1902

At the twilight of the Qing Empire, China's nascent working class was concentrated in a handful of urban centres—first and foremost, Shanghai. Up to the end of the nineteenth century, Shanghai's waged labourers consisted mostly of two categories: handicraft workers and workers in transportation, with the latter generally seen as belonging to a 'floating population' that was frequently associated with vagabonds and rogues.[1] Things began to change quickly at the turn of the century with the opening of cotton mills, silk filatures, tobacco factories, and other manufacturing plants, and by 1911, the city's modern sector employed close to 100,000 workers.[2] Women and children—in most cases recruited into factory jobs by foremen from their own regions—constituted the majority of this burgeoning factory workforce and were subjected to horrible exploitation. The most extreme working conditions occurred under the baoshenzhi *(包身制) system, under which parents signed contracts agreeing that their daughter's wages would go to the contractor for the duration of the contract—usually three years—in return for a small sum of money, and the contractor in return would provide housing, food, and clothing to the worker, thus gaining total control over her.[3] Three types of proto-labour organisations dominated the social landscape: guilds (行会), mutual help societies (帮口), and secret societies (秘密结社).[4] The guilds were hierarchically organised corporations of those who practised a particular craft or trade. These bodies, which often were internally divided between workers and employers, sought to regulate the market by fixing prices, but also undertook the collection of taxes, organisation of public works, and maintenance of public order. Mutual help societies, meanwhile, were groups of workers, often from the same region, who monopolised a particular sector. This led to a notable fragmentation of the working class—a situation of which employers did not hesitate to take advantage. In those dire circumstances, some began dreaming about a future when machines would replace human labour and lead to the emancipation of workers.*

Techno-Utopias and Robots in China's Past Futures

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L ong before Liu Cixin's novels became science fiction bestsellers in China and abroad, Chinese intellectuals dreamed of a utopia in which a robotic workforce could relieve humans of the need to labour. At the *fin de siècle*, utopian hopes for robots to emancipate human labourers were adapted to particular situations in different locales around the world. In China, the elite literati had always been able to adjust Confucianism to new epistemic issues, and even robots found a place in redesigned Confucian utopias. This essay examines discourses on robotisation in the late Qing Dynasty (1644–1912), showing that China's early techno-utopias included important discussions about the emancipation of labour that remain relevant today in light of both their dystopian fears and their utopian visions. The writing and limited dissemination of Kang Youwei's seminal *Book of Great Unity* (大同书)—which was first compiled into a complete draft in 1902—serve as a temporal marker for this chapter.

Labour Technology at the *Fin de Siècle*

The turn of the century crested on one of the many waves of industriali-sation in modern China. In 1895, the Qing government officially opened the country's doors to foreign industry, allowing capital investment and industrialisation to flood the treaty ports. Even before this, industrialisa-tion in Japan rippled throughout China's economy, as the mass production of textiles in Japanese factories increased the price of Chinese cotton and prompted a decline in profitability for spun yarn during the final decades of the Qing Dynasty.[5] As both traditional labour markets and regional handicraft industries were forced to adapt, these changes reverberated through the population. The large-scale importation of machinery and widespread curiosity about the implications of these new tools were particularly evident in the burgeoning print industry—an area that was already being revolutionised by new printing technologies that allowed the spread of information beyond the confines of the traditional elite.

In the waning years of the nineteenth century, Chinese newspapers were flooded with writings about machines. News reports announced the latest inventions, from tractors to typewriters. Foreigners, especially missionaries, played significant roles in encouraging this interest in industrialisation. For example, in 1894 the famous missionary Joseph Edkins published in the Chinese-language press an article titled 'On the Benefits of Machines' (论机器之益), in which he explained British economic success in light of the enhancement of economic and productive capabilities.[6] This discourse, and the clear material superiority of invading merchant and military forces, forced Chinese intellectuals to connect political change with industrialisation and technological enhancement.

In 1897 and 1898, at the height of China's dramatic political reforms known as the 'Hundred Days' Reform', a surprising number of articles on machines were published in reformist journals, including *Jicheng Bao* (集成报), *Xiangbao* (湘报), and *Nongxuebao* (农学报). Although many of these writings were translations from foreign newspapers, a considerable number of articles were written by local authors and focused on machinery relevant to Chinese labour and markets, particularly the production of rice and tea.

This was a time of optimism about China's future. China's loss to Japan in the First Sino-Japanese War, of 1894–95, had prompted a burst of political and literary activity from reformist intellectuals. However, just as their political idealism was accompanied by anxieties over China's future, their interest in industrialisation came with fears about the potential ills that machines would introduce. In an 1897 article in Shanghai's *Sin Wan Pao* (新闻报) titled 'Rise of the Machines' (机器盛行)—published more than a century before the *Terminator* film of the same title—an excited writer discussed the new machinery to be used at Hangzhou's Wulinmen Wharf.[7] The author explained that this trend was following existing practices in the West but acknowledged that the reduction in labour costs would result in a reduction in incomes, and 'there is a fear that this will anger all the workers'.

