

Introduction: meat and the nineteenth-century city

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ABSTRACT. The articles gathered in this special section explore the complex and layered relationship between meat and the nineteenth-century city. For urban historians interested in food provisioning, meat represents a critical juncture because no other food item was so deeply and, in so many ways, tied to urban modernity. This introduction outlines five central themes of the urban meat nexus: city and country relations, geography and urban space, technology and infrastructure, government and regulation, and changing nutritional standards. The four articles speak to these larger issues in specific and novel ways. They advance the existing scholarship by opening up new questions and approaches, focusing on hitherto understudied locations, while also collectively covering the entire spectrum of meat provisioning from supply hinterlands to urban consumption.

The provisioning of food supplies presents a major problem in urban history, for cities, beyond a certain size, cannot feed themselves. As food history has gained centre stage more recently, urban historians have turned their attention to the field, exploring food systems from supply chains to urban infrastructures, governmental regulations and consumption patterns.¹ Meat, in particular, occupies a critical juncture for nineteenth-century food systems, because no other food item was so intricately connected to urban modernity. The provision of meat for nineteenth-century cities depended on vastly expanded supply hinterlands, technological change in transportation and communication,

¹ W. Cronon, *Nature's Metropolis: Chicago and the Great West* (New York, 1992); N. Vialles, *Animal to Edible* (Cambridge, 1994); P.J. Atkins, P. Lummel and D.J. Oddy (eds.), *Food and the City in Europe since 1800* (Aldershot, 2007); P.Y. Lee (ed.), *Meat, Modernity and the Rise of the Slaughterhouse* (Durham, NH, 2008); R. Horowitz, J.M. Pilcher, and S. Watts, 'Meat for the multitudes: market culture in Paris, New York City, and Mexico City over the long nineteenth century', *American Historical Review*, 109 (2004), 1055–83; S. Barles, 'Feeding the city: food consumption and flow of nitrogen in Paris, 1801–1914', *Science of the Total Environment*, 375 (2007), 48–58; S. Niza, D. Ferreira, J. Mourão, P.B. d'Almeida and T. Marat-Mendes, 'Lisbon's womb: an approach to the city's metabolism in the turn to twentieth century', *Regional Environmental Change*, 16 (2016), 1725–37.

the building of modern infrastructures of processing, distribution and oversight, the restructuring of urban space, dietary changes, and new cultural practices in human and animal relations.

The starting point for this special section, growing out of our panel at the European Association for Urban History conference in 2014, was the recognition of the critical nexus that the supply, distribution and consumption of meat occupied in the western world's emerging cities. What we aimed to discuss were the several key domains and processes by which meat provisioning and access shaped the nineteenth-century city. Moving beyond the better-known experiences of Chicago, New York City and Paris, this collection of articles expands on the scholarship by focusing on less-studied but equally revealing cases, including Barcelona, Moscow and Copenhagen, along with the emblematic example of Buenos Aires, for which English scholarship remains limited.² The articles offer novel contributions to five major themes of the urban meat nexus, specifically, the relationship between city and country, geography and urban space, technology and infrastructure, government and regulation, and changing nutritional and living standards. In what follows, we briefly outline these broad themes, making the case for the special status of meat in the nineteenth-century city, and highlighting the specific contributions of each article.

Most evidently, supplying meat to nineteenth-century cities involved a profound restructuring of city and country relations. It has been a widely held idea that the modern city entailed a sharp distinction between town and countryside, but in fact, with accelerating urbanization the two spheres intertwined ever more. Cities had to tap into expanding hinterlands to sustain their rapidly growing populations. Improved transportation and communication networks enabled the expansion of regional supply chains to national, international and global markets, transforming vast expanses of land for commercial livestock production. Regions as immense as the Argentinian pampas or the Russian steppes, as intensively cultivated as Danish farmlands, or only more recently commercialized like those supplying Spanish cities, were incorporated into meat production for local urban consumption and for export markets.³ Indeed, nineteenth-century urbanization both depended on and fuelled transformative changes in agricultural hinterlands, of which commercial

