ทินกฤต สิรีรัตน์
คณะมนุษยศาสตร์ มหาวิทยาลัยเชียงใหม่

โตเกียวใต้เกือกม้า: รถม้า ความเปลี่ยนแปลงของเมือง และความเป็นตัวการทางประวัติศาสตร์

บทคัดย่อ

งานวิจัยนี้ศึกษาการเข้ามาของรถม้า (พาหนะที่ลากจูงด้วยม้า) ในเมืองโตเกียวในสมัยเมจิ (ค.ศ. 1868-1912) งานศึกษาเกี่ยวกับประวัติศาสตร์รถม้าที่ผ่านมา มักให้ความสนใจกับตัวพาหนะและเน้นอภิปรายเรื่องพัฒนาการของเทคโนโลยี การคมนาคมในเมือง และกระบวนการเข้าสู่ความเป็นสมัยใหม่ อย่างไรก็ตาม ม้าซึ่งเป็นหนึ่งในองค์ประกอบสำคัญของเทคโนโลยีชนิดนี้กลับถูกละเลยไปอย่างน่าประหลาดใจ เพื่อเติมเต็มช่องว่างในงานศึกษาดังกล่าว งานวิจัยนี้จะพยายามรื้อฟื้นบทบาทของม้าในการสร้างเมืองโตเกียวสมัยใหม่ บทความนี้เริ่มด้วยการอธิบายภาพรวมของกระบวนการที่รถม้ากลายมาเป็นตัวเลือกการคมนาคมภายในเมืองโตเกียว ต่อมาผู้เขียนจะปรับใช้แนวคิดจากสาขาประวัติศาสตร์สิ่งแวดล้อมและสาขาวิทยาศาสตร์และเทคโนโลยีศึกษาในการแกะดูภายในองค์ประกอบของรถม้า เพื่อวิเคราะห์การจัดระเบียบความสัมพันธ์ระหว่างมนุษย์กับม้าเพื่อประโยชน์ในการใช้ชีวิตในเมือง ในส่วนสรุป ผู้เขียนเสนอว่าเหตุการณ์ต่าง ๆ ที่เกี่ยวข้องกับการอาละวาดของม้าแสดงให้เห็นวิธีการที่ม้าเข้ามามีส่วนร่วมในการกระทำทางประวัติศาสตร์ ซึ่งเรียกร้องให้เกิดการทบทวนความเป็นผู้กระทำทางประวัติศาสตร์ (agency) ของสัตว์ รวมถึงการใช้แนวคิดดังกล่าวในการเขียนประวัติศาสตร์

คำ **สำคัญ**

รถม้า, ประวัติศาสตร์สัตว์ในเมือง, ความเป็นตัวการ, เมืองโตเกียว

Tinakrit Sireerat
Faculty of Humanities, Chiang Mai University

Tokyo Under the Hoof: Horse-Drawn Carriage, Urban Transformation, and Historical Agency

Abstract

This research examines the introduction of horsecars (horse-drawn carriages) in Tokyo during the Meiji Period (1868-1912). Previous studies have tended to focus on the carriage, discussing technological development, urban transportation, and modernization; however, the horse, which was one of the key components of this technology, has been surprisingly overlooked. In order to address this academic lacuna, the present research seeks to recover the role of horses in the making of modern Tokyo. The article opens with an overview of how horsecars developed as an important means of transportation in Tokyo. Then, drawing insights from environmental history and science and technology studies (STS), the horsecars are unpacked in order to examine how the human-horse relationship was configured to facilitate urban life. To conclude the article, a discussion of the instances of horse rampages demonstrates the ways in which horses participated in past actions, which then calls for further reflection on how agency works in history and historiography.

Key words

horsecar, urban animal history, agency, Tokyo

* I would like to thank Arnika Fuhrmann, Nick Admussen, Yiyun Peng, and Yu-Han Huang, who kindly read and gave helpful suggestions on earlier versions of this article. I also thank Thanabhorn Treeratsakulchai and three anonymous reviewers for their constructive feedback on the current version. All remaining errors are my own.

1. Research Background

Though not a native fauna, horses had been introduced to the Japanese archipelago since antiquity, probably in the fifth millennium B.C. (Nussbaum & Roth, 2002, p. 354). The peoples of Japan gradually integrated horses into their everyday life – including farming, traveling, and in warfare (Kenrick, 1964, pp. 142–143). Horse breeding and raising began to take shape around the seventh century, and by the medieval period, regions such as Nambu had become renowned for high-quality stallions preferred by the samurai (Bay, 2005). Along with oxen, horses were also used as pack animals for transporting goods between regions, but horse riding was generally limited to the samurai (Kenrick, 1964, p. 56; McClain & Merriman, 1994, p. 33). Despite the importance of horses, the Tokugawa Shogunate prohibited horse riding in the city of Edo (present-day Tokyo) (梶島, 1997, pp. 78–79), and the use of horses as a means of urban transportation – either riding horses or horse-drawn vehicles – was not allowed until the last years of the Tokugawa Period.[1,2]

However, in 1866, two years before the Meiji Restoration, the Tokugawa Shogunate decided to grant permission to use horse-drawn carriages in the city of Edo and on major roads. Since then, horses, used in various types of horse-drawn vehicles, became increasingly present in Tokyo as well as other cities in Japan, until electric streetcars replaced them in 1904. For about half a century, the horses roamed the city, but the history of the horsecar contains little information about these animals. The sound of the hooves that echoed in Japan's capital city in the late nineteenth is curiously silent in today's history of the city.

Scholarship on the history of the Japanese horsecar, while scarce in the English language, has received slightly more attention among scholars who publish in Japanese.[3] Most of the Japanese-language scholarship frames the Japanese horsecar as part of global horsecar culture, emphasizing that Japan imported this culture during the nineteenth century. Shinohara Hiroshi, for example, recounts the history as that of the "flow of culture," tracing how the horsecar, before arriving in Japan, had undergone a period of development in Australia, the United States, the United Kingdom, and seventeenth-century France (篠原, 1975, p. 2). Similarly, other monographs and edited volumes on Japan's transportation history also include one or more chapters on

---

[1] Between 1603-1868 C.E., most of the area known as Japan today was governed by a military government called the Bakufu, which was headed by shogun from the Tokugawa family, and hence the name Tokugawa Shogunate. This Period is usually called the "Tokugawa Period" after the ruling family, or the "Edo Period" after the name of the political center.

