150-53.
- 350 Янко Антонов, "Форма на млечните централи," *Месо и Мляко* (1934): 71-73, тук 71; (Yanko Antonov, "State of Milk Centrals," *Meat and Milk* (1934): 71-73, here 71).
- 351 Antonov, "State of Milk Centrals," 71.
- 352 Янко Антонов, "Млечни централи," *Месо и мляко* (1936): 19-21, тук 19; (Yanko Antonov, "Milk Centrals," *Meat and Milk* (1936): 19-21, here 19.)
- 353 Antonov, "Milk Centrals," 19-21.
- 354 Ил. Цонев и Л. Берова-Стойчева, "Мляко млечни продукти и растителни масла в България и тяхното нормиране," *Сведения по земеделието* 2 (1931): 53-104, тук 55-56; (Il. Tzonev and L. Berova-Stoycheva, "Milk Dairy Products and Vegetable Oils in Bulgaria and their Standardization," *Agriculture Reviews* 2 (1931): 53-104, here 55-56.)
- 355 On the importance of hygiene, Иван Калъпов, "Значението на оборната контрола за хигиената на млякото," *Месо и Мляко* (1936): 301-04; (Ivan Kalapov, "The Importance of Cattle-shed Control for Milk Hygiene," *Meat and Milk* (1936): 301-04).
- 356 Елисей Янев, "За бakteиологичния млекоконтрол," *Месо и мляко* 1-10 (1936): 277; (Elisey Yanev, "About the Bacteriological Dairy Control," *Meat and Milk* 1-10 (1936): 277.); Янко Антонов, "Организация и форма на млечните централи," *Месо и мляко* (1936): 71-76; (Yanko Antonov, "Types of Dairies," *Meat and Milk* (1936): 71-76).
- 357 The French philosopher Michael Foucault describes how the disciplinary power of institutions conditioned modern society. Michel Foucault, *Discipline and Punish: The Birth of the Prison* (New York: Knopf Doubleday Publishing Group, 1979).
- 358 The first legislative regulation for control of the milk supply was established in 1935. "Наредба-закон за преработка на млякото," *Държавен вестник* 16 (1935); ("Decree for Milk Manufacturing," *State Gazette* 16 (1935).
- 359 For a discussion on the state of Bulgaria's dairy sector compared to some European countries, see: Асен Докторов, "Млекарската централа в Нюрнберг, Германия," *Млекарска просвета* 6 (1940): 30-33; (Asen Doctorov, "The Dairy Centrals in Nurnberg, Germany," *Dairy Enlightenment* 6 (1940): 30-33). Doctorov discussed one of the biggest and most modern dairies in Central Europe: the Dairy Centrals in Nurnberg, established in 1916; Т. Брънсков, "Най-голямата млекарница в Европа "

- Млекарска просвета 3-4 (1940): 21-22; (T. Branekov, "The Biggest Dairy in Europe," *Dairy Enlightenment* 3-4 (1940): 21-22). He problematized the dairy station in Berlin.
- 360 "Decree for Milk Manufacturing," article 3.
- 361 Ibid., article 4.
- 362 Ibid., article 2.
- 363 Ibid.
- 364 On the issue of dairy zones, see Orland, "Milky Ways."
- 365 Antonov, "Milk Centrals," 19.
- 366 Ibid.
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- 368 Райна Манафова, *Интелигенция с европейски измерения* (София: УИ "Св. Климент Охридски", 1994), 35 (Rayna Manafova, *Intelligence of European Dimensions* (Sofia: University Publishing St. Kl.Ohridski, 1994), 35); Иван Танчев, *Българската държава и учението на българи в чужбина 1879-1892* (София: Гутенберг, 1994), 91 (Ivan Tanchev, *The Bulgarian State and the Education of Bulgarians Abroad 1879-1892* (Sofia: Gutenberg, 1994), 91).
- 369 On the establishment of the various faculties at Sofia University and its history, see Михаил Арnaudов, *История на Софийския университет "Свети Климент Охридски" през първото му полустолетие 1888-1939* (София: Придворна печатница, 1939) (Michail Arnaudov, *History of Sofia University 1888-1939* (Sofia: Pridvorna Pечатniza, 1939).
- 370 For an excellent overview of state policies stimulating professional education, see: Румен Даскалов, *Българското общество*, т. 1. (София: Гутенберг, 2005), 369-74 (Roumen Daskalov, *Bulgarian Society* (Sofia: Gutenberg, 2005), 369-74).
- 371 Information from "Обявление № 254," *Млекарска просвета* 4 (1941): 31, тук 31 ("Announcement № 254," *Dairy Enlightenment* 4 (1941): 31, here 31).
- 372 Margery Davies, *Woman's Place is at the Typewriter. Office Work and Office Worker 1870-1930* (Philadelphia: Temple University Press, 1989); Arwen P. Mohun, *Steam Laundries: Gender, Technology, and Work in the United States and Great Britain, 1880-1940* (Baltimore and London: Johns Hopkins University Press, 1999); Nina E. Lerman, "Industrial Genders: Constructing Boundaries," in *Gender and Technology: A Reader*, edited by Nina E. Lerman, Ruth Oldenziel, and Arwen P. Mohun, 123-152 (Baltimore, MD: The Johns Hopkins University Press, 2003); Michelle Perrot, *Mon histoire des femmes* (Paris: Éditions du Seuil, 2006).
- 373 "Една петгодишнина," *Млекарска просвета* 5 (1940): 1, тук 1 ("Fifth Anniversary," *Dairy Enlightenment* 5 (1940): 1, here 1).
- 374 "Fifth Anniversary," 1.
- 375 Коста Катранджиев, "Киселото мляко като храна и мерките за подобриенето му в столицата," *Ветеринарна сбирка* (1940): 43-56 (Kosta Katrandzhiev, "The Yoghurt (Sour Milk) as Nutrition and the Measures in the Capital for its Quality Improvement," *Veterinary Collection* (1940): 43-56).
- 376 Here I am using Bruno Latour's interpretative scope in his analysis of modernization. Latour, *We Have Never Been Modern*, 17. A separate section presents what Bulgarians considered as traditional yoghurt.
- 377 Katrandzhiev, "The Yoghurt (Sour milk) as Nutrition," 50.
- 378 A section of the governmental organization that controlled the quality of milk; it had representatives in the big city centers.
- 379 Katrandzhiev, "The Yoghurt (Sour milk) as Nutrition," 53.
- 380 Dimov, "A Wise Milk Control," 7-8.
- 381 Ibid., 7. Dimov proposed a method to improve the quality of milk combining payment and quality: purity of milk and a high percentage of fat would be reimbursed.
- 382 This equipment included a Gerber analyzer for determining the fat content in milk, a densimeter, test-tubes, etc.
- 383 Popdimitrov, *Bulgarian Soured Milk*, 24-29.
- 384 Ibid., 24.
- 385 Katrandzhiev, "The Yoghurt (Sour milk) as Nutrition," 50-53.
- 386 Ibid., 52-53.
- 387 Ibid., 49-50.
- 388 Спас Маринов, "Кооперативно млекопреработване," *Млекарска просвета* 3-4 (1940): 19-20 (Spas

