



15 Emperor Mutsuhito (1852–1912) of Japan, c.1880–1901.

traditions, even if those were largely invented traditions. In other words, the Meiji Restoration grafted old and new, Japanese and Western, in a manner that created new relationships between the state and its subjects. For many, however, these new relationships ushered in hard times, illustrating the degree to which the benefits of modernity were not evenly spread throughout Japan in the nineteenth and early twentieth centuries.

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Meiji's Discontents, 1868–1920

By the early twentieth century, Meiji reforms had refashioned the island country. Japan's early modern experience, combined with the global trends of the nineteenth century, proved powerful enough to remake Japan into a burgeoning modern nation, transforming politics, society, and culture, along with the environment and many of the non-human organisms that lived on the archipelago. Both people and the natural world became artefacts of modern and industrial life. With bobbed-hair 'modern girls' and urban dandies sporting the newest Western attire, Japan came to share more in common with the modern industrial nations of Europe than it did with its former pre-Meiji self or its immediate neighbours. In this respect, Meiji reforms had reconfigured and rescripted virtually every aspect of the Japanese landscape and life, but often at great social and environmental cost. The Meiji period had a dark underbelly, one characterized by human hardship and early signs of the environmental problems invited by unbridled industrialization and the reliance on fossil fuels.

CHANGES IN THE COUNTRYSIDE

Meiji reforms weighed heavily on Japan's new commoners, particularly those living in the countryside. By the mid-Meiji period, farmers in Japan cultivated about 11 per cent of the total land available in Japan, or approximately 4 million hectares (nearly 10 million acres), and that later rose to nearly 16 per cent, or close

to 6 million hectares (nearly 15 million acres) in 1919. This contrasts with more contemporary practices: in the post-Pacific War years, Japan witnessed a precipitous decline in the number of farmers and farmer households. In 1965, the number of 'core agricultural workers' stood at 8.94 million people, but that number had declined to 2.24 million by 2005. In terms of hectares of land under cultivation, Japan declined from 6 million hectares in 1965 to 4.69 million in 2005, stabilizing around the mid-Meiji numbers. This is despite the fact that Japan's population increased from just under 40 million in 1890 to nearly 128 million in 2005. These numbers suggest that, with Japanese paving over much of their farmland and rural populations declining rapidly, the island nation is on the cusp of not being able to feed itself. As we shall see, much of Japan's rural turmoil can be traced to the Meiji Restoration and taxation policies.

Although the new era sparked widespread changes throughout Japan, the actual material conditions in the countryside changed little from the early modern period. In fact, with the abolishment of the status system and the liberation of former outcastes, the social standing of farmers as 'honourable peasants', venerable producers of grain in the Neo-Confucian order, weakened and these tillers of the soil found themselves lumped together with former outcastes. Traditionally, such outcastes had been treated disparagingly: commentator Kaiho Seiryô (1755–1817) wrote that outcastes were actually descendants of 'barbarians', rather than the Sun Goddess, so they differed from Japanese. They looked Japanese, he continued, but they have 'impure hearts'. In his writings, Kaiho went so far as to advise that adult outcastes should have marks tattooed onto their foreheads so that people could more easily identify them, 'impure hearts', apparently, being hard to spot from afar. However, even with such traditions of discrimination, the Meiji government abolished the outcaste status in 1871, completely disrupting earlier Tokugawa social hierarchies. In response, two years later the Mimasaka Blood-Tax Rebellion (1873) erupted, with violence aimed at former outcaste populations.

In some respects, it is unsurprising that violence broke out in Mimasaka. The area had a long tradition of tension between farmer and outcaste communities. In the early nineteenth century, the area