[2] The Between 1603-1868, most of the area known as Japan today was governed by a military government called the Bakufu, which was headed by shogun from the Tokugawa family, and hence the name Tokugawa Shogunate. This Period is usually called the "Tokugawa Period" after the ruling family, or the "Edo Period" after the name of the political center.

[3] Most of the studies in English language either discuss the topic in passing or briefly mention as part of the history of railways and the streetcar within the broader history of transportation in Japan. Other vehicles which were contemporaneous with the horsecar, such as the rickshaw and the bicycle, have been better researched as in several articles by transportation historian M. William Steele. For example, see Steele (2010, 2012, 2014). On a cultural history of Tokyo's transportation, see Freedman (2011)

the horsecar to describe Japan's technological development in comparison with its Western counterparts.[4] Placed in the context of Japan's modernization, existing scholarship thus posits the emergence of Tokyo horsecar as an attempt by the Japanese government to make Tokyo a modern city.

While scholars have noted the significance of the horsecar in Japanese history, they generally regard the horsecar as a finished product, whose function is static regardless of the site of use. Bruno Latour calls such a product an "immutable mobile" – the knowledge or information that is made into a "thing" so that it will not change its contents when it is moved to somewhere else (Latour, 1986, p. 7). Recent scholarship on technology studies, however, questions such assumed immutability of technology. For example, Marianne de Laet and Annemarie Mol's study of the Zimbabwe bush pump sheds light on the porous boundaries of the seemingly concrete technological artifacts. In contrast to Latour's "immutable mobile," the authors propose the notion of fluidity and argue that the Zimbabwe bush pump is highly flexible as its form and function vary according the local setting it finds itself into (de Laet & Mol, 2007, p. 180). The pump's identities also "contain a variant of its environment" Ibid., pp. 208–209), and therefore, call into question the notion that the environment is alien to technology. Indeed, several scholars, such as Shinohara, have already acknowledged that the specificity of time and place contributes to the variety of the functions and meanings of the horsecar in different contexts. Yet, while cultural situatedness has been brought under scrutiny, the environmental aspects are cast aside as if they were of no significance. Most apparently, the horse, which is an integral part of this technology, has received little or no attention at all from scholars of horsecar history.

2. Research Questions

2.1 How was the horsecar introduced as a means of urban transport in Tokyo?

2.2 How did the use of horsecar in the city reconfigure human-horse relationship?

2.3 How can incidents of horse rampage shed light on the historical agency of horses in the past?

3. Previous Scholarship and Research Methodology

In general, historical actors are believed to be humans, mostly male elites, who make use of nonhumans (animals, plants, tools, technological artifacts, etc.) for their human purposes. Rarely do nonhumans appear in historical writing as actors, and if they do, their agency may be dismissed

[4] Saitō Toshihiko explains that as early as 1860, the horsecar had been associated with the idea of civilization or modernity. For example, in the 1860 debate between the Japanese government and the Dutch vice-consulate, the latter argued that Japan should allow the use of the horsecar, which he claimed to be an ordinary practice in civilized countries (in Europe) (俊彦, 1997, p. 16). See also (原田, 1977; 馬事文化財団馬の博物館, 2000).

as mere instinct or reflexive action (Pearson, 2013, p. 133).[5] Produced in this overarching tradition in the field, existing literature on the history of the Japanese horsecar tends to overlook the role of the horse and more discuss more elaborately the work of the human, who is assumed to have full control over this technology. However, as countless cases of horse rampage have suggested, the human is far from the only actor in the working of the horsecar; whether the horsecar can run the way it is supposed to depends on the horse as much as the human (driver/user).

More recently, a new approach called "urban animal history" has emerged to address the multifaceted roles of animals in urban settings. During its early years, the field has been immensely influenced by animal geography, a subfield which started to rise around the late 1990s.[6] The field has strived to shed light on how animal geography has explicated how evolving human-animal relationships have been intertwined with identity formation and spatial configuration, while also underlining the prominent roles of animals in the constitution of spaces. Wolch, who has played a prominent role in directing attention towards human-animal relations in the urban settings, proposes several influential concepts such as "zoöpolis" (Wolch, 1996, 2002). In the field of history, Ted Steinberg uses the term "organic cities" to explain how humans and animals are mutually dependent with "a certain social and environmental logic" (Steinberg, 2002, p. 159). In response to Steinberg, Scott Miltenberger proposes the concept of "anthrozootic city" – a city constituted by the intimate interdependence of humans and animals (Miltenberger, 2015, pp. 262–263).

For a history of urban horses, Clay McShane and Joel Tarr' The Horse in the City (2007) has been quite influential. Focusing on the transformation of human-horse relationships and their connections to the making of nineteenth-century American cities, McShane and Tarr argues that "a shaper of cities" and that the nineteenth century, besides being the age of the machine, should also be considered "the golden age of the horse" (McShane & Tarr, 2007, pp. 14 and 19). To support their claims, the authors demonstrate that the horse played a variety of important roles in the city; for example, they provided labor in urban transportation and factories, influenced urban physical forms, and shaped laws. In addition, McShane and Tarr assert that while the humans who worked with horses did not forget that horses were sentient beings, they also held the view that horses were a kind of machine that could be subject to technical refinements. Seeing horses as "living machines," McShane and Tarr argue that "The horse retained its animal nature, but in its relationship

---

[5] The question of nonhuman agency has a long history in the field of environmental history. Since the beginning of the field, many leading figures of the field had pointed to how nature acted back to humans to argue for the agency of nature (Worster, 1979). Later works, however, have suggested that nonhuman agency can be expressed in several other ways that are not always resistance (Mitchell, 2002; Nash, 2005). Others argue that agency works in the form of hybrid causation (Walker, 2010), or that agency can been diversely understood according to different historical contexts such as (Pearson, 2016).