- Marinov, "Co-operative Dairying," *Dairy Enlightenment* 3-4 (1940): 19-20).
- 389 Publications on this subject include: Popdimitrov, *Bulgarian Soured Milk*; Katrandzhiev, "The Yoghurt (Sour milk) as Nutrition," 34; Пенйо Пенев, "Българско кисело мляко," *Млекарска просвета* 4 (1941): 1-5 (Penyo Penev, "Bulgarian Soured milk," *Dairy Enlightenment* 4 (1941): 1-5).
- 390 Katrandzhiev, "The Yoghurt (Sour milk) as Nutrition."
- 391 Popdimitrov's manual provides more specific information about the product yoghurt, compared to Asen Kantardzhiev's more general description.
- 392 Popdimitrov, *Bulgarian Soured Milk*, 13
- 393 Ibid.
- 394 Ibid., 32-33.
- 395 Ibid., 33.
- 396 Ibid.
- 397 Ibid., 32.
- 398 Katrandzhiev, "The Yoghurt (Sour milk) as Nutrition," 50.
- 399 Popdimitrov, *Bulgarian Soured Milk*, 34.
- 400 Ibid., 34-35.
- 401 Ibid., 35.
- 402 According to the Julian calendar the Eastern Orthodox Church was using at that time.
- 403 Popdimitrov, *Bulgarian Soured Milk*, 34.
- 404 Some of those practices are still used in yoghurt making. In an informal conversation G.S. shared, after putting the maya in the boiled milk, his grandmother always made a strange sound reminiscent of whistling. I.C. assured me that, after applying the leaven, his mother always says: "Come on, go!" (Хайде, тръгвай!) Making the sign of a cross is also still practiced.
- 405 Information provided by O.X. in an interview in Razgrad, June 30, 2009.
- 406 Popdimitrov, *Bulgarian Soured Milk*, 40.
- 407 Ibid.
- 408 Ibid., 39.
- 409 Ibid., 40.
- 410 Natural sources were used as much as possible to coagulate milk, reports Асен Фиков, *Българското кисело мляко и използването му при диетиката и лечението на кърмачета* (София: Лекопиздат, 1945), 5 (Assen Fikov, *Bulgarian Soured Milk and its Use in the Diet and Medical Treatment of Nurslings* (Sofia: Lekopizdat, 1945), 5).
- 411 Popdimitrov, *Bulgarian Soured Milk*, 45.
- 412 Ibid.
- 413 Ibid.
- 414 Ibid.
- 415 Ibid.
- 416 Ibid.
- 417 Quoted and translated by Zdravko Nikolov and Maria Stefanova – Kondratenko, "The Bulgarian Starters for Yogurt," in *International Symposium on Original Bulgarian Yogurt* (Sofia: "Dr. Stamen Grigoroff" Foundation, 2005), 2.
- 418 Popdimitrov, *Bulgarian Soured Milk*, 45. The selection process for specific regional characteristics of local dairy products discussed by Asen Kantardzhiev and K. Popdimitrov became the subject of extensive microbiological research in the late twentieth and early twenty-first century. Bulgarian microbiologist Christo Tchomakov summarizes the natural selection process of strains for Bulgarian yoghurt, stating that "regular and continuous preparation resulted in the natural selection of the two lactic acid bacteria of soured milk [*Lactobacillus bulgaricus* and *Streptococcus thermophilus*]." Tchomakov, "Bulgarian Sour Milk – a Unique Probiotic," 2.
- 419 Charles W. Bamforth, *Food, Fermentation, and Micro-Organisms* (Oxford, Ames, Iowa: Blackwell Science, 2005), 31.
- 420 Tamime and Robinson, *Yogurt*; Мария Кондратенко и Желязко Симов, *Българско кисело мляко* (София: Асоциация на млекопреработвателите, 2003) (Maria Stefanova Kondratenko and Jelyazko Iliev Simov, *Bulgarian Soured Milk* (Sofia: Asociacia na Mlekoprerabotvatelite, 2003).
- 421 The consumption of soured milk is described in Bulgarian ethnographical and ethnological research studies: Мария Маркова, "Традиционна технология на българското кисело мляко" *Миналото* 2 (2006): 48-56 (Maria Markova, "Traditional Bulgarian Yoghurt Technology" *Minaloto* 2 (2006):

- 48-56); Мария Маркова, *Храна и хранене: между природата и културата* (София: АИ „Проф. Марин Дринов,” 2011): 193-194, 230-231 (Maria Markova, *Food and Nutrition: Between Nature and Culture* (Sofia: Academic Publishing House “Prof. Marin Drinov,” 2011): 193-194, 230-231); Христо Вакарелски, *Етнография на България* (София: Наука и изкуство, 1977): 198-199 (Hristo Vakarrelski, *Ethnography of Bulgaria* (Sofia: Nauka i Izkistvo, 1977): 198-199); Иван Павлов, *Храненето по българските земи XV-XIX век* (София: АИ „Проф. Марин Дринов,” 2001): 83-86 (Ivan Pavlov, *Eating among Bulgarian Lands XV-XIX century* (Sofia: Academic Publishing House “Prof. Marin Drinov,” 2001): 83-86).
- 422 Markova, “Traditional Bulgarian Yoghurt Technology,” 52; Иванка Пенчева, *Етнографско изследване на село Свобода* (София: Флорир, 2007): 64 (Ivanka Pencheva, *Ethnographical Research of Svoboda Village* (Sofia: Florir, 2007): 64.
- 423 Pencheva, *Ethnographical Research*, 64.
- 424 Katrandzhiev, “The Yoghurt (Sour milk) as Nutrition,” 49-50.
- 425 Ibid., 50. The Statistical Yearbooks of the Bulgarian Kingdom do not provide information about yoghurt craftsmen and home-made production costs in 1930s-1940s. Archival and oral sources also failed to provide such data. State statistics traced the prices of dairy products like raw milk, butter, and cheese, but excluded yoghurt. For instance, the 1940 statistics showed the cost of raw milk increased from 0,34 lv (1908-1913) to 4,86 lv (1935) and 5,97 lv, but the absence of yoghurt in these charts indicates that during the 1930s and 1940s, yoghurt was still predominantly home-made even when industrially processed yoghurt products were introduced for the first time. Source *Annual Statistics of the Bulgarian Principality* (1942).
- 426 Sources for that practice are mainly oral accounts. Dairy specialists at the time did not mention this in their works. The only description of the dairy market is in an article by Kosta Katrandzhiev, published in *Meat and Milk*, in 1938.
- 427 Interview with Maria Stefanova-Kondratenko, Sofia, March 6, 2009.
- 428 Драган Тенев, *Тристахилдна София и аз между двете световни войни* (София “Български писател,” 1997), 17 (Dragan Tenev, *Three Hundred Thousand People's Sofia and Me between the Two World Wars* (Sofia: Balgarski pisatel, 1997), 17).
- 429 Tenev, *Three Hundred*, 17.
- 430 Ibid.
- 431 The official state statistics do not capture the number of private dairy workshops. The oral sources shed some light showing that in smaller towns usually at least two workshops sold yoghurt, like in the city of Aitos. In large towns, several workshops were counted for each neighborhood. According to Popdimitrov, those consisted of two separate spaces: one for production and another for sales. Popdimitrov, *Bulgarian Soured Milk*, 98.
- 432 On the issue of yoghurt containers, see Atanasov and Masharov, *Bulgarian Dairy Industry*, 14.
- 433 Interview with Maria Stefanova-Kondratenko, Sofia, March 6, 2009.
- 434 Ibid.
- 435 Richard Blundel and Angela Tregear, “From Artisans to “Factories”: The Interpenetration of Craft and Industry in English Cheese-Making, 1650-1950,” *Enterprise and Society* 7(2006): 705-39.
- 436 Historian Barbara Orland records a similar practice in German cities. Around the 1870s, “the sale of milk and dairy products was in the hands of producers, i.e. farmers’ wives. They took their products, butter and cheese, to weekly markets or maintained other direct contact with consumers.” In Orland, “Cow’s Milk and Human Disease,” 188.
- 437 Interview with O.X., Razgard, June 30, 2009.
- 438 The wooden stick was called “*kobilitza*” and the containers “*mentsi*.”
- 439 Figures 8 and 9 in the Appendix illustrate the differences.
- 440 Popdimitrov, *Bulgarian Soured Milk*, 100.
- 441 The term “regendered” is introduced by Arwen Mohun, “Industrial Genders: Home/Factory,” in *Gender and Technology: A Reader*, ed. Nina E. Lerman, Ruth Oldenziel, and Arwen P. Mohun (Baltimore: The Johns Hopkins University Press, 2003), 153- 76, here 71.
- 442 “Жената в млекопроизводството,” *Млекопроизводител* 8 (1936): 4 (“Woman in Dairy Production,” *Dairy Producer* 8 (1936): 4).
- 443 “Woman in Dairy Production,” 4.
- 444 Ibid.
- 445 Ibid.