² Cronon, *Nature's Metropolis*; D.A. Payga, *Slaughterhouse: Chicago's Union Stock Yard and the World It Made* (Chicago, 2014); R. Horowitz, *Putting Meat on the American Table: Taste, Technology, Transformation* (Baltimore, 2006); G. Baics, *Feeding Gotham: The Political Economy and Geography of Food in New York, 1790–1860* (Princeton, 2016); Th.D. Beal, 'Selling Gotham: the retail trade in New York City from the public market to Alexander T. Stewart's marble palace, 1625–1860', State University of New York at Stony Brook Ph.D. thesis, 1998; D. Brantz, 'Slaughter in the city: the establishment of public abattoirs in Paris and Berlin, 1780–1914', University of Chicago Ph.D. thesis, 2003; Horowitz, Pilcher and Watts, 'Meat for the multitudes'; Lee (ed.), *Meat, Modernity and the Rise of the Slaughterhouse*.

³ L. van Molle and Y. Segers (eds.), *The Agro-Food Market: Production, Distribution and Consumption* (Turnhout, 2013).

livestock production was one of the most consequential developments.⁴ Along with the capital flows and supply chains that tied together local and distant markets, modern urbanization and industrialized meat production were interconnected processes bringing city and country into a symbiotic relation. Scholars have turned to this extra-urban domain, also describing it by the term urban metabolism.⁵

Equally important, meat provisioning and access probe questions about geography and urban space at multiple scales. Besides the interconnections of cities and hinterlands, interurban links, whether organized hierarchically or as networks, were also reconstituted.⁶ Buenos Aires not only brought the Pampas' vast resources to European consumers, but also integrated a hierarchy of regional centres for meat production. Copenhagen exported meat to Britain just as it anchored Denmark's agroindustry, while its residents consumed more meat themselves. If railway and shipping lines are obvious agents of change, technological infrastructures also included electricity and telegraphy, facilitating not only the preservation of meat but also making its sale and purchase across large distances possible. Shifting the scale to cities, meat supply systems imposed significant spatial demands. Growing nineteenth-century cities struggled to reconstitute centuries-old arrangements about the location, infrastructural and regulatory setting of livestock markets, slaughtering facilities and wholesale and retail distribution systems.⁷ Determining where meat belonged in the modern city involved numerous actors, with city governments asserting their police power, health reformers advocating sanitary measures, butchers and others in the industry supporting or obstructing reforms, investors seeking profit from real estate and changing consumer preferences altering the landscape of household provisioning.⁸ Further, with the vastly increased scale of meat

⁴ Cronon, *Nature's Metropolis*, 207–59.

⁵ M. Gandy, 'Rethinking urban metabolism: water, space and the modern city', *City*, 8 (2004), 363–79; M. Fischer-Kowalski, 'Society's metabolism: the intellectual history of materials flow analysis, part I, 1860–1970', *Journal of Industrial Ecology*, 2 (1998), 61–78.

⁶ P.M. Hohenberg and L.H. Lees, *The Making of Urban Europe, 1000–1994* (Cambridge, MA, 1995); S. Graham and S. Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (London, 2001).

⁷ See for example Lee (ed.), *Meat, Modernity and the Rise of the Slaughterhouse*; Horowitz, Pilcher and Watts, 'Meat for the multitudes'; C. Otter, 'The vital city: public analysis, dairies and slaughterhouses in nineteenth-century Britain', *Cultural Geographies*, 13 (2006), 517–37; R. Metcalfe, *Meat, Commerce and the City: The London Food Market, 1800–1855* (London, 2012).