[6] The It should also be noted that the rise of (new) animal geography, led by Wolch, Emel, Philo and Wilbert, has been immensely influenced by literature in both environmental history, especially the works after the cultural turn such as Cronon's Nature's Metropolis (1991), and STS, notably the notion of situated knowledge and various concepts of nonhuman agency. For overviews of the field, see Emel et al. (2002) and Philo & Wilbert (2000)

to the streetcar it had become a machine and a critical source of transforming power" (Ibid., p. 83)

This research is an attempt to foreground the roles of the horse (and the transforming human-horse relationships) in shaping the development of Tokyo. To examine this history, I primarily rely on the newspaper articles in ***Yomiuri Shimbun.***[7] More specially, I focus on the news from the period between 1874 and 1904, which was the year when horse-drawn carriages (馬車) in Tokyo were replaced by electric streetcars (電車). For conceptual tools, my research is influenced by the deconstructionist approach in the field of science and technology studies (STS). Also, to recover the horse's historical agency, I draw upon insights from the fields of environmental history as well as the emerging field urban animal history. In the following sections, I will begin with an overview of how horse-drawn carriages developed as an important means of transportation in Tokyo. Then, I will "unpack" the horsecar to examine how human-horse relationship was rearranged for the new form of transport to function. Lastly, by looking into several instances of horse rampage, I seek to recover the agency of the horse and reflect on how agency works in history and historiography.

4. Research Findings

4.1 Horse-Drawn Tokyo

The history of Tokyo during the Meiji Period is characterized by the attempt to make Tokyo a modern city. In his study of Japanese thoughts on the city, Henry Smith (1978) describes Tokyo between 1868-1900 as "Restoration Tokyo." Locating Tokyo in the transition from the political center of the military government to the new capital city of an emerging modern nation state, Smith argues that the dominant concept of Tokyo was that of a "showcase" which displayed the latest fashions and inventions from the West as well as Japan's institutional innovation. This concept was translated into practice in the reconstruction plan of Ginza, which was burnt down in 1872. This plan was aimed at building a modern Western-style downtown area, representing "the hopes of impressing foreigners with the capital's modernity" (p. 53). However, due to its unpopularity among politicians and local residents, the plan was scaled down and not put into practice completely. By 1877, only about a third of the original Ginza project was achieved. According to urban historian Andre Sorensen, the failure of this project was caused by financial limitations as well as "the unpopularity of the new brick buildings which were considered too damp in Tokyo's humid summers" (Sorensen, 2002, p. 62).[8]

---

[7] Mundane incidents like horse rampage or horsecar accidents tend to be featured more frequently in Yomiuri Shimbun, which originally focused on local news. Other newspapers leant more towards national news [such as Ch**ō**ya Shinbun (est. 1879)] or economic and financial reporting [such as Mainichi Shimbun (est. 1872) and Tokyo Nichinichi Shimbun (est. 1876)]. Additionally,
Yomiuri Shimbun also has its own digital catalogue, called Yomidas Rekishikan, which stores the papers since 1874. The keyword-search function of Yomidas Rekishikan is particularly helpful for tracking horsecar-related incidents – the miscellaneous topics that were hardly mentioned in the headlines.

[8] would like to thank the third reviewer for suggesting additional resources on the failure of the original Ginza project.

Despite the failure of the Ginza Brick Quarter, the theme of planning Tokyo as a showpiece for foreigners was revived during the 1880s. The less ambitious and more practical goals of the Municipal Improvement Act (市区改正条例) of 1888 focused on changes that would make the city presentable to foreigners. Modelled after Haussman's grand, permanent, and monumental Paris, the project included the widening and paving of roads, improvement of water supply, and dredging of rivers (Smith, 1978, p. 54). During the same decade, another group of urban planners whom Smith calls "urban modernizers," represented by Fukuzawa Yukichi (1834-1901) and Taguchi Ukichi (1855-1905), entered the scene. These urban modernizers saw the city as "a challenge to be met with modem technology and practical learning" (p. 55).

In parallel with the attempt to make Tokyo a modern city, some of the urban changes during this time were also aimed to accommodate the horse and the horsecar. Following the expanding use of horsecar in the city, new physical structures related to horsecar, such as the brick horsecar warehouse at the Ministry of War in Yūraku-chō, were also introduced (「有楽町の陸軍省に、れんが造りの馬車庫を建設」, 1876). Post offices might have their own stables to keep their horses used for delivery, as could be assumed from the news report of small fire that started from the horse stable at a post office in Kōjimachi-cho (「東京・麹町区郵便局の馬小屋でボヤ」1886). Moreover, the concept of landscape might also play a role in the way construction of new roads was carried out, for example, On the side of Akasaka Mitsuke-Kinokunizaka Shitamon Line, sakura trees were planted, and the moat paved with pebbles (「赤坂見附外ー紀伊国坂下間の馬車道がほぼ完成堀端に桜など植え砂利を敷く」1885).

The construction of horsecar roads was seriously carried out throughout the Meiji Period. Roads were widened to accommodate the use of horsecars, while new horsecar roads were being constructed(「東京・駒場野に農学教師館を新築　新宿らの道路拡幅し、馬車道にする」1877;「東京・飯倉狸穴の海軍気象台へ馬車道の工事華族の邸宅が道筋に」 1878;「芝山内から三田の勧局育種場へ通ずる馬車道、きょう１日開通」1878;「鉄道馬車道の敷設始まる新橋ー上野広小路を手始めに５月中に完成」1882;「赤坂見附の新馬車道が落成」1885). Some of them were carried out by private sectors who won the auction (「虎ノ門葵坂ー赤坂見附下の馬車道新設工事、きょう東京府庁で入札」 1888;「東京・虎ノ門外葵坂ー赤坂見附間の馬車道新設工事は、約２万１３００円で落札」1888). It also seems that the authority paid close attention to the construction of horsecar facilities, and inspection was done at some construction sites. For example, because the construction of new horsecar road which connected Toranomongai Aoizaka and Akasakamitsukemon progressed at fast pace, the Tokyo Metropolitan Office set out to inspect the construction site (「虎ノ門外葵坂ー赤坂見附門の馬車道新設工事が急ピッチ府庁側が検分」1888).