hosted about a 7 per cent outcaste population, higher than Japan as a whole (which was between 2 and 3 per cent) but about the same as other regions of western Japan. Often, outcaste communities were stricken with poverty, even after the liberating legislation of the Meiji Restoration. Meiji reforms, rumours of 'blood taxes', and traditions of outcaste violence shaped the contours of the rebellion. The violence in Mimasaka began when Fudeyasu Utarô, a local resident, launched an uprising against the new Meiji regime, drawing on rumours of marauding figures roaming the countryside to seize blood and fat, reportedly to peddle to Westerners. Initially, Fudeyasu staged the uprising as a resistance to these putative blood-tax collectors, but the uprising quickly spread into the nearby countryside. For six days in May 1873, gangs roamed the Mimasaka area, targeting local officials and recently liberated outcastes. Tellingly, the gangs only destroyed the property of officials, but took the lives of liberated outcastes, killing eighteen and injuring scores more. Initially, the gangs smashed property in the typical early modern rebel fashion of 'smash and break', but in the last days of the uprising, they resorted to the indiscriminate violence of arson. After authorities quashed the uprising and arrested the ringleaders, it became clear from interrogations that farmers felt the liberated outcastes exhibited a lack of deference towards them. As one ringleader put it, 'Ever since the abolition of the label *eta* [outcaste], the former *eta* of Tsugawahara village have forgotten about their former status and have in many instances behaved impertinently.' Even the liberation of outcastes carried with it enormous social weight. The murderous violence at Mimasaka portended further rural disruption and violence caused by the otherwise progressive Meiji reforms.

With the Land Tax Reform (1873), the government recognized the rights of farmers to own land, rather than simply till it for a *daimyô* lord, and this was accompanied by fundamental changes in taxation policies. Under the Tokugawa shoguns, farmers offered 'tribute' of some 40 to 60 per cent of their harvest to local lords, but the Meiji government revised this to 3 per cent of the assessed value of the land. Generally, this translated into about 33 per cent of the harvest, but because farmers paid taxes in currency, the amount of the harvest surrendered depended on the value of rice in the market.

Consequently, the brunt of the cost of the Meiji revolution fell on the backs of farmers. Between 1875 and 1879, over 80 per cent of the Meiji government's revenue derived from brutal land taxes. Between 1882 and 1892, that number increased to 85 per cent. Meiji reformers rationalized this as a necessity to protect Japan's fledgling industrial sector. Because of vagaries in the rice market, the absolute value of the land tax actually doubled, forcing many small landowners to fall into debt and forfeit their property. In many instances they became tenant farmers, a widespread condition that persisted until 1945.

As we saw with the Mimasaka Blood-Tax Rebellion, 'blood taxes', actually military conscription, often accompanied crippling land taxes. In 1873, the Meiji government stressed the importance of service in the military through conscription: 'First there is military service. After that, the people are free to pursue their chosen occupations ... If people want freedom, they must take part in military service.' Despite such lofty rhetoric, farmers in Shizuoka prefecture, much like their counterparts in Mimasaka, believed that the government 'will draft young men, hang them upside down, and draw out their blood so that Westerners can drink it'. With such wild rumours circulating, it is not surprising that anti-conscription riots erupted in several prefectures. The problem was that many farmers, because they often lived in squalid conditions, had not made the transition from Tokugawa to Meiji rule. Once, when Fukuzawa Yukichi encountered a farmer on horseback while on holiday with his children, the farmer quickly dismounted and offered the horse to Fukuzawa, who was a former samurai. 'According to the laws of the present government', an exasperated Fukuzawa explained, 'any person, farmer or merchant, can ride freely on horseback, without regard to whom he meets on the road'. With farmers still seeing themselves as shackled under feudal obligations, it is not surprising that many farmers saw conscription as a form of the despised *corvée* labour; or worse, they imagined it as bloodletting for parched Westerners. As one leader from the anti-conscription movement protested, 'If we are conscripted into the military we will not be released for six to seven years and will be bound to suffer hardships.' Military service was three, rather than six years, but it still stung. Additionally, numerous exemptions

existed, including the option to pay your way out of service, an unfair practice that the government finally terminated in 1889.