Although articles like this one indicated wariness towards machines and expressed serious concerns about labour issues, including reports of workers and children injured by machines, the elite recognised that technological advancements were necessary to save the country. A technologically ascendant China—which nationalists imagined as their redemption—was immediately reflected in the popular fiction that had recently become a motivating force for the increasingly literate population.

Decades before the word 'robot' was coined, mechanical humanoids began playing a role in these imagined techno-utopias in a new genre that would later be known as 'science fiction'.

The China Dream of the Electric Sheep

The idea of animated or mechanical humanoid servants and labourers appeared in classical Chinese texts. Mozi, a utilitarian philosopher active in the fifth century BCE, even created mechanical birds and beasts, and is now the namesake of a technology company. However, the concept of a 'machine-man' (机器人) only made its way from elite texts into the popular imagination towards the end of the Qing Dynasty.

Around the turn of the century, the entire world became fascinated with the idea of humanoid automatons and their potential for labour. The most memorable example of this in the West is the Tin Woodman from *The Wonderful Wizard of Oz* (1900), a depressed cyborg lumberjack yearning for a heart. Chinese fiction was in step and introduced labour automatons but with decidedly Chinese characteristics. In 1905 and 1906, the newspaper *Southern News* (南方报) serialised a lengthy novel by Wu Jianren entitled *The New Story of the Stone* (新石头记). Although other Chinese science fiction writers penned stories with automatons at the time, Wu's novel was a wonderland, its plot following Jia Baoyu, the protagonist of the eighteenth-century *Dream of the Red Chamber* (红楼梦), China's most famous novel, into a twentieth-century technological utopia.

Passing through a technological device called a 'civilisation mirror' (文明镜), Jia enters this utopia and is immediately served tea by a talking automaton 'boy' servant. The journey then proceeds through a melange of advanced technologies, including flying machines and submarines.[8] Wu's novel is a fascinating exploration of the desire for the preservation of Chinese tradition and the nation through technology, although it has also been criticised for its 'techno-ethnocentrism', as the author presents technology as instrumental to ensuring China's superior place in the modern world.[9] Wu placed his utopia in service of a revived imperial politics. This was not a modern technocracy but a Confucian empire led by an emperor named 'Eastern Civilisation' (东方文明). The symbolism of this techno-utopian ruler may be overly perspicuous in its positing of China's future in its past, but a better-known intellectual went much further into China's past to find no ruler at all for his own utopia: Kang Youwei.

Techno-*datong* and Confucian Robots

It might have been around this time that Kang Youwei wrote the *Book of Great Unity*, the most influential utopian imaginary published at the intersection of the imperial and Republican eras, and a crucial text for understanding modern China's political thought on labour. The utopia of *datong* that Kang described was first outlined in the Confucian classic *Book of Rites* (礼记), but due to Kang's bridging of this concept with modern understandings of labour and capital, *datong* became a keyword in Chinese revolutionary and Communist Party discourse.[10] The *Book of Great Unity* would become a seminal text after the 1911 revolution, but before this it remained unpublished and knowledge of it was limited to a tight circle of highly influential intellectuals.

Although Kang states in the introduction that he wrote the book in 1884—and although many from his army of disciples and influential associates long had access to the book—the first chapters were not published until 1913. As Kang would not allow it to be published while he was alive, the complete volume did not appear in regular print until 1935, eight years after his death, leading to controversy and numerous studies on the dating of the text.[11] Tang Zhijun's extensive research has shown that Kang most likely finished his manuscript in 1902, a finding corroborated by Wang Hui, who further argued that, although Kang was distributing early drafts in the 1880s, he completed a draft very similar to the published text by 1902.[12] This would indicate that Kang and Wu did not influence each other but were writing in a shared discourse.

Those years were a transitional period, in which new concepts flooding into China by way of Japan were assimilated into existing concepts and terminologies, producing a syncretic worldview. In this vein, the intellectuals of that time produced syncretic techno-utopias as well. Like his contemporaries, Kang did not use the term *laodong* (劳动), a modern word for labour that entered the Chinese lexicon around the turn of the century from the Japanese *rōdō*. Instead, he followed the long-held tradition of breaking society into four categories based on occupation: the scholars or officials (士, *shi*); the farmers (农, *nong*); the craftspeople, artisans, and workers (工, *gong*); and merchants and traders (商, *shang*). Although the *shang* had traditionally been seen as the least important of the four, since the Song Dynasty (960–1279), they had been significantly elevated in position.[13] While none of these divisions would find a

place in Kang's utopia, in a remarkable fusion of Confucian and Marxist horizons, he maintained their use in steps leading up to the 'Great Unity' of *datong*, when all such hierarchies and categories will dissolve. In making this argument, he resorted to the traditional category of *gong* as a close equivalent of labour.