⁸ On the development of urban marketplaces, see for example M. Guàrdia and J.L. Oyon (eds.), *Making Cities through Market Halls: Europe, 19th and 20th Centuries* (Barcelona, 2015); H. Tangires, *Public Markets and Civic Culture in Nineteenth-Century America* (Baltimore, 2003); Baics, *Feeding Gotham*; C.R. Lobel, *Urban Appetites: Food and Culture in Nineteenth-Century New York* (Chicago, 2014); special issue in this journal, guest-edited by J. Stobart and I. van Damme, 'Markets in modernization: transformations in urban market space and practice, c. 1800 – c. 1970', *Urban History*, 43 (2016). On nuisances: I. MacLachlan, 'A bloody offal nuisance: the persistence of private slaughter-houses in nineteenth-century London', *Urban History*, 34 (2007), 227–54; C. Brinkley and D. Vitiello, 'From farm to nuisance: animal

production, the new industrial abattoirs not only improved efficiency but also generated an ambivalence toward the mass killing of animals.⁹ The contributions in this special section explore many of these layered geographies, from far-reaching supply chains to meatpacking plants and neighbourhood-scale meat shopping.

Just as the spatial demands of meat supply systems were especially intense, so was the industry most transformed by technological changes. Fresh meat is a highly perishable food, presenting considerable challenges for transport and storage. Railways and steamships, coupled with reliable refrigeration by the second half of the century, turned meat into a global commodity similar to grain. The long driving routes that had been in use across Europe since the Middle Ages gradually became obsolete as new transportation networks and timetables took over. In northern Europe, movements of co-operative slaughterhouses added to this development.¹⁰ Thanks to refrigeration, meat sold on-the-hoof was also substituted by dead meat markets. Technological changes were by no means limited to transportation. Industrial agriculture, in particular selective breeding and feed-lots, came to define modern commercial livestock production.¹¹ Similarly, meatpacking was one of the first food sectors to be centralized and industrialized; it became a technological forerunner for other industries, including Ford's assembly line. The traditional practice of artisan butchery was gradually replaced by industrial processes, a development that occurred both in private meatpacking plants, most famously in Chicago and Buenos Aires, and in public abattoirs, more typical of continental European cities, from its earliest model in Paris to later adaptations like the Moscow abattoirs.¹² As one of the consequences, industrialized slaughter radically altered the relations between people and animals.¹³

This leads to the fourth theme of expanding government oversight. Though regulatory regimes differed region by region, as a general trend

agriculture and the rise of planning regulation', *Journal of Planning History*, 13 (2014), 113–35; M.A. Lopes, 'Struggles over an "old, nasty, and inconvenient monopoly": municipal slaughterhouses and the meat industry in Rio de Janeiro, 1880–1920s', *Journal of Latin American Studies*, 47 (2015), 349–76.

⁹ D. Brantz, 'Stunning bodies: animal slaughter, Judaism, and the meaning of humanity in imperial Germany', *Central European History*, 35 (2002), 167–94; Vialles, *Animal to Edible*; F. Buscemi, 'From killing cows to culturing meat', *British Food Journal*, 116 (2004), 952–64.

¹⁰ Molle and Segers (eds.), *The Agro-Food Market*, 386. See also M. Hilson, *The Nordic Consumer Co-operative Movements in International Perspective, 1890–1939* (Munich, 2010).

¹¹ See for example Cronon, *Nature's Metropolis*, 207–59; C. Otter, 'Planet of meat: a biological history', in T. Bennett (ed.), *Challenging (the) Humanities* (Canberra, 2013).

¹² For a survey of urban slaughterhouses, see Lee (ed.), *Meat, Modernity, and the Rise of the Slaughterhouse*. See also Brantz, 'Slaughter in the city'; MacLachlan, 'A bloody offal nuisance'; Payga, *Slaughterhouse: Chicago's Union Stock Yard*.