- 446 The historiographical essay published in *Gender and Technology. A Reader* presents how industrialization influences the masculinization of particular crafts. Patricia Cooper, "Cigarmaking," in *Gender and Technology. A Reader*, ed. Nina E. Lerman, Ruth Oldenziel, and Arwen P. Mohun (Baltimore: The Johns Hopkins University Press, 2003), 153-76; Wendy Gamber, "Dressmaking," in *Gender and Technology. A Reader*, ed. Nina E. Lerman, Ruth Oldenziel, and Arwen P. Mohun (Baltimore: The Johns Hopkins University Press, 2003), 153-76.
- 447 Mohun, "Industrial Genders." On the masculinization of science as a parallel process, see Margaret W. Rossiter, "A Manly Profession," in *Women Scientists in America: Struggles and Strategies to 1940* (Baltimore: The Johns Hopkins University Press), 73-99.
- 448 Mohun, "Industrial Genders," 155.
- 449 Ibid.
- 450 Katrandzhiev, "The Yoghurt (Sour milk) as Nutrition," 50.
- 451 Popdimitrov, *Bulgarian Soured Milk*, 44-46.
- 452 For the technology to produce starter cultures, Ibid., 38-45.
- 453 Коста Катранджиев, *Българско кисело мляко* (София: БАН, 1961), 29 (Kosta Katrandzhiev, *Bulgarian Sour Milk* (Sofia: BAN, 1961), 29).
- 454 Kosta Katrandzhiev, *Bulgarian Sour Milk* (Sofia: BAN, 1961), 29; Popdimitrov, *Bulgarian Soured Milk*, 43-44.
- 455 Kosta Katrandzhiev, "The Yoghurt (Sour Milk) as Nutrition and the Measures in the Capital for its Quality Improvement," *Veterinary Collection* (1940): 51.

Chapter 4

- 456 For the development of the Labor Cooperative Farms and nationalization process, see: Петко Петков, "Национализация на частните индустриални предприятия," в *Развитие на индустриализацията в България*, съст. Любен Беров и Димитър Димитров (София: Наука и изкуство, 1990), 265-78 (Petko Petkov, "Nationalization of Private Industrial Enterprises." In *Development of the Industrialization in Bulgaria*, ed. Luben Berov and Dimitar Dimitrov (Sofia: Nauka i Izkustvo, 1990), 265-78); Михаил Груев, "Колективизация и социална промяна в българското село," в *История на Народна република България. Режимът и обществото*, съст. Ивайло Знеполски (София: Сиела, 2009), 338-67 (Mihail Gruev, "Collectivization and Social Change in the Bulgarian Countryside," in *History of People's Republic of Bulgaria. Regime and Society*, ed. Ivaylo Znepolski (Sofia: Ciela, 2009), 338-67).
- 457 David Lipton and Jeffrey Sachs, "The Consequences of central planning in Eastern Europe," (2000), <http://faculty.vassar.edu/kennett/Lipton.htm>. Accessed June 29, 2010.
- 458 State Archive Plovdiv, fund 1617, registry file 1, file 1: Historical information about the establishment and operation of the Maritza Dairy, Plovdiv, between 1946 and 1952, 1-2.
- 459 Communism comes from the Anglo-Saxon-based historiography. Former communist countries usually refer to it as socialism. I will use both terms interchangeably.
- 460 For an overview of the agricultural transformation in Bulgaria after World War II compared to communist Russia, Hungary, China, and Chile, see Mieke Meurs, *Many Shades of Red: State Policy and Collective Agriculture* (Maryland: Rowman and Littlefield Publishers, 1999). On dairy mechanization see figure 10 in the Appendix.
- 461 Hrabrin Bachev, "Agricultural Policies in Bulgaria in Post Second World War Years," *Munich Personal RePEc Archive* 3, no. 1-21 (2008): 1-21, here 1-3.
- 462 Interviews were conducted with several 70 to 80 year-old peasants from villages in the North (Getsovo) and South (Dabovo and Popovo) of Bulgaria. Informants: Olga from Getsovo on July 30, 2009; Interviews Goran Stefanov with Ivan Dimitrov, Dabovo, April 6, 2010; Rayka Geliakova, Dabovo, April 6, 2010; Mariyka Dzenkova Danbesheva, Popovo, April 6, 2010; Maria Grigorova, Dabovo, April 6, 2010; Maria Lazarova Kalofova, Popovo, April 6, 2010; Stavri Ivanov Stavrev, Popovo, April 6, 2010.
- 463 Ангел Петков и колектив, "Влияние на броя и структурата на населението върху търсенето и предлагането на земеделски хранителни стоки у нас до 1990 и след това," *Управление и устойчиво развитие* 3-4, бр. 5 (2001): 75-89, тук 77 (Angel Petkov et al., "Influence of Population Number and Structure on the Demand and Supply with Agricultural Goods and Foodstuff in our Country until 1990 and after that," *Management and Sustainable Development* 3-4, no. 5 (2001): 75-

- 89, here 77).
- 464 Quote by Olga, an informant from Getsovo.
- 465 Atanasov and Masharov, *Bulgarian Dairy Industry*, 18.
- 466 Любен Беров и Димитър Димитров, *Развитие на индустрията в България -1834-1947-1989* (София: Наука и изкуство, 1990), 328 (Luben Berov and Dimitar Dimitrov, *Bulgarian Industrial Development 1834, 1947, 1989* (Sofia: Nauka i Izkustvo, 1990), 328).
- 467 For further information about the research institute in Vidin, see the section on LB Bulgaricum Ltd's R&D activities: <http://www.lbbulgaricum.bg/eng/science.php?m=3&s=34>. Accessed December 22, 2011.
- 468 The basic technological equipment at modern dairy processing plants in the 1960s and 1970s included cream separators (for centrifugation of the milk to reduce the fat); vacuum evaporators for more density after evaporation; pasteurizers (the milk is heated to 97°C and held in the pasteurizer for a set amount of time in order to destroy all dangerous microorganisms); milk cooling tanks; incubators, fermentation tank; yoghurt filling tanks and machines.
- 469 SAS, fund 1581, register file 2, file 29, 115-118: Proposals for rationalization and protocols for their acceptance or rejection, 1962.
- 470 Atanasov and Masharov, *Bulgarian Dairy Industry*.
- 471 Ibid., 63.
- 472 Interview with Maria Yaneva, Sofia, April 20, 2010.
- 473 Popdimitrov, *Bulgarian Soured Milk*, 38; Katrandzhiev, "The Yoghurt (Sour milk) as Nutrition," 53.
- 474 Katrandzhiev, "The Yoghurt (Sour milk) as Nutrition," 53.
- 475 The statistics track the dynamic growth in cow milk production per year: from 245 million liters in 1938 to 722 million liters in 1960. This 200 per cent increase was thanks to the introduction of new animal breeding techniques, adapted from the Soviet *kolkhoz* system. The average 450 liters of annual yield per cow in the pre-war period reached 788 liters in 1952 and rose to 2,259 liters in 1974. See table 1 for milk production figures in Bulgaria from 1939 to 1980.
- 476 Вълко Гачев, "За оптимална концентрация на млекопреработването. Местоположение, специализация и производствена мощност на млекозаводите," *Хранителна промишленост* 6 (1975): 4-7, тук 5. (Valko Gatchev, "For Optimal Concentration of Milk Production. Location, Specialization, and Production Capacity of Dairy Plants," *Food Industry* 6 (1975): 4-7, here 5.
- 477 Berov and Dimitrov, *Bulgarian Industrial Development*, 328.
- 478 Interview with Maria Kondratenko, Sofia, March 6, 2009 and Б. Боцев, "Колективът на отдел "Кисело мляко" преодолява трудностите," *Млекарска трибуна* 4 (1963): 1 (B. Botsev, "The Personnel of the "Sour Milk" Department Overcomes the Difficulties," *Dairy Tribune* 4 (1963): 1).
- 479 Interview with Kondratenko, Sofia, March 6, 2009.
- 480 Sixty-year-old interviewee M.F. remembers how his grandfather complained that the yoghurt produced before 1945 in the dairies was of better quality than the industrially produced yoghurt. His grandfather missed the taste of the sheeppmilk yoghurt, and the fatty cream (*kaimak*) on top. Interview with M.F., Burgas, August 20, 2008.
- 481 State Archive Sofia, fund 1581, register 2, file 34: Mechanical way for injecting yoghurt starters in the milk," 1961, 32-64.
- 482 Bocev, "The Personnel of the "Sour milk" Department", 1.
- 483 "Mechanic Injection of Yoghurt Starters for Milk," 32-64.
- 484 Ibid.
- 485 State Archive Sofia, fund 1581, register 2, file 34, Incoming letters and orders, 1963-6, 1.
- 486 After the differentiation of the dairy industry, "Rodopa" concentrated on the meat industry.
- 487 Nikolov and Kondratenko, "The Bulgarian Starters for Yogurt."
- 488 The Higher Institute of Food Industry in Plovdiv was established in 1953.
- 489 Celebrated dairy researchers later acknowledged Girginov's technology for continuous processing of yoghurt. Adnan Tamime and Richard Robinson, *Yogurt: Science and Technology* (New York: CRC Press, 2003), 661; Driessen F.M., "New Developments in the Manufacture of Fermented Milk Products," *Bulletin of the International Dairy Federation* 227 (1988): 129-37; Driessen F.M. and Loones A., "Developments in the Fermentation Process (Liquid, Stirred and Set Fermented Milks)," *Bulletin of the International Dairy Federation* 228 (1992): 28-40; C. Divies and H. Prevost, "Continuous Pre-fermentation of Milk by Entrapped Bacteria," *Milchwissenschaft* 43 (1988): 612-25.
- 490 The detailed handbook on fermented milks *Yoghurt: Science and Technology* by Tamime and Robinson

