

BOOK REVIEW

## Neal A. Knapp, *Making Machines of Animals: The International Livestock Exposition*

Baltimore: Johns Hopkins University Press, 2023. Pp. 216. ISBN 978-1-4214-4655-4. \$60.00 (hardcover).

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This study joins recent efforts to reinterpret the rise and consolidation of the meatpacking industry and offers a novel explanation for the expansion of the ‘industrial ideology’ to agricultural farms across the United States. To understand the profound shifts in the intellectual and material conception of animality that underwrote the rise of agro-industrial production in meat, Knapp attends to an unlikely alliance between two sets of actors: professors at land-grant universities and Chicago’s meatpacking companies. The crux of the book focuses on the International Livestock Exposition in Chicago, a hub around which meatpackers, livestock experts, farmers and agricultural scientists of various veins gathered annually between 1900 and 1975. In the book, the exposition appears less as an event and more as an institution that occupied ‘a position between farm and the table’ (p. 24), and mediated intellectual and economic relations through which the industrial models of livestock production were made commonsensical to commercial breeders and ordinary farmers. Knapp argues that intermediary actors mobilized the exposition towards different but interlinked goals and, in the process, normalized the moral and economic vision of animals as machines.

Knapp builds this argument in five concise chapters. The first introduces key sites and figures behind the establishment of the International Livestock Exposition. Knapp shows that professors at state-supported ‘land-grant’ universities, especially in the initial years, linked livestock improvement with rural income generation and stability, and simultaneously argued that keeping livestock on American farms was essential for maintaining soil health and fertility. The meatpackers, on the other hand, emphasized standardization and specialization in the form and function of animals to increase efficiency, reduce waste in logistical operations and capture value generated by assembly line dismemberment. The irregularity and seasonality of animal life, which were critically linked with the vagaries of farm life itself, emerged as a problem to be solved for the industry.

For the meatpackers, the overall weight of live animals, or even of post-slaughter carcasses, was far less important than the ultimate retail value of specialized meat cuts. This orientation, Chapter 2 shows, necessitated transformation in the physiology of livestock and reoriented scientific breeding and feeding practices towards producing animals with shorter horns and compact square frames. Figures associated with the exposition linked pure breeds imported from Britain with higher productivity and efficiency. Intriguingly, pure-breeding associations were often financially underwritten by Chicago’s meatpackers. Here, the book also nuances our understanding of the role that eugenics played in shaping the national livestock improvement movement in the

United States. The longhorn cattle, associated with Mexican farmers and ranchers, were characterized as 'mongrel' and 'scrub', and, by the 1920s, federally supported campaigns for sterilization and extermination targeted nondescript breeds of livestock.

The book's greatest strength, however, lies in the close analysis of the shifting intellectual and pedagogical role of researchers based at land-grant institutions. Chapters 3 and 4 carefully attend to the research, teaching practices and advocacy activities of land-grant college professors who connected university campuses, experimental stations, and ordinary farms to the concerns of Chicago's meatpackers. In addition to producing foundational intellectual texts and popular writing that defined livestock evaluation criteria at the exposition in Chicago and agricultural fairs across the United States, college professors also developed educational curricula, coached students as well as exposition judges, and organized on-campus training for farmers before the emergence of federally supported agricultural education programmes.

In addition to textual sources, the book draws upon a variety of visual materials, including photographs, scientific line drawings and popular print. Together, these reinforce Knapp's argument that, within a short period, livestock came to be seen in marginal terms: farmers learned to calculate profit by contrasting the cost of feed and other inputs with the value of meat cuts. Much of the book focuses on the late nineteenth century and the early twentieth, and only near the end, in Chapter 5, does Knapp leap toward mid-twentieth-century developments to highlight the limits of the exposition's vision. Finally, the epilogue explicitly drives home the book's central cautionary lesson: privileging industrial norms in agrarian practices has led to the production of cheap food for consumers, but also made farmers drastically dependent on off-farm exchanges, creating widespread food insecurity while ballooning profits for the meatpackers.

Narrating from the archives of professors, meatpackers and exposition records allows Knapp to make explicit epistemological and institutional connections between agricultural researchers and the meatpacking industry that have remained implicit in the existing scholarship. At the same time, we only get glimpses into how farmers in different regions interacted with, participated in or resisted changing norms. The book also opens avenues for a wider geographic frame. The organizers of the exposition legitimized their emphasis on pure-bred livestock by soliciting judges and experts from Argentina, Mexico, Canada and other regions where pure breeding had acquired institutional significance. These threads in the book also suggest that the industrialization of livestock in the United States had important transnational genealogies that remain under-addressed in current historiography.

*Making Machines of Animals* introduces new actors, methods and arguments, and will be of interest to historians of science for its remarkable interweaving of economic history with the history of science, technology and agriculture – a significant historiographic alliance that has reanimated the field over the last decade, to which Knapp's text is an important testament.