¹³ R. Bulliet, *Hunters, Herders and Hamburgers: The Past and Future of Human-Animal Relationships* (New York, 2005); D. Brantz (ed.), *Beastly Natures: Human-Animal Relations at the Crossroads of Cultural and Environmental History* (Charlottesville, 2010); P.J. Atkins, *Animal Cities: Beastly Urban Histories* (Farnham, 2012).

in the second half of the long nineteenth century, national governments and municipalities, often in co-operation, introduced large-scale efforts to monitor their meat supplies. Cities borrowed from each other and competed on parameters of the best public infrastructures, including an efficient meat control system. City engineers undertook study tours, and transnational – or more accurately, transurban – exhibitions were held within this framework.¹⁴ The infrastructure of meat provisioning was reconsidered, spurring large investments in abattoirs. Copenhagen's Meat City or Moscow's abattoirs were major public infrastructures, both industrializing slaughter and bringing the meat supply under modern standards of quality control through bacteriology and veterinary science. Underlying such reforms was the preoccupation with public health.¹⁵ Indeed, municipal abattoirs were akin to such vital public goods as water and sewer systems. Even where governmental interference was more timid, public health interests loomed large in reforming the industry. The fear of disease, cholera and tuberculosis, in particular, pressed city officials to expel nuisance trades and practices, including the driving and killing of livestock, from densely populated districts. As a general trend, meat supply systems were pushed to the outskirts, whether or not they were consolidated in government hands. Likewise, complex systems of control and transparency were established through inspections, microscope laboratories and quarantine procedures. The new suburban facilities conveniently rendered the process of meat production invisible, contributing to what has been called a post-domestic urban culture.¹⁶ Some city governments were also busy at improving distribution networks for the welfare of citizens. Continental European cities of the late nineteenth century boasted municipal wrought-iron market halls, serving wholesale and retail functions.¹⁷

The context of supplying an urban household with meat therefore profoundly changed. Most consequential, meat became a staple for an ever-wider share of urban populations.¹⁸ To be sure, there were setbacks to this nineteenth-century nutritional transition toward increased meat consumption, such as the well-documented case of falling meat

¹⁴ M.R. Levin, S. Forgan, M. Hessler, R.H. Kargan and M. Low (eds.), *Urban Modernity: Cultural Innovation in the Second Industrial Revolution* (Cambridge, MA, 2010). Tellingly, it was at the urban exhibition of 1906 in Dresden, where Georg Simmel gave his later iconic lecture on 'The metropolis and mental life'.

¹⁵ See for example D. Brantz, 'How parasites make history: on pork and people in nineteenth-century Germany and the United States', *GHI Bulletin*, 35 (2005), 69–79; D. Brantz, 'Animal bodies, human health and the reform of slaughterhouses in nineteenth-century Berlin', in Lee (ed.), *Meat, Modernity and the Rise of the Slaughterhouse*.

¹⁶ A.J. Fitzgerald, 'A social history of the slaughterhouse: from inception to contemporary implications', *Research in Human Ecology*, 17 (2010), 58–69.

¹⁷ Barcelona's public market system stands out as one of the most extensive and enduring examples. On European market halls, see Guàrdia and Oyón (eds.), *Making Cities through Market Halls*. On American public markets, see Tangires, *Public Markets and Civic Culture in Nineteenth-Century America*.

¹⁸ Horowitz, *Putting Meat on the American Table*.

consumption in the antebellum United States, a trend which has also been noted for some European countries.¹⁹ By and large, however, the trend was in favour of rising meat intake and greater reliance on animal protein during the latter half of the long nineteenth century. There is some paradox in that just as city dwellers ate more meat than before, they became more oblivious to its production, while public spaces were also emptied of animals, including cattle, pigs and horses.²⁰ Moreover, one should be cautioned against generalizations about abundant meat supplies, for averages hide distributional matters.²¹ If the urban middle classes enjoyed improved meat consumption, this was not necessarily the case for working-class residents, who in many cities only gained access to fresh meat after 1900. In fact, the conditions of meat shopping varied considerably between different classes of consumers. Whether public markets or meat shops supplied residents, their accessibility by neighbourhood, the quality of their merchandise and their conditions of sales varied enormously. In some cases, where meat export was significant, working-class families saw a rising consumption of spill-over products such as liver paste and processed meat dishes. Probing questions about inequalities in meat access and consumption is challenging as the Barcelona case-study demonstrates. Yet incorporating nutritional conditions into our understanding of nineteenth-century urban living standards and inequalities is a worthy agenda for urban historians.