- presents Tonyu Girginov's invention as a classic method of continuous yogurt manufacturing.
- 491 Tamime and Robinson, *Yogurt*, 225.
- 492 Details about the technology in: Таню Гиргинов, "Нова технология за производство на кисело мляко с възможност за пълна механизация непрекъснато производство," Хранителна промишленост, бр. 5 (1964): 22-24 (Tonyu Girginov, "A New Technology for the Production of Bulgarian Yoghurt with Opportunities for Full Mechanization and a Continuous Production Process," Food Industry, no. 5 (1964): 22-24; Tamime and Robinson, *Yogurt*, 225-26; Kondratenko and Simov, *Bulgarian Soured Milk*.
- 493 Girginov, "A New Technology"; Tamime and Robinson, *Yogurt*, 225-26.
- 494 Maria Kondratenko, *Bulgarian Yoghurt. Health and Beauty* (Sofia: Svyat, 1990), 8-9.
- 495 Tamime and Robinson, *Yogurt*, 225.
- 496 Girginov, "A New Technology," 22-24.
- 497 Nikolov and Kondratenko, "The Bulgarian Starters for Yogurt." The "whey separation" is a term for separating a small amount of liquid on top of the product.
- 498 Interview with Maria Kondratenko, Sofia, September 17, 2008. See also Kondratenko and Simov, *Bulgarian Soured Milk*, 42; Nikolov and Kondratenko, "The Bulgarian Starters for Yogurt."
- 499 Bulgarian microbiologists Kondratenko and Nikolov elucidate the specificity of the symbiosis between LB and ST, emphasizing that it is not strictly a biological symbiosis "where the existence of one species determines the existence of another, but rather corresponds to terms such as "synergism" or "proto-cooperation," when two organisms have mutual benefit, but the association is not obligatory and the two populations can grow separately." In Nikolov and Kondratenko, "The Bulgarian Starters for Yogurt."
- 500 Kondratenko and Simov, *Bulgarian Soured Milk*, 42.
- 501 Mihail Angelov et al., "Oxygen Influence in the Mutual Metabolism of *S. thermophilus* and *Lb. bulgaricus* in Yogurt Starter Cultures," *Revue électronique internationale pour la science et la technologie* 3(2009), <http://www.revue-genie-industriel.info/document.php?id=771>. Accessed December 14, 2012; Nikolov and Kondratenko, "The Bulgarian Starters for Yogurt."
- 502 Interview with Maria Kondratenko, Sofia, March 6, 2009.
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- 505 John R. Lampe, *The Bulgarian Economy in the Twentieth Century* (Beckenham: Palgrave Macmillan, 1986), 188.
- 506 Ibid., 190.
- 507 Nikolov and Kondratenko, "The Bulgarian Starters for Yogurt."
- 508 Ibid.
- 509 The R&D activities of the LB Bulgaricum Ltd. <http://www.lbbulgaricum.bg/eng/science.php?m=3&s=34>. Accessed December 22, 2011.
- 510 Boyana Gyosheva, "Health Beneficial Properties of Selected Original Bulgarian Yoghurt Bacteria – as Monocultures and in Combinations," in *International Symposium on Original Bulgarian Yoghurt* (Sofia, 2005).
- 511 It was the main motivation behind the research; they credited their results to the bacteria selected from the Bulgarian product, but they drew general conclusions about the beneficial effects.
- 512 Gyosheva, "Health Beneficial Properties."
- 513 Over time, yoghurt packaging changed from aluminum and carton cups (1940s-1950s), to glass jars (1960s-1990s) and plastic containers (1970s-1990s). In the early years of industrial production (1957-1958), there were three different metal containers called *фасаму* [*fasati*], aluminium cups, and carton cups to suit the on-tap yoghurt selling See SAS, fund 1581, registry file 1, files 41, 44, 45: Financial plans for 1958.
- 514 SAS, fund 1581, register file 2, file 29, p. 115-118: Proposals for rationalizations, 1962, 115.
- 515 Ibid., 15-19.
- 516 For the section on the industrial yoghurt production of the LB Bulgaricum Ltd, see: <http://www.lbbulgaricum.bg/eng/forus.php?m=1&s=3>. Accessed June 25, 2010.
- 517 CSA, fund 528, registry file 4, file 14: Application for the import of a filling machine for yoghurt from Italy, 1967, p. 179.

- 518 Hristo Chomakov, *The Dairy Industry in the People's Republic of Bulgaria* (Sofia: Center for Scientific, Technical and Economic Information in Agriculture and Forestry, 1973), 22-23.
- 519 For the establishment of new or improvement of existing plants, see: the Bulgarian journal *Food Industry* (*Хранителна промишленост*). See also Л. Найденова, "Нашите предприятия-Млекопреработване" - "Сердика" Бургас," *Хранителна промишленост* 2 (1972): 39-40 (L. Naydenova, "Our Enterprises 'Dairying - Serika' Burgas," *Food Industry* 2 (1972): 39-40); "Млечната промишленост в НР България през шестата петилетка," *Хранителна промишленост* 4 (1972) ("Dairy Industry in People's Republic of Bulgaria in Sixth Five-year-period," *Food Industry* 4 (1972); Катя Кацарова, "Перспективита на развитие на млекоцентра "Сердика" в Стара Загора," *Хранителна промишленост* 7(1973): 11-12 (Katya Katzarova, "Perspectives in the Development of Dairy 'Serdika' in Stara Zagora," *Food Industry* 7 (1973): 11-12); Димитър Бабев и Илия Попов, "Проблеми на механизацията и автоматизацията на производствените процеси в хранителната промишленост," *Хранителна промишленост* 5 (1975): 14-19 (Dimitar Babev and Iliya Popov, "Problems of Mechanization and Automatization of Production Processes in Food Industry," *Food Industry* 5 (1975): 14-19).
- 520 The 500 grams packaging later became the standard for yoghurt. Only the "luxury" types (buffalo, sheep, and sugared) of yoghurt were offered in smaller packaging.
- 521 Atanasov and Masharov, *Bulgarian Dairy Industry*, 144.
- 522 According to interviews with B.M., M.B., and M.Y, Sofia, December 20, 2010.
- 523 Interview with A.S., Sofia, December 20, 2010. For information on the use of aluminum lids at school drawing classes: Interview with C.S., Sofia, December 20, 2010.
- 524 Interview with A.S., Sofia, December 20, 2010.
- 525 Interview with D. Ch., Sofia, December 20, 2010; Interview with I.B. Varna, August 17, 2010. Christmas was not celebrated officially during the communist regime. Instead, attributes such as a Christmas tree and seasonal decorations were adapted for New Year festivities.
- 526 Production of the semi-skimmed yoghurt "Svezhest" started in 1974. At the same time, the new fruit flavored yoghurt was developed using samples of milk puddings and stabilizers from Denmark. The working title of the project for this new yoghurt was "Soured Milk with Fruit Pulp Produced in Reservoirs" ("Резервоарно кисело мляко с плодова каша"). Although approved by the Assortment department, the fruit yoghurt was not introduced to the market due to the scarcity of raw materials (fruit pulp), the absence of appropriate packaging, and the lack of suitable machines for packing. See SAS, fund 1581, registry file 3, file 9: Information on the automation of the production, 1974.
- 527 For yoghurt diversity, see: SAS, fund 1581, registry file 4, file 4: Accounts of Serdika-Sofia activities for the period 1977-1983; SAS, fund 1581, register 4, file 18: Annual report on the yoghurt production for the period 1977-1983; Atanasov and Masharov, *Bulgarian Dairy Industry*, 147-48; Наталия Корольова и Мария Кондратенко, *Симбиотични закваски от термофилни бактерии за производство на млечнокисели продукти* (София: ДИ "Техника" 1978), 161-70 (Natalya Koroliova and Maria Kondratenko, *Symbiotic Starters from Thermophilic Bacteria for Production of Lactic Acid Product* (Sofia: Tehnika, 1978), 161-70).
- 528 SAS, fund 1581, registry file 4, file 4: Accounts of Serdika-Sofia's activities in the period 1977-1983, 14.
- 529 SAS, fund 1581, register 4, file 18: Annual report on yoghurt production for the period 1977-1983; SAS, fund 1581, register 4, file 4: Accounts for the enterprise activity for 1977-1983, 7 and 67; SAS, fund 1581, registry file 4, file 4: Accounts of Serdika-Sofia's activities in the period 1977-1983.
- 530 Interview with Didi Andreeva, Burgas, June 12, 2010.
- 531 Никола Димов, "Млекопроизводството в нашата страна," *Известия на Института за млечна промишленост Видин* 10 (1967): 6; (Nikola Dimov, "Dairy Industry in Our Country," *Bulletin of the Dairy Institute Vidin* 10 (1967): 6).