The integration of the horse into urban life also required the establishment of several urban institutions. Directly related to the use of horse for transportation were institutions such as shops

that sold or rented horses, and horsecar operators which included small shops and larger companies that operated horse-drawn streetcars. Aside from transportation, the necessity of horses in the military also led to the establishment of institutions responsible for horse-breeding, training, and management. Examples of institutions mentioned in the Yomiuri included the Army Horse Bureau (軍馬局) which was responsible for training horses for the military (「近く隅田川で軍馬局の馬事訓練が行われる」1876), the Army Sick Horse Bureau (陸軍病場局) which owned stables where sick horses were to be treated (「暴風雨で陸軍病馬局の馬小屋が倒壊、軍馬 7 頭が死ぬ」1880).

Within the bureaucratic structure also emerged a few government units to deal with horse-related affairs, notable the establishment of Horse Section in the Ministry of Agriculture and Commerce. Some existing organizations also added new responsibilities related to the horse. For instance, on several occasions in 1887, Tokyo Metropolitan Police Department (MPD) took a leading role in warning the public and preventing the spread of horse diseases including skin carbuncle disease and anthrax. In these cases, MPD worked closely with Livestock workers (飼育者) – a new group of experts that emerged alongside the development of modern livestock farming (「栃木、埼玉、東京で馬の流行病が発生　飼育者は予防に注意」1887;「群馬県で馬 1 頭が炭疽病、栃木県、東京府陸軍第一調馬隊で皮疽病発生」1887;「東京府荏原郡白金村に伝染病馬　馬の飼養者は予防に注意」1887). Additionally, the MPD also took part inspecting horse-related business and to some extent preventing mistreatment to horses. For example, in 1882, MPD inspected the condition of horsecars and refrained from giving license to horsecars with weak horses (「警視庁が馬車馬の検査　脆弱馬は鑑札交付を見合わせる」1882). And in 1890, MPD warned horse businesspeople not to treat horses harshly (「馬を過酷に扱わぬよう警視庁が馬車業者に内諭」1890).

To supply horses for urban use, breeding stations were also required. The major breeding station in Tokyo was the Agriculture Promotion Bureau's breeding station at Sanda, Shiba-ku. Not only did this station produce horses, but it also served as a venue for horse auctions where disposed horses were sold out. *Yomiuri* usually published ads from the Sanda breeding station whenever an auction was called out. The auction happened quite frequently, and most of the horses on auction were either from the Army Horse Bureau or Horse-drawn Streetcar Company (鉄道馬車会社). In addition to breeding and hosting auctions, the Sanda breeding station also hosted horse racing. Kenrick explains that the Japanese government called in an American expert in 1872 to take charge of stock and general farming and sent two Japanese to America to study horse-breeding. Hokkaido, because of its suitable climate and environment, was explored as a site for animal husbandry. By 1900, the Japanese government decided to establish two pastures and sixteen studs.[9] Via the Horse Section in the Bureau of Agriculture, the government supervised

[9] A stud is a group of animals and especially horses kept primarily for breeding, or a place (as a farm) where a stud is kept.

the management of horse breeding as well as purchasing and importing horses. In addition, the army and private sectors also engaged in breeding and importing foreign breeds including Arabs, Anglo-Arabs, Trotters, Thoroughbreds, Hackneys, Percherons, Clydesdales, Australian and Hungarian horses (Kenrick, 1964, pp. 143–145).

4.2 Inside the Horsecar and Beyond

To understand how the horsecar emerged and operated as a transportation technology, we must take a closer look at the components that constitute the horsecar: notably, the carriage, the horsecar operator, and the horse. According to Shinohara, early carriages were imported by foreigners who started the first horsecar business in Japan. During the early years of the business, there were four companies which provided horsecar service between Edo and Yokohama. This inspired Japanese locals to also start horsecar businesses. For example, in 1869, Oka Hisanosuke and his business partners co-founded a company named Narikomaya to operate the Tokyo-Yokohama route, which used imported carriages (篠原, 1975, pp. 206, 224).

In the Meiji Japan, there were two slightly different occupations related to the operation of horse-related modes of transportation: 御者 (driver of horse-drawn carriage), who were usually foreigners during the earlier years, and 馬丁(horse-handler), who could be either Japanese or foreigners. Saitō argues that both 御者 and 馬丁 did not become occupations until the Bunmei Kaika era (文明開化; Civilization and Enlightenment) (俊彦, 1997, p. 76). However, according to Vivienne Kenrick, the Japanese way of horse riding during the preceding Tokugawa Period (1603-1868) markedly differed from that of the West; the former required a 馬丁 on the ground to control the horse's direction while the latter did not require one. This suggests that 馬丁 might have already existed before the Bunmei Kaika era. (Kenrick, 1964, pp. 52 and 61).

The meaning of the Japanese term 馬丁 is slightly broader than the term handler. In addition to feeding, grooming, and other tasks related to taking care of the horse, which are the expected jobs of handlers, a 馬丁 is usually responsible for controlling the horse while being used for travelling. Before the arrival of the horse-drawn vehicles, 馬丁 walked next to or in front of a moving horse and held a rope attached to the horse's mouth to control its direction. When the horse-carriage arrived, the 御者, who sat on the carriage and controlled the horse(s) by reins, took over the controlling task while the 馬丁's role was limited to taking care of horses. However, some horsecars might include both 御者 and 馬丁, the latter responsible for shouting to warn people on the street of the upcoming horsecar (俊彦, 1997, p. 77). This practice was not common in horsecar culture elsewhere, which also implicates a modification of practice when the technology was transferred to and situated in a new site.