To explain the benefits of *datong* for labourers, Kang turned to foundational texts of early Chinese thought and constructed a comprehensive vision of the future and the pathway needed to arrive there. Building on a few short chapters from the *Book of Rites* and contextualising these ideas within the modern reality of nation-states and new political economies, Kang envisioned a future world with no suffering. He saw robots playing an important role in his Confucian utopia, yet his position as a member of the literati class shaped his understanding of how robots would bring an end to the traditional hierarchies: 'There will be no slaves or servants [奴仆], but their functions will be performed by machines, shaped like birds and beasts.'[14]

Just like H.G. Wells in his 1905 *A Modern Utopia*, Kang was also a fierce protector of animals, and insisted that future generations would all be strict vegetarians. However, unlike Wells, he did see animals such as monkeys and parrots as servants in our future world, with the caveat that the use of animals and birds would be limited to ensure that these creatures were also free from suffering.[15] In his view, the qualities of *ren* (仁), which is often translated as 'humaneness', extended to all birds and beasts.[16] Mechanical creatures, or automatons, had no *ren* and therefore could not suffer.

Kang saw industrialisation as the bane of the workers in the contemporary Age of Chaos (乱世)—as he defined our current age according to the classical Confucian cyclical history—but through industrialisation he also saw a liberating mechanism for workers in the time of the Great Peace (太平之世) that will follow once humanity achieves the Great Unity of *datong*. He argued that the struggles between labour and capital (工业之争) had increased in recent years 'because of machines being used to make things', and the only way to ensure that the rise of machines would not result in increased suffering was to remove ownership of capital from private hands.[17]

Kang imagined that 'in the time of the Great Peace, there will be no suffering. Labourers [为工者] will only find enjoyment.'[18] This will be possible because they will only put their skills to use in creating works of art, as the heavy lifting will all be done by robots. Again, like Wells, Kang

saw technological advancements bringing an end to toil and opening the door to universal leisure: 'One will order by telephone, and food will be conveyed by mechanical devices—possibly a table will rise up from the kitchen below, through a hole in the floor. On the four walls will be lifelike, "protruding paintings".[19]

This great trust in the emancipatory potential of science continued throughout the twentieth century, and revolutionaries, including Mao Zedong in his youth, found Kang's work inspirational.[20] However, largely due to his promotion of constitutional monarchy, Kang is now remembered as a conservative opponent of revolution.

From Techno-Utopianism to Scientific Utopianism and Back Again

Despite Kang's fascination with science, and his detailed explanations of the ways in which scientific invention and robotics could relieve labourers of their suffering, his socialism is generally referred to as utopian socialism (or, in Chinese, 空想社会主义)—an approach that, as Frederick Engels indicated in his popular 1880 pamphlet *Socialism: Utopian and Scientific*, is inadequate when compared with scientific utopianism.[21] Scientific utopianism refers to a methodically argued model based on the dialectics of history, rather than—as the Chinese translation indicates—'fantastical socialism'. Engels' categorisation, along with the dismissiveness inherent in the Chinese term, has limited the genre of utopian socialism in post-1949 writings. However, China's current robotisation of labour—the replacement of human workers with industrial robots (以机器换人, to use the language of the Chinese authorities)—returns us to these texts today.

As China has become the biggest market for Tesla and other self-driving cars in the twenty-first century, and as Chinese investment in artificial intelligence research now leads the world, discussions of a robotic *datong* have resurfaced with urgency. In Guangdong, projects at both the provincial and the municipal levels have resulted in significant financial support for the robotisation of the labour force, with the provincial government claiming to have deployed 80,000 robotic units in 2017.[22] Research by Huang Yu has shown that, although the Chinese media has emphasised that robotisation will ultimately create jobs, many labourers, particularly those from rural areas, have already lost employment due to this push.[23] At the same time, in 2016, China's Thirteenth Five-Year Plan called for most farming practices to be largely mechanised before 2021.[24] This indicates the possibility of a massive reduction in demand for traditional labour

markets, especially for rural peasants. These tremendous changes have great potential for the future, but without a corresponding reimagining of social organisation, they may result in the exploitation and suffering of Chinese workers.

Contemporary proposals to address the crisis in labour markets—such as the idea of an unconditional universal basic income—seem at home in the techno-utopian socialism of Kang Youwei's *datong*, but these concepts have yet to attract the attention of the Chinese leadership in the twenty-first century. In the *Book of Great Unity*, Kang argued that only by ending private ownership of labour, agriculture, industry, and commerce, and only by destroying boundaries of class, race, sex, family, and nation, could we end the suffering of labourers. In light of all this, the conservative monarchist is perhaps at the vanguard of the future being pursued by the Chinese Communist Party.