Chapter 5

- 532 In 1939, after his father's death, Daniel became head of Danone branches in Spain and France.
- 533 Sandra Lee Stuart, *The Dannon Book of Yogurt* (Secaucus: Citadel Press, 1979).
- 534 Neil R. Gazel, "Dannon: A Classic Case History," in *Beatrice: From Buildup Through Breakup*, ed. Neil R. Gazel (Illinois: University of Illinois Press, 1990), 30-45, here 31.
- 535 For a good analysis of the proliferation of the yoghurt market, see: Florance Fabricant, "Food: Culture

- Heroes- Dating the Top-Selling Yoghurt," *New York Magazine* (November 1, 1976): 68-72.
- 536 Христо Христов, *Империята на задграничните фирми* (София: Сиела, 2009), 8. (Hristo Hristov, *The Empire of the International Trade Companies, Companies* (Sofia: Ciela, 2009), 8.
- 537 Read more about the international trade strategy for the period 1956-1968 in CSA, fund 259, registry file 44, file 171. The main goal seemed to be intensifying the export of machines as well as heavy-industry goods from the metallurgic or chemical sectors.
- 538 CSA, fund 259, registry file 45, file 49: Report by Deputy Minister of Foreign Trade Petar Bashikarov on reaching agreements with capitalist countries, June 1977, 8-9.
- 539 Representatives of the producers participated in some meetings but only for production and technology matters.
- 540 Quoted in Hristov, *The Empire of the International Trade Companies*, 23.
- 541 CSA, fund 259, registry file 45, file 41: Instructions for the activities and goals of the foreign trade apparatus of the People's Republic of Bulgaria (draft), 1979, 40-65, here 45.
- 542 Apart from having "trusted" people for such positions, these were also occupied by relatives of important party leaders, or else their connections. Both categories were labeled as "trusted" or "our" people. *Ibid.*, 54.
- 543 In AMBT, fund 20, registry file 12, file 132: A two-year university course to achieve trade qualifications for employees in foreign trade, 1963, 2.
- 544 *Ibid.*
- 545 AMFT, fund 20, registry file 110, file 1986, 23-28: Report of the national council of the employees in foreign trade, 1976, 25.
- 546 *Ibid.*
- 547 AMFA, general registry file 29, fund 6, file 118: Regulation for the Accession of representatives of Western firms in the People's Republic of Bulgaria, 1973, 1.
- 548 By the late 1960s, Bulgaria had established 88 foreign agencies, a considerable number compared to other communist countries. For instance, the USSR had 27 internationally based trading firms, Poland had 20, the GDR had 12 and Czechoslovakia had 50. In the years to come, however, in order to guarantee better control over these trade agencies, the Bulgarian state restricted their number and supported only those who had proved their worth. The data are from Hristov, *The Empire of the International Trade Companies*, 31.
- 549 Successful goods on the international markets were exploited by the official discourse about the superiority of the communist method of production over the capitalist economy.
- 550 For reference to ideological implementation of international trade, see: Никола Йонков, "Идеологическа работа в системата на външната търговия," *Външна търговия* 12 (1972): 22-23 (Nikola Yonkov, "Ideological Work in the System of Foreign Trade," *Foreign Trade* 12 (1972): 22-23).
- 551 CSA, fund 259, registry file 46, file 49: Trade agreements with foreign companies and economic cooperation, 1977, 18 and fund 259, registry 45, file 44: Minutes from a Ministry of Foreign Trade session. Speech by Ivan Nedev, 1976, 8.
- 552 See Булгарреклама, *Стопански организации, фирми и предприятия в България. Справочник* 2том., част 2 (София: Булгарреклама, 1990), 1260; (Bulgarreclama, *Business Organizations, Companies and Enterprises in Bulgaria*, 2 vols., vol. 2 (Sofia: Bulgarreclama, 1990), 1260.
- 553 DSA, fund 773, registry 1: Historical notes, 119.
- 554 Interview with Maria Kondratenko, September 17, 2007.
- 555 Тодор Минков, *Българското кисело мляко по света* (София, 2002), 26; (Todor Minkov, *Bulgarian Yoghurt Around the Word* (Sofia, 2002), 26).
- 556 Todor Minkov, *Bulgarian Yoghurt*.
- 557 CSA, fund 528, registry file 4, file 14: Documents concerning international export. Application for exporting a ton of yoghurt to Standard Importing, USA, 1967, 222.
- 558 CSA, fund 773 registry 1, file 139: Minutes from meetings at *Rodopaimpex* with representatives of foreign firms, 1984-1996, 48- 49.
- 559 CSA, fund 773: *Rodopaimpex*.
- 560 Todor Minkov added that the famous Bulgarian actor Apostol Karamitev, who was receiving medical treatment in France and staying at the Embassy in Paris at the time, also participated in the tasting. Interview Todor Minkov, Sofia, June 16, 2009.
- 561 A major problem during the entire existence of the Bulgarian trade agencies abroad was the lack of proficient employees, bearing in mind it was too risky to rely on every single agent. The ruling party