While some primary sources related to carriages and drivers exist, we do not know much about the horses that pulled the horsecars. One possibility is that horses were imported to

alongside carriages and drivers, because Japan's native breeds were generally too small to pull heavy carriages. There is also evidence that Japan later invested actively in improving horse breeds to fit new demands from both the army and the horsecar industry. Kenrick explains that the Japanese government called in an American expert in 1872 to take charge of stock and general farming and sent two Japanese to America to study horse-breeding. Hokkaido, described by the American expert as having a suitable climate and environment, was explored as a potential site for animal husbandry.[10] By 1900, the Japanese government had established two pastures with sixteen studs. Via the Horse Section in the Bureau of Agriculture, the government supervised the management of horse breeding as well as purchasing and importing horses. In addition, the army and private sectors also engaged in breeding and importing foreign breeds including Arabs, Anglo-Arabs, Trotters, Thoroughbreds, Hackneys, Percherons, Clydesdales, Australian and Hungarian horses (Kenrick, 1964, pp. 143–145).

For the horsecar to operate, the driver, horse, and the carriage had to work together. But what held these components together? In general, the credit is believed to go directly to the inventor or designer of carriage technology; inventor built the carriage, designed its accessories such as the reins held by the driver to control the horse, and trained the driver how to operate. In such an assumption, the invention of technology is a one-time thing, and after that, the process is settled so that the horsecar will function the same everywhere. Therefore, the horsecar technology has become a "black box"; the technology reached the user as a package whose internal operation is taken for granted, and which becomes invisible to the user.

The availability of the horsecar does not guarantee that it will be readily taken as a means of transportation. As pointed out by Saitō, although the demand that the Japanese government allowed the use of wheeled vehicles in the city of Edo and highways connected to the city had appeared as early as 1846, it was not until 1866 that the Japanese government granted permission (俊彦, 1997, p. 5). This suggests that the institutionalization of the horsecar as a mode of urban transportation was a highly contested process, partly due to different meanings people gave to the technology. To illustrate, the correspondence in 1860 between Dirk de Graeff van Polsbroek, the Dutch vice-consul to Japan, and the Japanese official is an apparent example of conflicting perceptions of the horsecar. De Graeff, who wished to travel in Japan by horsecar, argued that "In civilized countries, travelling in the city by horsecar is an ordinary thing." In response to de Graeff, the Japanese official stressed that "Even if in many foreign countries travelling by horsecar is ordinary, our country has our own system," which suggests

[10] Since the beginning of the Meiji Period until the First World War, Hokkaido was one of the most significant sites for the Japanese government to experiment on major policies, especially those related to agriculture and animal husbandry and led by a government organ called the Kaitakushi (開拓使). See Nitobe Inazō (1893) and Walker (2001) On the roles of American experts in development projects in Hokkaido, see Dun (1919) and Fujita (1994).

that Japan refused to adopt the "ordinary" (universal) horsecar in order to be a civilized country (p. 16). However, by 1872, the Japanese government had adopted the horsecar-as-civilization ideology and tried to discourage the use of other vehicles such as the rickshaw (人力車) in favor of the horsecar.[11] Still, the status of the horsecar as a symbol of Japan's modernity continued to be highly contested.[12]

As already discussed, although the horsecar-as-modernity ideology was far from a consensus in the Meiji Period, the Japanese government at the time did take the horsecar into consideration when it began a series of policies guiding urban planning and landscape transformation. In particular, the construction and reconstruction of Tokyo's roads to accommodate the use of horsecars, as well as the construction of new tracks for horse-drawn streetcars, were vigorously implemented throughout the Meiji Period. To understand how the horsecar became institutionalized as a mode of urban transportation, Thomas Hughes' notion of technological systems can be helpful. Rather than emphasizing how society shapes technology, Hughes points instead to the co-shaping of society and technology; following the invention of a technology, the technological artifact, social institution, and the environment need to be reconfigured and stabilized as a system, which can be achieved by what Hughes calls "system builders." According to Hughes, "One of the primary characteristics of a system builder is the ability to construct or to force unity from diversity, centralization in the face of pluralism, and coherence from chaos" (Hughes, 1987, p. 46). An example of such a system builder is Thomas Edison, whose responsibility extends beyond the realm of invention. As an inventor-entrepreneur, Edison was also responsible for organizing workers for his light bulb business as well as lobbying the government and getting involved in policy-making to ensure that his technological invention had a place in the society (Ibid., p. 57). Like the light bulb, the transition of the horsecar from a technological artifact into a means of urban transportation required a series of conflicts, negotiations, and compromises.

A problem with Hughes' framework is that it assumes the possibility of achieving the ideal stage of a closed system in which all components are stabilized and able to work with full capacity.[13] Moreover, like the emphasis on inventors, Hughes' notion of system builders can also be criticized for privileging the agency of the human while rendering the nonhuman's agency insignificant or

---

[11] For example, in 1874, the newspaper Tokyo nichi nichi shinbun, which functioned more or less as a government propaganda organ, published an article arguing that Japan should use the horse-drawn omnibus instead of the rickshaw because the former was the favored means of urban transportation in England and France, the "great civilized and enlightened countries" (Wittner, 2008, p. 100)

[12] On the promotion of the rickshaw as a symbol of Japan's modernity, see Steele (2014)

[13] This notion of "open" and "closed" systems is based on what Hughes has argued in his oft-cited monograph, Networks of ***Power*** (1983). In this book, he writes that: "Those parts of the world that are not subject to a system's control, but that influence the system, are called the environment. A sector of the environment can be incorporated into a system by bringing it under system control. An open system is one that is subject to influences from the environment.; a closed system is its own sweet beast, and the final state can be predicted from the initial condition and the internal dynamic" (Hughes, 1983, p. 6)

invisible.[14] While it is true that the horsecar eventually became a dominant mode of urban transportation by the 1880s, the system was far from completely "stabilized." Between 1874-1912, Yomiuri Shimbun reported hundreds of accidents associated with horsecars. Since horsecars were not the only occupants of roads in Tokyo, collisions, especially with rickshaws, were not rare.[15] In addition, accounts of horses getting excited, rampaging, and causing injuries or damages to property were also common; within Tokyo alone, there were more than a hundred cases of horse rampage between 1874-1905. Instead of complete stabilization, these horse-rampage incidents suggest that humans had never gained full control over horses and enable an examination of other nonhuman actors and their roles in the operation of technology.