The four articles brought together in this special section speak to these larger themes in different ways. A good place to begin the discussion is the article on Barcelona by Manuel Guàrdia, José Luis Oyón, Sergi Garriga and Nadia Fava, supported by Sergi Garriga's elegant figures, which covers the full spectrum of meat provisioning, from supply chains to retail access. The trio has reliably explored Barcelona's public market system, using quantitative data and Geographic Information Systems analysis.²² The

¹⁹ On the nutritional transition, see for example B.M. Popkin, 'Nutritional patterns and transitions', *Population and Development Review*, 19 (1993), 138–57; D. Grigg, 'The nutritional transition in western Europe', *Journal of Historical Geography*, 22 (1995), 247–61. On the antebellum puzzle, see for example J. Komlos, 'Shrinking in a growing economy? The mystery of physical stature during the industrial revolution', *Journal of Economic History*, 58 (1998), 779–802; M.R. Haines, 'Growing incomes, shrinking people – can economic development be hazardous to your health? Historical evidence for the United States, England, and the Netherlands in the nineteenth century', *Social Science History*, 28 (2004), 249–70. More broadly on nutrition and human welfare, see R. Floud, R.W. Fogel, B. Harris and S.C. Hong, *The Changing Body: Health, Nutrition, and Human Development in the Western World since 1700* (Cambridge, 2011).

²⁰ C. McShane, 'The ignored urban species: horses in Berlin, Paris and New York', *Informationen zur modernen Stadtgeschichte*, 2 (2006), 15–27.

²¹ On the challenges of measuring inequalities in meat consumption: Baics, *Feeding Gotham*, 57–93, 193–230.

²² See for example N. Fava, M. Guàrdia and J.L. Oyón, 'Barcelona food retailing and public markets, 1876–1936', *Urban History*, 43 (2016), 454–75; N. Fava, M. Guàrdia and J.L. Oyón, 'Public versus private: Barcelona's market system, 1868–1975', *Planning Perspectives*, 25 (2010), 5–27. See also M. Miller, *Feeding Barcelona, 1714–1975: Public Market Halls, Social Networks, and Consumer Culture* (Baton Rouge, LA, 2015).

article turns to meat consumption levels, and the results are informative. Thanks to their painstaking reconstruction, Barcelona now belongs to the best-documented cases of long-term meat consumption trends, providing strong evidence of the nutritional transition thesis in the context of a generally low meat consumption region. Notably, the authors show that the upward trend was not without interruptions until the 1870s. Further, they attend to a variety of issues: from shifting supply regions due to railway expansion to the changing composition of urban meat diets. Their analysis also extends to Barcelona's retail distribution networks, covering both public markets and meat shops. Their attempts to measure unequal consumption standards between different classes of consumers by studying the spatial patterns of retail outlets and the composition of meat diets provide innovative and replicable methods. Overall, the authors present an empirically grounded and comprehensive discussion of meat consumption in nineteenth-century Barcelona, offering points of reference for other scholars.

Where meat consumption is the focus of the Barcelona article, the other contributions approach their subject through specific elements of the meat supply system. Anna Mazanik examines the nineteenth-century city's most emblematic provisioning infrastructure, the public abattoir. Slaughterhouse reform arrived with some delays to Moscow, when the public abattoir opened in 1888. Efforts to end private slaughter and bring the meat supply under municipal control had been on the agenda for decades. Like elsewhere, the key rationale was public health, which had since shifted from sanitation to epidemiology. The main concerns were cattle plague (rinderpest), which decimated livestock, and trichinosis, carried by roundworm in pork, which also put humans at risk. The Moscow abattoir was a shining example of technological transfer, with public officials looking at European models to build the most advanced facilities, sited at the nexus of railways and equipped with the city's best sewage system with filtration fields. Yet Mazanik points out critical differences, which makes the case even more interesting. The scale was exceptional, with abattoir reform absorbing about 40 per cent of annual city revenues. Following the Russian factory system, the complex also provided housing to all employees. Most significant, like its precedents, the Moscow abattoir was a centralized industrial complex, instituting modern standards of meat inspection. Unlike elsewhere, however, it was not hidden from public view, but on the contrary, it became a centre of education and research, proudly featured as an urban landmark in civic guidebooks and maps. This highlights the *zeitgeist* in Europe to express municipal power through the monumental architecture of public works and institutions. The article provides an insightful account of how abattoir reform served as a symbol for Moscow's entry to urban modernity.