- elites continually struggled to control the trade agents and ITEs.
- 562 Ангел Ганчев, "Родопаимпекс на международния пазар," *Международна търговия* 8-9 (1972): 14-16, тук 15; (Angel Ganchev, "Rodopaimpex on the International Market," *International Trade* 8-9 (1972): 14-16, here 15).
- 563 That was the case with the US and Finland. The intensification of relations with those countries was part of the state's party politics and business visits were organized in both countries. Representatives of the organizations responsible for exporting yoghurt know-how and technologies were part of the delegations. CSA, fund 136, registry file 57, file 683: Bureau of the Council of Ministers, approval of the trade exchange between the People's Republic of Bulgaria and Finland, October 4, 1973, 1; CSA, fund 1244, registry file 1, file 6839, 10-19: Briefing on the stimulation of political, economic, and cultural relations between the People's Republic of Bulgaria and the United States, 1972; CSA, fund 1244, registry file 1, file 6839, 1-9: Report to the Politburo of the CC (Central Committee) of the Bulgarian Communist Party by Tano Tzolov, Grisha Filipov, Constantin Tellalov, Peter Mladenov, and Ivan Nadev. The intensification of the political, economic, and cultural relations between the People's Republic of Bulgaria and the USA, February 20, 1972 (confidential).
- 564 CSA, fund 773, registry file 1, file 147: Minutes of meetings at trade enterprise Rodopaimpex with representatives of foreign firms 1970-1971.
- 565 Trade organization Rodopaimpex produced a movie on Bulgarian yoghurt and its production techniques which was used particularly for presenting the product and its technology to foreign firms. The material is not available in the Rodopaimpex archives and its successor has changed the location of the main office several times, which it uses as excuse not to provide a copy. Information about the content of this advertising material was provided by one of the specialists who presented the technology, during an interview with Maria Kondratenko in Sofia, May 29, 2009.
- 566 For examples of such tastings, see: CSA, fund 773, registry file 1, file 9: ITO Rodopaimpex Sofia- trade committee. Ordinance and reports by employees sent on a mission abroad, 1979; CSA, fund 773, registry file 1, file 147: Minutes of meetings at trade enterprise Rodopaimpex 1970-1971; CSA, fund 773, registry file 1, file 23, 39: Report by Georgi Doynov, economist in the department of "International trade promotion ("Външно-търговска реклама"), 1977. The documents do not state the names of the supermarkets.
- 567 That contract was prolonged for another 20 years.
- 568 CSA, fund 773, registry file 1, file 147: Minutes from meetings at trade enterprise Rodopaimpex 1970-1971.
- 569 Ibid.
- 570 CSA, fund 4, registry file 3, file 38, 41-46: Thematic plan for Osaka 1970; CSA, fund 4, registry file 4, file 66: International exhibition in Osaka; CSA, fund 4, registry file 5, file 67: Description, specifications, and contracts about the interior design of the pavilion of PRB at Expo 70 in Osaka, Japan (1969).
- 571 CSA, fund 773, registry file 1, file 147: Minutes of meetings at Rodopaimpex with representatives of foreign firms 1970-1971.
- 572 The relationship between DSO "Dairy industry" and Meiji Dairies Co is the subject of Bulgarian business anthropologist Maria Yotova's dissertation. Maria Yotova, "From Bulgarian Sour Milk to Meiji Bulgaria Yogurt: the Cultural Interpretations of Yogurt at a Japanese Dairy Company," paper presented at *Spring Workshop of the Anthropology of Japan in Japan (AJJ) "Multicultural Japan"* (Osaka, 2009). The economic relations between Bulgaria and Japan are the subject of Bulgarian historian Evgenii Kandilarov's research. Евгений Кандиларов, *България и Япония. От студената война към XXI век* (София: Дамян Яков, 2009); (Evgenii Kandilarov. *Bulgaria and Japan. From the Cold War to the 21st Century*. (Sofia: Damiyan Yakov, 2009).
- 573 Yotova, "From Bulgarian Sour Milk to Meiji Bulgaria Yogurt."
- 574 Ibid.
- 575 Lisbon Agreement for the Protection of Appellations of Origin and their International Registration, (October 31, 1958), article 30.
- 576 Registry file 44, File 44: Records of Ministry of Foreign Trade meetings (1974). Report by Andrey Lukanov, Deputy Minister of Foreign Trade on the legal protection of Bulgarian trademarks and industrial designs in relation to export, 27-39.
- 577 According to Lukanov, a considerable number of people responsible for promoting Bulgarian goods abroad "do not have the required vocational, creative, trade and economic qualifications." Registry file

- 44, File 44: Report by Andrey Lukanov, 29.
- 578 Ibid., 35. "Shumensko Pivo" ("Шуменско пиво") was a brand of Bulgarian beer from the Shumen region.
- 579 CSA, registry 259, 44, file 44, 35.
- 580 Information on "Bulgarreklama" is provided by Живко Живков, "Стожер на нашата икономика." в *Четиридесет години социалистическа външна търговия на НР България*, съст. Живко Живко (София: Наука и изкуство, 1986), 46-64, тук 59. (Zhivko Zhivkov, "The Mainstay of Our Economy," in *Forty Years of Socialist Foreign Trade in the PR of Bulgaria*, ed. Zhivko Zhivkov (Sofia: Nauka i Izkustvo, 1986), 46-64, here 59).
- 581 CSA, fund 259, registry file 44, file 116: Report by Ivan Nedelev, Minister of Foreign Trade concerning the establishment of a specialized Agency for Foreign Economic Trade Propaganda and Promotion, 2, 1974.
- 582 Unlike the scientists and intellectuals up to the 1940s who were trained in Central and West European universities, Minkov belonged to the second generation who attended Bulgarian (or Soviet Union and GDR) universities.
- 583 Todor Minkov is discussed by Foundation "Dr. Stamen Grigorov", *The Bulgarian Name of Longevity*, 119-26; Зоя Димитрова и Огнян Дойнов, *Спомени* (София: Труд, 2002), 155-60 (Zoya Dimitrova and Ognyan Doynov, *Memoirs* (Sofia: Trud, 2001), 155-60).
- 584 CSA, fund 773, registry file 3, file 102: Minutes of meetings (1976), 90.
- 585 Ibid., 90.
- 586 The Scandinavian countries and the Netherlands were far less aggressive in these protective measures.
- 587 Zdravko Nikolov and Maria Stefanova-Kondratenko, "The Bulgarian Starters for Yogurt," in *International Symposium on Original Bulgarian Yogurt* (Sofia: "Dr. Stamen Grigoroff" Foundation, 2005).
- 588 G. Tanev and A. Zivkova, "Study of Short-chain Peptides in Bulgarian yoghurt. Preparation of Peptide Maps," *Milchwissenschaft* 32, no. 5 (1977): 280-82; Maria Kondratenko and Bojana Gyosheva, "Modifications des composants volatils du yoghourt bulgare," *Le Lait* 58, no. 577 (1978): 390-97; Bojana Gyosheva, "Regression Analysis Applied to Evaluation of Aroma and Flavour of Bulgarian Sour Milk," *Molecular Nutrition and Food Research* 29, no. 2 (1985): 185-90.
- 589 Kondratenko, *Bulgarian Sour Milk*, 10; Мария Кондратенко, Таню Гиргинова, и П. Алексиева, "Конфигуриране на българско кисело мляко," *Хранителна промишленост* 29, бр. 5 (1980): 22-24; (Maria Kondratenko, T. Girginova, and P. Aleksieva, "Configuration of Bulgarian Yoghurt," *Food Industry* 29, no. 5 (1980): 22-24).
- 590 CSA, fund 773, registry file 3 (volume 2), file 99, 38-40: Report by Georgy Stoikov Georgiev on negotiations with the Austrian firm Eindhorn (Vienna), 1976.
- 591 CSA, fund 773, registry file 2, file 15, 265: Minutes of meetings at Rodopaimpex with representatives of foreign firms, trade department (1975).
- 592 Ibid.
- 593 In the text, Valio Finnish Cooperative Dairy Association will be referred to as Valio. Further information on the company's history can be found in Touko Perko, *Valio ja suuri murros* (Keuruu: Otava, 2005).
- 594 Valio's history, *Valio ja suuri murros*.
- 595 For historical information on Valio, see their webpage: http://www.valio.fi/portal/page/portal/Valioyri-tys/Yritystieto/Historiaa/brandien_historiaa19112009130656/valiojogurtti19112009152945 (accessed: September 12, 2012).
- 596 The information was provided on August 18, 2009 via e-mail by Seppo Heiskanen, director of the Finnish Dairy Association.
- 597 CSA, registry 773, 3, file 113, 44-50: Report by Georgy St. Georgiev, department "Sour milk" in "Rodopaimpex" to the Minister of Agriculture and the Food Industry Gancho Krastev; CSA, fund 136, registry file 57, file 683: Bureau of the Council of Ministers, approval of the stock exchange between the People's Republic of Bulgaria and Finland, 4 October 1973, 1; Йордан Петров, "Икономически отношения на България със скандинавските страни," *Външна търговия* 6 (1975): 21-23. (Jordan Petrov, "Economic Relations between Bulgaria and the Scandinavian Countries," *Foreign Trade* 6 (1975).
- 598 CSA, registry 773, 3, file 113, 44-50: Report by Georgy St. Georgiev, department "Sour Milk" in "Rodopaimpex" to the Minister of Agriculture and the Food Industry Gancho Krastev.
- 599 Ibid., 44.