4.3 Running Wild

To examine the horse's agency, I take a close-reading of horse-rampage incidents, whose frequency of occurrence was apparent in the sheer number of newspaper accounts during the period under study. As historian On Barak has suggested, "Accidents offer a peek inside this black box, a fact that makes them especially revealing moments for disclosing the logics of the systems that produce them as 'accidents' within a contrasting 'routine'" (Barak, 2013, p. 8). Incidents such as horse rampages, therefore, enable us to investigate the roles played by the horse in the operation of the horsecar against the assumption of the human's complete control of technology.

Though being part of the horsecar, horses' perceptions suggest their remaining connection to the environment. Dozens of newspaper accounts from Yomiuri Shimbun report how horses were excited or frightened by various kinds of urban noises, including the sound of bells (「ベルの音で驚いた馬が大暴れ　自転車から落ちた男性が大けが」1905), hoof beats from army horses (「荷馬車ウマ暴れて腕車３台を破壊　軍人乗馬の蹄音に驚く、乗客負傷、示談」1904), or thunders (「荷馬車逸走で石油店など大破　突然の雷鳴に馬が驚く」1895). Others got excited from the sound of rickshaws (「人力車の音に驚いた馬、肥おけと一緒に川に転落」1876), the steam whistles of trains (「道路を行軍中の陸軍の馬２頭が汽車の汽笛に驚き暴走し、４人が負傷」1884), and the sound of the electric car (「空荷馬車の馬が電車に驚き暴走　人足、子守女、幼児…５人に重軽傷」1905).

Almost all of the reports of horse rampage are put in the "accident" (事故) category. Only occasionally do they appear in "service" or "crime": the latter primarily includes cases that need further investigation or settlement such as hit-and-run cases. But is a horse rampage really an "accident"? What does accident mean, and what does it imply when someone says that a horse rampage is an accident?

---

[14] While Hughes' concept of technological system remains influential, recent works that build on Hughes have modified the concept to better address nonhuman roles, which Hughes tends to overlook in favor of human system builders. Several scholars in the subfield called "envirotech" revise Hughes' framework to foreground the agency of nature in the system. For example, see Pritchard (2012)

[15] The Rickshaw was a new means of transportation in Japan introduced during the late nineteenth century. It became popular among city dwellers in Japan and also spread to other countries in Asia.

On the one hand, accidents are understood as abnormal situations; as glitches that occasionally appear in a technological system that is normally supposed to work. However, as Charles Perrow noted, saying that a situation is an accident can problematically minimize the inherent risks of technological systems. Rejecting the idea that accidents are caused by technical glitches, Perrow proposed the notion of a "normal accident" to emphasize that accidents are inherent to those systems. To supplement this idea, Perrow also developed the notion of the "eco-system accident" to illustrate how accidents are expected to occur due to the unawareness of the system builders about the entanglement between human-made systems and natural systems. "Because the designers never expected them to be connected," attention was generally directed to controlling technical process while potential interventions from the environment tended to be overlooked or underestimated (Perrow, 1999, p.296; Pritchard, 2012, p. 223). In the case of the Japanese horsecar, while it cannot be said that the horsecar operators were unaware of this connection, Perrow's emphasis on the tight coupling between technological systems and the environment remains useful for a reconceptualization of horsecar-related accidents.

In their study of urban horses in the United States, Clay McShane and Joel Tarr explains that "The evolutionary track taken by horses provided shyness and speed as defense mechanisms. Horses scare easily, and their reflex is to run away. An overly excitable horse might cause an accident or damage itself if it reverted to this behavior" (McShane & Tarr, 2007, p. 54). According to McShane and Tarr, American horsecar operators recognized this fact and invested immensely in horse training and developing accessories to prepare horses for urban life, and in turn, lowered the risk of accidents caused by excited horses. Such training can also be found in Japan as well, albeit on a smaller scale and in a less systematic form. Horse rampage incidents continued to occur until the horsecar was replaced by electric streetcars during the early twentieth century, highlighting the fact that horses never fully came under human control.

5. Discussion and Conclusion

In this paper, I have sought to show that modern Tokyo was built *with* and *around* the horse. With the permission to use horse-drawn vehicles granted in 1866, the horse became ever more essential for intra-city transportation, leading to major changes in human-horse interactions in the city. The newspaper accounts in Yomiuri Shimbun demonstrate that the integration of the horse into the urban transportation network physically transformed the city such as widening roads and building horse-rearing structures to accommodate the presence of horses in the city. At the same time, new urban institutions emerged to deal with horse-related affairs from breeding, managing the use, and disposing of old horses. Moreover, as speed and convenience in transportation became an indicator for Japan's modernity, living with horses meant a "modern life" for Tokyo dwellers.

Thanks to the growing use of horses, Tokyo became a modern city by speeding up its urban life, as opposed to the slow Edo where horses were not widely used for intra-city transportation.This association of horse and horsecar with modernity persisted until electric streetcars - the faster and more convenient mode of transportation – started to replace horsecars during in 1903.

Horse-drawn modernity, it should be noted, was only possible with the active participation by animals who sometimes went wild. If we situate this story in the broader field of urban animal history, how do horse rampages elucidate how nonhuman agency works? If rampages are not accidents, they may be considered instances of nonhuman resistance against human plans. If we think of horses as part of a technological system, following Hughes' framework, they are supposed to follow the procedures set by human system builders by moving carriages in assigned directions. Yet, horses sometimes refuse to take expected actions, and in worse cases, they may run wild and cause damage. Nonhuman agency, therefore, can be manifested in resistance. However, equating resistance to agency can be considered a kind of reductionism. Many scholars, especially after the cultural/hybrid turn in environmental history during the 1990s, have shown that that agency should not be equated with intention or subjectivity; that agency, as well as its representation, can be constructed in myriad historically-specific ways, and that resistance is not the only way to express agency. For example, in opposition to scholarship that equates agency with resistance, Etienne Benson suggests the nonhumans also express their agency even when they function as expected in the systems. Examining the Big Creek hydroelectric system, Southern California, Benson contends that the fact that systems continue to function does not mean that the environments are passive or do not act at all. Rather, the environment remains powerful, lively, and chaotic, but its presence and agency are rendered invisible by the engineers' attempt to stabilize the system using strategies that Benson calls "insulation" and "interconnection." In contrast to Hughes who attributes the functioning of technological systems to human agency (especially that of the system builders), Benson suggests that it is actually the product of "the comingling of various nonhuman and emergent agencies" (Benson, 2015, p. 125).