In early Meiji years, rural riots proved endemic, a barometer measuring the rising social pressures of Meiji reforms. In 1868 alone, some 180 disturbances erupted over various grievances, including taxation, conscription, outcaste liberation, introduction of Christianity, and cholera inoculations. In 1873, the same years as the Mimasaka Rebellion, 300,000 people rioted in Fukuoka on the southern island of Kyushu because they understood high food prices to have been caused by hoarding, a classic Tokugawa-era suspicion of wealthier farmers. The government dispatched troops and successfully quelled the uprising, and executed or imprisoned many of the ringleaders. Farmer protests in Mie prefecture turned violent in 1876 when the government levered excessive land taxes, well above the market value. The protests quickly spread throughout central Japan, but the government successfully suppressed them as well. In the end, the government fined or punished some 50,000 people for their involvement in this particular episode. In 1877, as marginalized former samurai fought Meiji conscript troops in the Satsuma Rebellion, ending in the dramatic ritual suicide of Saigō Takamori (1828-77), farmer riots in the countryside finally began to subside. However, rural poverty lingered. In 1881, with the deflationary policies of Finance Minister Matsukata Masayoshi (1835-1924) rural poverty continued grinding at Japan's countryside. In 1883, farmers lost some 33,845 rural households to bankruptcy, while that number increased to 108,050 only two years later.

The Matsukata deflationary policies (1881-85) ravaged many rural communities. One wealthy farmer and community leader wrote that, in Kanagawa prefecture, farmers are 'unable to repay their debts because of declining prices and the depressed state of the silkworm business and the textile industry in general'. He continued, 'People are being crushed underfoot by the usurers as if they were ants.' He warned that, without relief, farmers could turn violent; but the government ignored his pleadings. Consequently, in 1884, disruptions erupted throughout central and eastern Japan, culminating in the Chichibu Uprising (1884). That year, raw silk prices dropped 50 per cent and, the next year, crops failed, throwing farmers into abject penury. Moneylenders subjected Chichibu

farmers to brutal collection tactics, and attempts by farmers to negotiate relief of debt failed. In response, farmers and local political activists formed the Poor People's Party, which demanded a moratorium on debt collecting and other forms of financial relief. In Chichibu, members of the Jiyûtô (Liberal Party), a national political party committed to the Popular Rights Movement, were among supporters of the Poor People's Party, which endorsed the overthrow of the Meiji government.

The Liberal Party was a product of the revolutionary fires of Meiji political change. Its founders, Itagaki Taisuke (1837-1919) and Gotô Shôjirô (1838-97), influenced by the English philosopher John Stuart Mill, called for the establishment of a 'national assembly'. In doing so, they echoed Sakamoto Ryôma's (1836-67) late-Tokugawa 'Eight-point Plan', which advocated the creation of national legislative bodies, along with a restoration of power to the imperial court. In October 1881, Itagaki and others formally established the Liberal Party, which remained committed to the Popular Rights Movement and the creation of a 'national assembly'. At least in part, the Popular Rights Movement and the Liberal Party were driven by newly imported Western philosophies of 'natural rights', ones confuting traditional Confucian hierarchies and Meiji oligarchical rule. In the early Meiji years, a flood of Western ideas saturated the Japanese intellectual landscape, highlighted by notions of 'natural rights' as articulated in Mill's *On Liberty* (1860) and Jean-Jacques Rousseau's *The Social Contract* (1762). Two prominent thinkers, Ôi Kentarô (1843-1922) and Ueki Emori (1857-92), through the *Liberal Newspaper* and other publications, began the process of disseminating these Western notions of 'natural rights' in the countryside. They advocated land and tax reform, and insisted that ensuring 'individual liberty' and the 'freedom to act' served as the principal 'duties' of any enlightened government, which the Meiji purported to be. Importantly, both men visited Fukushima and Chichibu only months before both areas broke out in violent rebellion.

In Chichibu, however, the Liberal Party distanced itself from the Poor People's Party, which they accused of being helmed by 'extremists'. There is some truth to the claim: in 1884 a plot to assassinate government officials was uncovered and, before the