- 600 Ibid., 45.
 601 Ibid., 46-50.
 602 Interview with Maria Kondratenko, Sofia, September 13, 2007.
 603 Ibid. Because the Finnish cow's milk was superior, Bulgaria imported several animals from Finland. Unfortunately, that experiment was unsuccessful.
 604 This information was provided via e-mail by Valio Ltd's export manager Kalle Leporanta, August 18, 2009.
 605 This product was not advertised on TV, except as part of Valio's full yoghurt range.
 606 For slogans in the 1984 Bulgarian yoghurt advertisement, see: "Bulgarianjogurta," *Annals of Tourism Research* (1984).
 607 Ibid; "Suuri Kuluttajakilpailu bulgarianjogurtista," *Kauppaviest* (1986); "Reseptikilpailu Palkintoina 10 bulgarian matkaa. Miten valmistat parhaan Bulgarianjogurtti- herkun?," *Apu* (1986); "Reseptikilpailu Palkintoina 10 bulgarian matkaa. Miten valmistat parhaan Bulgarianjogurtti- herkun?," *SEURA* (1986).
 608 "Reseptikilpailu Palkintoina 10 bulgarian matkaa."
 609 Ibid.
 610 According to Kalle Leporanta, manager of Valio Ltd's International Operations and Innovations Office. The information was provided in a formal letter via email, August 16, 2009.
 611 Beatrice Trum Hunter, *Fact Book on Yoghurt, Kefir and Other Milk Cultures*, vol. New Canaan (Keats Publishing, 1973); Bee Nilson, *Cooking with Yoghurt, Cultured Cream and Soft Cheeses* (London: Pelham Books, 1973); Irfan Orga, *Cooking with Yoghurt*, 2 ed. (London: Andrew Deutsch, 1975); Maggie Black, *Home-Made Butter, Cheese and Yoghurt* (Wakefield: EP Publishing, 1977); Elaine Hallgarten, *Cooking with Yoghurt: Delicious Recipes Made with Cultured Milk, Yoghurt, Sour Cream, Buttermilk, Soft Cheeses* (New Burlington: New Burlington Books, 1986); Stuart, *The Dannon Book of Yogurt*; Anne Lanigan, *The Yogurt Gourmet* (New York: Turtle Press, 1978); Martina Hinfey, *Making and Using Yogurt and Soft Cheeses* (Wellingborough: Thorsons Publishers, 1980).
 612 In an interview with C.H., a Finnish consumer of Valio cooking yoghurt, he assured me that Bulgarian yoghurt is the only product he uses for cooking, as the cream on the market did not give the same taste to dishes he prepares: soups, desserts, marinades, and fillings. Interview with C.H. conducted in Turku, Finland, August 18, 2009.
 613 CSA Fund 773, registry file 3, file 114: Reports from visits abroad, 1976. Report by Stoyan Stoyanov, Institute of Dairy Industry in Vidin, 17.
 614 The document did not provide first names.
 615 CSA Fund 773, registry file 3, file 114: Reports of visits abroad, 1976. Report by Stoyan Stoyanov, Institute of dairy industry in Vidin, 17.
 616 Ibid.
 617 This French TV channel broadcast 61 episodes of the Noiraude series, raising various topical issues.

Chapter 6

- 618 For a detailed study of the economic reform in rural Bulgaria, see: American anthropologist Gerald W. Creed, *Domesticating Revolution. From Socialist Reform to Ambivalent Transition in a Bulgarian Village* (Pennsylvania: Pennsylvania State University Press, 1998). On the transition period and the economic changes in the agrarian sector, see Deema Kaneff, ed. *Post-Socialist Peasant? Rural and Urban Constructions of Identity in Eastern Europe, East Asia and the Former Soviet Union* (Basingstoke and New York: Palgrave, 2002); Ilia Iliev, "Small Farms in Bulgaria: a Four-decade Anomaly," in "East"- "West" *Cultural Encounters. Entrepreneurship, Gouvernance, Economic Knowledge*, ed. Petya Kababchieva and Roumen Avramov (Sofia: East- West Publisher, 2004); Christian Giordanio and Dobrinka Kostova, "Understanding Contemporary Problems in Bulgarian Agricultural Transformation," in *Bulgaria Social and Cultural Landscape*, ed. Christian Giordanio, Dobrinka Kostova, and Evelyn Lohmann-Minka (Fribourg: University Press Fribourg, 2000).
 619 CSA, fund 1581, registry file 6, file 12, Letter from Serdika to INRA requesting permission to use the appellation of origin for Bulgarian yoghurt, April 8, 1993, 5-6 and the historical section on LB Bulgarcum's official website. <http://www.lbbulgarcum.bg/eng/forus.php?m=1&s=3>. Accessed October 18, 2012.

- 620 Ibid.
- 621 Information from the interview with Zdravko Nikolov, manager of LB Bulgaricum's Research Laboratory, Sofia, February 4, 2008.
- 622 See CSA, fund 1581, registry file 9, file 5: Plant "Serdika" Sofia, financial reports and analyses of economic activity from 1987 to 1990.
- 623 Iliev, "Small Farms in Bulgaria," 181-82.
- 624 Ibid., 29.
- 625 Ibid., 54.
- 626 CSA, fund 1581, registry file 6, file 9: Letter from "Serdika-1" to the Ministries of Health and Economics and Planning, January 25, 1990 and 1992, 18.
- 627 Malinka S. Koparanova, "Danone-Serdika J.S. Co.," *Eastern European Economics* 36, no. 4 (1998): 28.
- 628 Ibid.
- 629 CSA, fund 1581, registry file 6, file 9: Letter from "Serdika-1" to the Ministries of Health and Economics and Planning, January 25, 1990, 3.
- 630 On the issue of the effects of antibiotics on yoghurt manufacturing, see Антон Радоев, "Антибиотиците в хранителната и вкусовата промишленост," *Доставки* 2 (1955): 303-20 (Anton Radoev, "Antibiotics and Food Industry," *Deliveries* 2 (1955); В. Николов и колектив, "Създаване на рационална отганизация за снабдяване на населението с мляко," *Известия на Научноизследователски институт по млечна промишленост* 5 (1971): 303-20 (V. Nikolov et al., "The Establishment of an Organized Milk Supply" *Bulletin of the Dairy Industry Research Institute* 5 (1971): 303-20).
- 631 Koparanova, "Danone-Serdika J.S. Co.," 28.
- 632 CSA, fund 1581, registry file 6, file 9: Letters from "Serdika-1" to the Ministries of Health and Economics and Planning, January 25, 1990 to June 12 1998, 10-13.
- 633 CSA, fund 1581, registry file 6, file 4: Letter to the Ministry of Agriculture, January 15, 1993, 21.
- 634 Ibid., 22.
- 635 On the emergence of the free market, see CSA, fund 1581, registry file 6, file 9: Letters from "Serdika-1," to the Ministry of Health.
- 636 Ibid., 14-15.
- 637 Ibid., 8.
- 638 Ibid., 8.
- 639 Ibid., 14-15.
- 640 Ibid., 14.
- 641 Ibid., 18-19.
- 642 Ibid., 15.
- 643 Ibid., 19.
- 644 CSA, fund 1581, registry file 6, file 4: Letter to the Ministry of Agriculture, January 15, 1993, 20-22.
- 645 Ibid., 18.
- 646 Ibid.
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Conclusion

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MTC. Fund Metchnikoff

MTC.1 Biographical documents: biographies, scientific awards, personal papers; report from the Laboratory for Morphology of Microbes

MTC.2 Metchnikoff's correspondence

MTC.3 Metchnikoff's publications

MTC.4-5 Publications (reprints, books)

SFR. Service fermentation (Pasteur Institute): Correspondence, reports, and bills (1904-1912)

DR.CR1-11 Directorate Pasteur Institute (1887-1940)

DR.CR1-11 Ceremonies organized by the Pasteur Institute, correspondence, programs, speeches, press (1902-1968)

L'Archive et médiathèque de la Musée de la publicité, Paris, France

Food Advertisements, section Dairy Products (1900-1990)

Archive of the Ministry of Foreign Affairs (AMFA), Sofia, Bulgaria

Fund 20 General Fund

Registry file 12

File 132: Organizing a two-year university course on trade qualifications for employees in the system of foreign trade (1963)

Registry file 17

File 1268: Sending Bulgarian specialists to capitalist countries (1960)

Registry file 18

File 50: Sending Bulgarian specialists to the XII Week of Milk in Kiel, Germany (1961)

File 218a: Information from books available in the American Embassy (1961)

File 95: Scientific and technical cooperation and exchange of technological innovation (1961)

Registry file 19

File 771: Sending Kosta Katrandzhiev to Italy (1962)

Registry file 20

File 1851: International organizations with Bulgarian membership (1963)

File 1886: Report by the National Council of the Employees in the System of Foreign Trade (1963)

Registry file 29

Case 6, file 118: Regulation for the Accession of Representatives of Western Firms in the People's Republic of Bulgaria (1973)

File 118: Regulation for Admission of Foreign Representatives of Western Companies (1973)

File 392: Agreement (draft) for economic, scientific and technical cooperation between the Ministry of Agriculture and Food Industry of the People's Republic of Bulgaria and the US Ministry of Agriculture (1973)

Registry file 31

File 461: Scientific and technical cooperation (1975)

Registry file 110

File 1986, Report by the National Council of the Employees in the System of Foreign Trade