Meat City in Copenhagen, studied by Mikkel Thelle, provides another intriguing case. One of the city's largest public works at the time

besides the sewer and tram networks, it profoundly transformed the Danish capital's meat supply system and the country's agroindustry from the 1880s onward. Like its counterparts, the so-called Meat City integrated modern transportation networks, industrial meatpacking and medical science to increase the efficiency and hygienic standards of meat production. Located on the harbour waterfront, it supplied a growing and increasingly meat hungry public while, at the same time, protected middle-class sensitivities by cleansing the city from livestock, traditional butchery and its auxiliary industries. Importantly, the Meat City not only served local consumers, but also anchored the country's booming export industry, supplying British markets with bacon and pork. Indeed, as Thelle explains, the Danish model of agriculturally based 'entangled' industrialization was centred on a network of co-operative farms, slaughterhouses and export oriented urban meat nodes, such as the Meat City complex. Overall, the Danish case offers an informative example of the layered geographies of late nineteenth-century meat systems, with nationally integrated farmlands for commercial livestock production, and centralized meatpacking in cities supplying local consumers and/or export markets.

If there was a nineteenth-century city focused on supplying meat to global markets, it was Buenos Aires. Fabiola López-Durán and Nikki Moore offer a novel interpretation of the case, tying together themes usually treated separately. According to their analysis, Argentinian biopolitics, informed by eugenics, sought to re-engineer the nation's population by European immigration and military campaigns against indigenous groups. The Pampas' vast livestock herds were also altered, resulting in the dramatic reduction of cattle breeds to those best suited for export markets. Buenos Aires emerged as an Atlantic metropolis by bringing the agricultural bounty of the Pampas to global consumer markets. City and countryside were forged together into a highly productive export economy, centred on commercial livestock production, modern transportation technologies and industrial meatpacking plants. Urban space was likewise reorganized, for a healthy city had to be cleaned from unhygienic practices. In the wake of the 1868 cholera epidemic, city officials shut down the old meat-salting plants, the *saladeros*. In their stead, modern meatpacking plants directed toward export markets, the so-called *frigoríficos*, opened in the south-western suburbs, around which immigrant working-class neighbourhoods sprang up. They set the architectural standard for slaughterhouses, symbols of Argentina's agroindustrial modernity. At a surprising turn, these structures reshaped the Pampas, when in the early twentieth century a series of futurist *frigoríficos* were built in regional urban centres.

Overall, the four case-studies assembled here explore the subject of meat and the nineteenth-century city from different perspectives and through a variety of approaches. Yet they intersect in many ways, enriching our

understanding of the broader themes laid out in this introduction. They also open up new directions for future research both methodologically and thematically. Guàrdia, Oyón, Garriga and Fava demonstrate the value of deploying quantitative methods to the study of nutritional change, an approach particularly relevant for meat, the food item most often regulated, monitored and documented by municipal authorities. Mazanik's article, showing how the Moscow abattoir emerged as a symbol of urban modernity rather than a non-place, reminds us that inter-municipal institutional and technological transfer was a complex process of expert translation and local adaptation. Thelle's perspective on integrating economic, bodily and spatial history points to meat as a complex actor of transformation within modernizing cities, which calls for further interdisciplinary research on the subject. Finally, in arguing that Argentina's meat export economy depended on the biopolitical transformations of human and animal populations, and the attendant hygienic modernization of urban space, López-Durán and Moore provide a novel approach for revisiting the classic problem of city and country relations.