government could take action, the Poor People's Party announced the beginning of their rebellion at Mount Kaba in Ibaraki prefecture. Clearly influenced by 'natural rights', their manifesto read, 'Of primary importance in creating a nation is ensuring a fair distribution of the wealth and rights that heaven has bestowed on each individual ... It appears that our wise and virtuous emperor has neglected to realize that this is not the time to make heavy demands of people who are walking the road to starvation.' They assembled at Mount Kaba to 'fight for revolution and to overthrow the despotic government'. The Poor People's Party began assembling a peasant army led by a Robin Hood-like gang boss named Tashiro Eisuke (1834-85). 'It is my nature to help the weak and crush the strong', he once said. In November 1884, Tashiro's 'revolutionary army' marched on the county capital, Ômiya, while vandalizing the houses of moneylenders and public buildings. Once the 'revolutionary army' had reached Ômiya, its ranks had swelled to some 8,000. They proclaimed the creation of a 'revolutionary government', with Tashiro as the prime minister. Eventually, authorities brought the rebellion under control, but only after capturing some 3,000 rebels and arresting Tashiro, who was sentenced to death.

In the end, the Chichibu Uprising did little to divert attention to Japan's neglected countryside. By the early twentieth century, the difference between life in Japan's cities and countryside was stunning. Whereas the cities featured Western hairstyles and restaurants, theatres, trains, gaslights (eventually electric lights), telegraphs, newspapers, ballroom dancing, and a host of other civilized pastimes, the countryside remained mired by squalid conditions. In 1874, the ever observant Fukuzawa Yukichi wrote, 'The purpose [of government] seems to be to use the fruits of rural labour to make flowers for Tokyo.' Another writer who worked as a doctor's assistant observed

There is no one as miserable as a peasant, especially the impoverished peasants of northern Japan. The peasants there wear rags, eat coarse cereals, and have many children. They are as black as their dirt walls and lead grubby, joyless lives that can be compared to those insects that crawl along the ground and stay alive by licking the dirt.

The importation of Western civilization opened a gaping chasm between town and country, between educated and uneducated, between connected and unconnected, and above all between the rich and poor. Nowhere were Japan's growing pains felt more sorely than in the countryside, where the weight of Meiji reforms crushed many farmers, who enjoyed few of the fruits of Japan's nineteenth-century enlightenment. In large part, the situation persisted until the abolishment of the tenancy system and the dramatic reforms initiated during the US occupation.

MODERN EXTINCTIONS

But it was not just farmers who were crushed by Meiji reforms. By the time Japan entered the twentieth century, Meiji policies had placed severe pressure on Japan's wildlife. In early modern Japan, Shintoism and Buddhism had viewed wildlife as invested with spiritual life, either embodying *kami*, deified essences, or serving as divine messengers. With Buddhism, the continuum of life and the transmigration of the soul meant that any ancestor's soul might inhabit the body of a non-human animal, so people often treated them compassionately. With early Buddhist theologians, forests and mountains, and the plants and animals that lived there, took on increasing importance as divine spaces. For the monk Ryôgen, to take one example, the life-cycle of plants paralleled the Buddhist process of enlightenment. He mused that, 'The sprouting forth of a plant is really the mode by which it bursts forth its desire for enlightenment; its residing in one place is really undertaking of disciplines and austerities; its reproduction of itself is its attainment of enlightenment.' It is not surprising that Shinto shrines, with their *torii* gates, often sat at the forest's edge. Because Shintoism saw wildlife as embodying *kami*, some animals, such as foxes, were wrapped up in specific forms of religious practice such as Inari worship. Many Japanese believed that foxes, as well as raccoon-dogs, known as *tanuki*, had the ability to metamorphose into other forms and, when they did, often took the form of mischievous tricksters, or beauties who seduced woodsmen.

Although deified non-human animals could be powerful, it is not true that their internal *kami* immunized them from exploitation.