Fund "International Organizations and Agreements"

Registry file 9

File 32: COMECON, Session of the Agrarian Commission (1963)

File 45: COMECON discussions about unification and standardization (1963)

File 48: Agrarian Commission (1962)

File 79: Discussions about the established common market between the member states

File 205-208: FAO (1962)

File 756-764: Economic Commissions for Agriculture (1962)

State Archive Plovdiv (SAP), Plovdiv, Bulgaria

Fund 1617: Dairy "Maritza" Plovdiv

Registry file 1: Historical information about the establishment and operation of Dairy "Maritza" Plovdiv (1946 - 1952)

File 7: Development of the dairy central "Maritza"

File 8: Annual reports (1948)

File 12: Reports of the milk collecting in Plovdiv region (1948)

File 20 Historical overview

Central State Archive (CSA), Sofia, Bulgaria

Fund 4: International Exhibitions

Registry file 3

File 38: Thematic plan for international Expo 1970 in Osaka

Registry file 4

File 66: International exhibition in Osaka

File 67: Description, specifications, and contracts about the interior design of the pavilion of PRB at Expo 70 in Osaka, Japan (1969)

File 68: Scheme and descriptions about the building of the Bulgarian pavilion at Expo 70 in Osaka

Registry file 5

File 65: Materials for competition on preliminary project for the Bulgarian pavilion at Expo in Osaka, Japan in 1970

File 175: Program and thematic plan for Expo 70 in Osaka, Japan "Progress and Harmony for Mankind"

Fund 136: Council of Ministers of the People's Republic of Bulgaria

Registry file 1a

File 965: Anonymous letter about low quality and shortage of goods (1952)

- File 963: Anonymous letter to comrade Tchervenkov
- File 963: Anonymous letter from a group of workers complaining about the rising prices (1951)
- File 1004: Shortages of dairy products (1953)
- Registry File 57
 - File 683: Bureau of the Council of Ministers, approval of the trade exchange between the People's Republic of Bulgaria and Finland, October 4 (1973)
- Fund 172: Ministry of Food Industry
 - Registry File 3
 - File 27: Central Cooperative Association (1957)
- Fund 210: Central Statistics Administration
 - Registry File 3
 - File 179: Trade goods (1950)
- Fund 259: Ministry of Foreign Trade
 - Registry File 44
 - File 44: Records of Ministry of Foreign Trade meetings (1974)
 - File 116: Report by Ivan Nedev, Minister of Foreign Trade, concerning the establishment of specialized Agency for Foreign Economic Trade Propaganda and Advertisement (1974)
 - Registry File 45
 - File 40: Regulation (1) of the establishment and activity of the foreign trade organization with Bulgarian chair (draft) (1981); Regulation (2) of supplied machineries' visas (1984); Regulation (3) about the governance of external trade and government traffic (1983)
 - File 41: Instructions for the activities and goals of the foreign trade apparatus of the People's Republic of Bulgaria – draft (1979); Instructions for the application of the Regulation for the legislative state of the foreign agencies (1979)
 - File 44: Minutes of a session of the Ministry of Foreign Trade. Speech by Ivan Nedev (1976)
 - File 49: Report by the Deputy Minister of Foreign Trade Petar Bashikarov on reaching agreements with capitalist countries (June 1977)
 - Registry File 46
 - File 40: Direction Foreign Currency and Trade (1973-1987)
 - File 41: The formation of the foreign apparatus of the Bulgarian state (1979-1991)
 - File 44: The information activity of the Bulgarian Trade Representation Abroad (1976)
 - File 49: Trade agreements with foreign companies and economic cooperation (1977)
 - File 51: Trade relations with France (1977)
 - File 61: Export and product advertisement (1978)
 - File 74: Stimulation of the producers to export
 - File 76: Outcomes from the First International Fair for Food Industry (1981)
 - File 124: About the quality of exported goods (1988)
 - File 169: About the exhibition 40 Years Socialistic Bulgaria in Moscow (1983)
- Fund 487: Bulgarian Chamber of Commerce
 - Registry File 4
 - File 25: Specifications of the Bulgarian Pavilion at EXPO 70
- Fund 495: Ministry of Food Industry. Food Committee
 - Registry File 1
 - File 132: Reports of the Central Committee of the Bulgarian Communist Party

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File 159: Reports about the establishment of "Dairy Industry" (1965)

File 179: The establishment of a Dairy station in the town of Tolbuhin (1966)

File 207: Reports about the requirements for the new dairying plant in Stara Zagora (1966)

File 343: Administration of the Consul of the Ministry about the detachment of direction "Dairying" from state economic enterprise "Rodopa" and the establishment of new union (1968)

File 647: Annual reports of the state economic enterprise "Dairy Industry" (1964)

File 651: Financial report of the state economic enterprise "Dairy Industry" (1965)

File 654: Financial report of the state economic enterprise "Dairy Industry" (1967)

Fund 528: DSO "Rodopa"

Registry File 1

File 42: International trade (1963)

File 85: Minutes of the Bulgarian Committees Abroad (1963)

File 147: Minutes of meetings at trade enterprise "Rodopaimpex" with representatives of foreign firms (1970-1971)

File 156-157: Principles for export and import (1963-1964)

Registry File 2

File 15: Agreements with directors "Dairying" (1958-1964)

Registry File 4: Documents concerning international export and import

File 8: Agreement for international trade (1967)

File 14: Application for the import of filling machine for yoghurt from Italy (1967); Documents concerning the international export. Application for the export of a ton of yoghurt for Standard Importing, USA (1967); Documents concerning international export. Application for the export of a ton of yoghurt for Mutad Bullad, Beirut (1967)

File 15-16: Documents concerning international export (1968)

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File 9: Information about work on the automation of production (1974)

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File 9: Letter from Serdika-1 to the Ministries of Health and Economics and Planning Letters from "Serdika-1" to the Ministries of Health and Economics and Planning (1990-1998)

File 12: Letter from Serdika-1 to INRA requesting permission to use the appellation of origin for Bulgarian yoghurt (1993)

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Summary

To understand the social economic, political, and historical evolution of yoghurt as a national symbol, this thesis explores how Bulgarian yoghurt has become constructed as authentic food stuff. By studying the case of how the authenticity of Bulgarian yoghurt has been created over time, this dissertation aims at identifying how food and culture shape each other. It addresses the production, distribution, and consumption of yoghurt in Bulgaria and abroad. The focus is on the transfer, diffusion, and appropriation of Bulgarian yoghurt's technology and know-how in Central and Western Europe. The dissertation explores how the processes of yoghurt innovation, manufacturing, export and consumption and the construction of national identity and authenticity shaped each other. The study examines the process of authentication and self-stereotypization through the main actors involved such as Bulgarian producers, scientists, politicians, consumers, and citizens. Bulgarian yoghurt's globalized production and distribution has led to a number of cultural adjustments and adaptations to various new cultural contexts. In particular, the dissertation seeks to understand if and how the exchange of food across national borders contributed to a process of European integration hidden under the radar from the official political stage of the European Union. Through the case study of yoghurt, the dissertation explores the kind of tensions that national identity articulated in the context of Europe. These questions of national identity are paired with questions about their material foundations. To do so, the research applies insights from the field of history of technology to trace the material construction and export of authenticity in the process of yoghurt manufacturing, distribution, and consumption. In this approach, the research shares the analytical perspective of the academic network Tensions of Europe on the role of technology in the making of Europe and combines the tools of history of technology and food studies. As the dissertation addresses many different time periods and processes, different perspectives were used in building a diachronic approach. The research follows the process of yoghurt production and the various changes in its technology, transportation, packaging, and distribution from 1900 to the present.



Curriculum Vitae

Elitsa Stoilova was born on December 2, 1979 in Plovdiv, Bulgaria. After finishing a BA in Ethnology (2004) and Sociology (2005) at the University of Plovdiv (Bulgaria), she followed the master program Management of Research Processes and Innovations at the same university (2006). In 2007, she started a PhD project at Eindhoven University of Technology, the Netherlands, which resulted in her dissertation *Producing Bulgarian Yoghurt: Manufacturing and Exporting Authenticity*. Her research was part of the *PhD Program the Hidden Integration in Central, Eastern, and Southeastern Europe*. This program was initiated in 2006 by the Foundation for the History of Technology (the Netherlands) to encourage research in the field of history of technology in Central, Eastern, and Southeastern Europe.

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