Echoing Benson's counterargument against resistance-as-agency as well as his emphasis on comingling, Despret calls for a reconceptualization of agency by attending to interrelations among the species. She stresses that "being a *subject* does not equal being an *agent"* and adds that animals and other nonhumans will remain "secret agents" as long as we adopt a conventional definition of agency based on subjective experience and autonomous intention – only when they resist that their agency is grasped by observers. In the case of working cow, for instance, Despret explains that "the cows' work never becomes perceptible, *except when they refuse to cooperate,* [...] This resistance shows that when everything goes correctly, it is because of an active investment on the part of the cows." Hence, she argues that "There is no agency that is not

interagency. There is no agency without agencement, a rapport of forces." Such is also how the horse's agency worked in the horsecar technological system. Incidents such as rampages remind us that something is going on inside the black box; the horse and objects like the carriage are all working even though we do not see them (Despret, 2013, pp. 33, 42, 44).

In conclusion, the recognition of interagency among the horse, the human and other components of the horsecar enables us to see another history beyond Japan's technological progress and modernization. The arrival of the horsecar brought the human and the horse together, changing the lives of both Tokyo's humans and horses. And as part of the process, Tokyo *became.* In other words, the human, the horse, and the city – they co-became, and are still co-becoming today. Such is the story that the concept of interagency can tell – the history of "the multiple ways one given creature depends on other beings" (Despret, 2013, p. 44).

References

Books and Articles

Barak, O. (2013). *On time: Technology and Temporality in Modern Egypt.* University of California Press.

Bay, A. (2005). The Swift Horses of Nukanobu: Bridging the Frontiers of Medieval Japan. In G. M. Pflugfelder & B. L. Walker (Eds.), *JAPANimals: History and culture in Japan's animal life* (pp. 91–124). Center for Japanese Studies, University of Michigan.

Benson, E. (2015). Generating Infrastructural Invisibility: Insulation, Interconnection, and Avian Excrement in the Southern California Power Grid. *Environmental Humanities, 6*(1), 103–130.

Cronon, W. (1991). *Nature's metropolis: Chicago and the Great West*. W. W. Norton.

de Laet, M., & Mol, A. (2007). The Zimbabwe Bush Pump: Mechanics of a Fluid Technology. In K. Asdal, B. Brenna, & I. Moser (Eds.), *Technoscience: The Politics of Interventions* (pp. 179–220). Unipub.

Despret, V. (2013). From Secret Agents to Interagency. *History and Theory, 52(4), 29–44.*

Dun, E. (1919). Reminiscences of nearly half a century in Japan. https://archive.org/details/CAT10899295DunReminiscences/page/n1/mode/2up

Emel, J. Wilbert, C., & Wolch, J. (2002). Animal Geographies. *Society & Animals, 10*(4), 407–412.

Freedman, A. (2011). *Tokyo in Transit: Japanese Culture on the Rails and Road*. Stanford University Press.

Fujita, F. (1994). *American Pioneers and the Japanese Frontier: American Experts in Nineteenth-Century Japan.* Greenwood Press.

Hughes, T. P. (1983). *Networks of power: Electrification in Western society, 1880-1930*. Johns Hopkins University Press.

Hughes, T. P. (1987). The Evolution of Large Technological Systems. In W. E. Bijker, T. P. Hughes, & T. J. Pinch (Eds.), *The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology.* MIT Press.

Kenrick, V. (1964). *Horses in Japan.* J.A. Allen.

Latour, B. (1986). Visualization and Cognition: Drawing Things Together. In H. Kuklick (Ed.), *Knowledge and Society: Studies in the Sociology of Culture Past and Present* (Vol. 6, pp. 1–40). JAI Press.

McClain, J. L., & Merriman, J. M. (1994). Edo and Paris: Cities and Power. In J. L. McClain, J. M. Merriman, & K. Ugawa (Eds.), *Edo and Paris: Urban Life and the State in the Early Modern Era* (pp. 3–38). Cornell University Press.

McShane, C., & Tarr, J. A. (2007). *The Horse in the City: Living Machines in the Nineteenth Century.* The Johns Hopkins University Press.

Miltenberger, S. A. (2015). Viewing the Anthrozootic City: Humans, Domesticated Animals, and the Making of Early Nineteenth-Century New York. In S. Nance (Ed.), *The Historical Animal* (pp. 261–271). Syracuse University Press.

Mitchell, T. (2002). Can the Mosquito Speak? In *Rule of Experts: Egypt, Techno-politics, Modernity* (pp. 19–53). University of California Press.

Nash, L. (2005). The Agency of Nature or the Nature of Agency? *Environmental History*, 10(1), 67–69.

Nitobe, I. (1893). *The imperial agricultural college of Sapporo, Japan.* The Imperial College of Agriculture.

Nussbaum, L. F., & Roth, K. (2002). Horses. In *Japan Encyclopedia* (pp. 354–355). Harvard University Press.

Pearson, C. (2013). Dogs, History, and Agency. *History and Theory*, 52(4), 128–145.

Pearson, C. (2016). Between Instinct and Intelligence: Harnessing Police Dog Agency in Early Twentieth-Century Paris. *Comparative Studies in Society and History; Cambridge, 58*(2), 463–490.

Perrow, C. (1999). *Normal accidents: Living with high-risk technologies*. Princeton University Press.

Philo, C. & Wilbert, C. (Eds.). (2000). *Animal Spaces, Beastly Places: New Geographies of Human-Animal Relations*. Routledge.