Even under the Tokugawa shoguns, consumers bought vast quantities of wild game from urban butchers. As one European observer wrote, at some Edo butchers customers bought 'rabbits, hares, wild boar and deer' in abundance. Edo cookbooks also contained recipes for wild boar stew, as well as a variety of other wild-game cuisine. Even wildlife extermination was not beyond the early modern Japanese imagination. In 1700, on the island of Tsushima, located between Kyushu and the Korean peninsula, local domain officials initiated a nine-year boar extermination programme that led to the near annihilation of these tenacious hoofed-omnivores. During this extermination campaign, domain officials fenced the island into sections and eliminated the boar population one section at a time. With the exception of some hogs in Nagasaki, where Chinese influence was strongest because of their trading compound, Japan had relatively little animal husbandry under Tokugawa rule. In large part, the high premium on labour, including non-human labour, determined the absence of livestock for human consumption in pre-Meiji Japan. This mixture of labour and compassion for animals can be seen in the farming memoirs of Katayama Sen (1859-1933). A prominent socialist, he wrote of farming with animals in the pre-Meiji years, 'I was born in a farmhouse, and I worked as a farmer. The family ox was absolutely necessary for ploughing, and we loved him as one of ourselves. I followed behind him working, and I made money on his labour. I had so many memories of the animal that I would have never wanted to eat meat.'

With the advent of Meiji industrialization and economic development, wildlife habitat came under increasing pressure, leading to the diminution of sensitive species. The fate of Japan's two subspecies of wolf, the Japanese wolf and the Hokkaido wolf, best exemplifies the pressures that Meiji economic expansion placed on wildlife throughout Japan. Early on, the wolves of Japan had been integrated into sacred traditions. The *Man'yôshû* poetry collection, for example, contains poems that refer to the 'plains of the Large-Mouthed Pure God', an image that conjured the divine lair of the wolf. The Japanese name for wolf, *ôkami*, can be phonetically understood as 'great deity', and many Shinto shrines in Japan celebrated traditions of wolf worship. The Shinto deity

Daimyôjin of the Ôkawa Shrine, in Kyoto prefecture, used the wolf as a divine messenger, while at the Mitsumine Shrine, in Saitama prefecture, the two traditional guardian deities at the entrance of the shrine were replaced by two guardian wolves. Interestingly, Mitsumine's history parallels the waxing and waning of Buddhism and Shintoism over the course of Japanese history. Early in its history, Mitsumine incorporated esoteric Tendai and Shingon Buddhist elements, including those of Shugendô, or mountain asceticism; but after the Meiji Restoration, officials targeted the site as part of the 'orders to separate Buddhist and Shinto deities' and the shrine shed many of its Buddhist elements and became a Shinto shrine within the official Meiji system. Even while an official Shinto shrine, Mitsumine continued to sport its unique wolf iconography, including votive amulets and talismans with images of wolves (Figure 16).

The separation of Shinto and Buddhism proved an important part of the spread of Meiji nationalism. Shinto's *kami* became important legitimizers of the Meiji Restoration because they, as articulated by early modern nativist thinkers such as Motoori



16 A wooden votive amulet depicting wolves from the Mitsumine shrine.

Norinaga (1730-1801), were purely indigenous deities, untainted by continental influences. Meiji reformers emphasized that Japan's emperor traced his genealogy to the Sun Goddess Amaterasu Ômikami, and that certain *kami*, according to early texts we have mentioned in previous chapters, had created the Japanese islands. Buddhist deities, these reformers argued, had defiled the native *kami*, and this thinking motivated a re-engineering of Japan's divine landscape. Meiji reformers ordered the forced separation of the previously intertwined categories of Shinto 'shrines' and Buddhist 'temples', a division that persists to this day, and thereby linked the newly formulated 'way of the *kami*', or Shinto, with the Japanese imperial state. The Meiji emperor became not only Japan's monarch, but also the chief priest of state Shinto. By way of example, after the Meiji Restoration, the tonsured priest at Mount Zôzu, on Shikoku Island, shed his Buddhist connections and renamed the local deity Kotohira Ôkami, a distinctly Shinto name, solidly affiliating the religious complex with state Shinto. As such, the Kotohira Shrine disseminated Shinto teachings designed to combat foreign religions and celebrated the imperial state.

Though farmers and others had worshipped Japan's wolves at shrines blending Shinto and Buddhism, and placed wolf talismans around their fields to protect them from the voracious appetites of deer and boar, the Meiji government's commitment to scientific agriculture, including livestock ranching, demoted the wolf to a 'noxious' animal. Even before the Meiji Restoration, Japanese farmers in the northeast, who raised prized samurai mounts, had undertaken some wolf hunts because of predation on valued ponies and the eighteenth-century spread of rabies, which had turned wolves into potentially dangerous animals. But hunting wolves is different than eradicating wolves, and the latter was a product of Meiji policies, largely introduced to Japan by agricultural advisers from the US who had considerable experience killing wolves.

Edwin Dun (1848-1931) was one such adviser. Dun came to Japan in 1873 from Ohio, at the recommendation of cattle brokers there. Under the direction of the newly created Kaitakushi (Hokkaido Development Agency), Dun was hired to oversee development of a livestock industry on Hokkaido (formerly the territories of Ezo examined in previous chapters). Known as 'the

father of Hokkaido agriculture', Dun fastened Hokkaido's future to sheep, horses, and cattle, representing a radical departure from Japan's grain-farming past. Under Tokugawa Neo-Confucian ideologies, Japanese believed that, as philosopher Kumazawa Banzan (1619–91) had written, the 'treasure of the people is grain', while all other elements of the economy are merely 'servants of grain'. But the Meiji commitment to livestock farming and other elements of Western scientific agriculture shifted Japanese attention to non-human animal production, which reconfigured the place of wolves in the Japanese imagination. As one ministry report noted, when Japan entered the twentieth century, the modern nation had experienced a 'revolution in the butcher business', with some 1,396 slaughterhouses built throughout the country. Between 1893 and 1902, slaughterhouse employees dispatched some 1.7 million cattle to fuel the new modern bodies of Meiji Japan. Given the commitment to livestock and the bodybuilding meat it produced, wolves were no longer the 'Large-Mouthed Pure Gods' that patrolled grain crops looking for deer and boar, but 'noxious animals' slated for extermination. Meiji modernization had completely reconfigured the way that Japanese viewed wildlife, in particular wolves.

Highlighting the environmental transformations wrought by Meiji reforms, the disappearance of deer, an important prey species for wolves, proved one reason wolf predation on horses became so severe on Hokkaido. Between 1873 and 1881, hunters exported some 400,000 deer pelts from Hokkaido, nearly eliminating the main source of food for wolves. Instead, wolves turned to horses, which served an important military purpose in the emerging Japanese empire. Subsequently, the Hokkaido Development Agency oversaw wolf and bear hunting at a pace designed to erase these animals from Hokkaido. Within the third decade of the Meiji period, hunters, many of them Ainu, had harried the Hokkaido wolf to extinction. Importantly, the cultural and ecological implications of wolf extinction on Hokkaido, as well as mainland Japan, cannot be underestimated. In Japan, ancient chronicles and poetry anthologies had intertwined the wolf with imperial rule and Confucian culture, while on Hokkaido, Ainu believed themselves descended from the union of a wolf and a mythical princess. In the Meiji context, wolf hunting and eventual extinction around the

turn of the century represented a form of mythological patricide, in which reformers, through an imperial bounty system and other eradication techniques and technologies, killed earlier animistic deities and replaced them with a renewed imperial institution. For Ainu, the Japanese emperor represented the new deity for their colonized world. The last mainland Japanese wolf was killed in 1905, after decades of successful eradication campaigns. Meiji reforms had not just transformed Japanese politics, economics, and society, but remade the very ecological fabric of the country. The landscape had become modernized, where cattle and horses, engineered to serve industrial human needs, had replaced the worshipped wildlife of earlier centuries. Though earlier agriculture certainly contributed, wolf extinctions were among the first signs of Japan's contribution to the Anthropocene, a geologic epoch characterized by a reconfiguration of Earth's surface by human hands to service human needs, and also characterized by what is often called the 'sixth extinction'.

MINING THE NEW ENERGY REGIME

Wolf killing represented not merely a radical remaking of Japan's national ecosystem, but also of Earth's basic biodiversity. Similarly, the Meiji shift to a fossil fuel economy represented one of the most important transitions in Japanese history. It represents an important shift in global history, too, and even recent geological time, because of the link between fossil fuels and climate change. Prior to the Meiji Restoration, Japan depended on charcoal and wood, renewable energy resources extracted from more or less carefully managed forests. As we have seen, early modern *daimyô*, within their domain forests, often practised rational silviculture in order to protect forests from unauthorized logging. They also controlled firewood collecting for the charcoal industry and protected wildlife reserves for hunting. Castles and Buddhist temples required timber, as did castle town building, and domain lords profited from lumber exports to such places as the capital of Edo. Renewable fuel such as wood and hydropower, along with the sinewy power of human and non-human muscles, powered Japan's proto-industrial economy.