Pritchard, S. B. (2012). An Envirotechnical Disaster: Nature, Technology, and Politics at Fukushima. *Environmental History,* 17(2), 219–243.

Smith, H. D. (1978). Tokyo as an Idea: An Exploration of Japanese Urban Thought until 1945. *Journal of Japanese Studies,* 4(1), 45–80.

Sorensen, A. (2002). *The Making of Urban Japan: Cities and Planning from Edo to the Twenty-First Century*. Routledge.

Steele, M. W. (2010). The Speedy Feet of the Nation: Bicycles and Everyday Mobility in Modern Japan. *The Journal of Transport History, 31*(2), 182–209.

Steele, M. W. (2012). The Making of a Bicycle Nation: Japan. *Transfers; Oxford, 2*(2), 70–94.

Steele, M. W. (2014). Mobility on the Move: Rickshaws in Asia. *Transfers; Oxford, 4*(3), 88–107.

Steinberg, T. (2002). *Down to Earth: Nature's Role in American History.* Oxford University Press.

Walker, B. L. (2001). *The Conquest of Ainu Lands: Ecology and Culture in Japanese Expansion, 1590-1800.* University of California Press.

Walker, B. L. (2010). *Toxic archipelago: A history of industrial disease in Japan.* University of Washington Press.

Wittner, D. G. (2008). *Technology and the Culture of Progress in Meiji Japan.* Routledge.

Wolch, J. (1996). Zoöpolis. *Capitalism Nature Socialism, 7*, 21–48.

Wolch, J. (2002). Anima urbis. *Progress in Human Geography; London, 26*(6), 721–742.
Worster, D. (1979). *Dust Bowl: The Southern Plains in the 1930s*. Oxford University Press.
馬事文化財団馬の博物館 (2000).『馬車の東西文明展: 秦始皇帝の銅車馬(複製品)から明治天皇の御料馬車まで』 馬事文化財団.
梶島孝雄 (1997).『資料日本動物史』 八坂書房.
俊彦齊藤 (1997).『くるまたちの社会史: 人力車から自動車まで』 中央公論社.
篠原宏 (1975).『駅馬車時代』 朝日ソノラマ.
原田勝正 (1977).『鉄道の語る日本の近代』 そしえて.
「ベルの音で驚いた馬が大暴れ自転車から落ちた男性が大けが」『讀賣新聞』1905年7月18日, 3.
「下谷在住の華族上野の中堂わきから自宅まで馬車道開削を計画『讀賣新聞』1879年2月15日, 1.
「荷馬車ウマ暴れて腕車３台を破壊　軍人乗馬の蹄音に驚く、乗客負傷、示談」『讀賣新聞』1904年5月16日, 3
「荷馬車逸走で石油店など大破　突然の雷鳴に馬が驚く」『讀賣新聞』1895年4月21日, 3.
「近く隅田川で軍馬局の馬事訓練が行われる」『讀賣新聞』1876年8月1日, 3.
「空荷馬車の馬が電車に驚き暴走　人足、子守女、幼児…５人に重軽傷」『讀賣新聞』1905年8月31日, 3.
「群馬県で馬１頭が炭疽病、栃木県、東京府陸軍第一調馬隊で皮疽病発生」『讀賣新聞』1887年9月10日, 1.
「警視庁が馬車馬の検査 脆弱馬は鑑札交付を見合わせる」『讀賣新聞』1882年1月7日, 2.
「虎ノ門葵坂－赤坂見附下の馬車道新設工事、きょう東京府庁で入札」『讀賣新聞』1888年3月6日, 2.
「虎ノ門外葵坂－赤坂見附門の馬車道新設工事が急ピッチ　府庁側が検分」『讀賣新聞』1年月日, 1.
「芝山内から三田の勧農局育種場へ通ずる馬車道、きょう１日開通」『讀賣新聞』1878年10月1日, 2.
「人力車の音に驚いた馬、肥おけと一緒に川に転落」『讀賣新聞』1876年4月25日, 2.
「赤坂見附の新馬車道が落成」『讀賣新聞』1885年7月10日, 2.
「赤坂見附外－紀伊国坂下間の馬車道がほぼ完成　堀端に桜など植え砂利を敷く」『讀賣新聞』1885年6月11日, 3.
「鉄道馬車道の敷設始まる新橋－上野広小路を手始めに５月中に完成」『讀賣新聞』1882年3月28日, 1.
「東京・駒場野に農学教師館を新築　新宿からの道路拡幅し、馬車道にする」『讀賣新聞』1877年6月18日, 3.
「東京・虎ノ門外葵坂－赤坂見附間の馬車道新設工事は、約２万１３００円で落札」『讀賣聞』1888年3月13日, 3.
「東京・麹町区郵便局の馬小屋でボヤ」『讀賣新聞』1886年9月18日, 2.
「東京・飯倉狸穴の海軍気象台へ馬車道の工事　華族の邸宅が道筋に」『讀賣新聞』1878年4月24日, 2.

「東京府荏原郡白金村に伝染病馬　馬の飼養者は予防に注意」『讀賣新聞』1887年12月9日, 1.
「道路を行軍中の陸軍の馬２頭が汽車の汽笛に驚き暴走し、４人が負傷」『讀賣新聞』1884年10月24日, 2.
「栃木、埼玉、東京で馬の流行病が発生　飼育者は予防に注意」『讀賣新聞』1887年3月13日, 1.
「馬を過酷に扱わぬよう警視庁が馬車業者に内諭」『讀賣新聞』1890年5月5日, 3.
「暴風雨で陸軍病馬局の馬小屋が倒壊、軍馬７頭が死ぬ」『讀賣新聞』1880年10月7日, 1.
「有楽町の陸軍省に、れんが造りの馬車庫を建設」『讀賣新聞』1876年10月25日, 1.

หน่วยงานผู้แต่ง: คณะมนุษยศาสตร์ มหาวิทยาลัยเชียงใหม่
Affiliation: Faculty of Humanities, Chiang Mai University
Corresponding email: tinakrit.s@cmu.ac.th
Received: 2024/01/24
Revised: 2024/03/08
Accepted: 2024/03/14