After 1868, Japan began switching to coal in a concerted effort to industrialize. Implicit in this energy transition were revolutions in Japanese political structures and a radical reconfiguration of geographic space, as newly engineered vertical geographies tapped stored carbon energy from deep underground. In many respects, the Meiji story is about energy transitions: industrialization required reconfigurations of human energy, in the form of new labour practices; feeding more people with less farm labour required new scientific farming practices, producing more caloric energy; and fuelling industrial Japan required tapping into Earth's non-renewable fossil fuels.

This energy transition is critical for several reasons: for the first time in a millennium, Japan's history started taking place underground. Up to 1868, Japan's history had flowed horizontally, atop domestic and imperial landscapes; after 1868, however, it began thrusting downward vertically. Moreover, in Japan as elsewhere around the world, the age of fossil fuels created new forms of mass politics. Coal extraction and transportation workers were among the first to organize into militant unions; through the threat of general strikes, these same workers slowly democratized political practices in one country after another. In Japan as elsewhere, coalmines became important sites for often-violent protests, development of a unionized labour force, and, in the long run, the broadening of political participation. It is unsurprising that such activists as Ishimoto Shidzue, whom we met in the introduction, and her first husband, the progressive Baron Ishimoto Keikichi, started cutting their political teeth at Kyushu coalmines. Indeed, as much as the adoption of Western political philosophies, it was Japan's recruitment of fossil fuels that enabled democratization in the first place.

Japan's national coal production numbers reflect this modern energy transition. In 1874, the national yield was 208,000 tons, but by 1890 that number had increased to upwards of 3 million tons. By 1919, Japan's coal production had reached 31 million tons. Reliance on stored non-renewable solar energy has its limits, however. To begin with, coal and oil supplies on Earth are finite, including the rich seams once mined in northern Kyushu and Hokkaido, the locations of Japan's best coalfields. Modern Japan's fossil fuel civilization is thus term-limited by physical and geologic

realities. Moreover, the climate change resulting from burning fossil fuels has transformed human societies into geologic agents. Basically, the geology-altering process of climate change can be dated to 1874 and James Watt's (1736-1819) steam engine; this allowed miners to pump water out of mineshafts and vastly increase stores of accessible coal. In this respect, the steam engine, which signalled the birth of the industrial age, serves as a watershed for both historical and geological transformations: the Industrial Revolution and the birth of the Anthropocene Epoch. Geology is no longer simply the result of natural plate tectonics, volcanism, and erosion, but value-driven human decisions as well. This includes the values inherent in the Meiji Restoration. The coalmines that thrust Japan into the age of fossil fuels developed with astonishing speed in the decades bracketing the turn of the twentieth century. But this growth also brought long-term dangers in its train.

In the early Meiji years, the state controlled many coalmines, such as the Miike mine on Kyushu. Starting in 1873, prison labour worked many of the Miike coal seams, even after Mitsui bought the mine in 1888 as part of Finance Minister Matsukata's scheme to sell off government-owned industries, creating Japan's giant *zaibatsu*. Only in 1933 did prison labour discontinue at the Miike mine. Women also worked Japan's coal seams. One female Miike worker recalled that, 'You were in constant danger of losing your life. A cave-in might occur at any moment. There were times when gas came out. Then a blue ball of fire would shoot through the mines. The sound was loud enough to burst your eardrums.' Miike blew up in 1963, killing 458. The largest coalmining accident on Japanese soil occurred earlier in 1914, in northern Kyushu, when the Hôjô colliery exploded, killing 687 people.

The case of Hôjô encapsulates the new dangers inherent in this vertical, subterranean landscape. The main coal vein at Hôjô had been discovered in 1897. Over the course of the next decade, engineers laid railway tracks to the mine and installed the mine-shaft cage that lowered miners hundreds of feet beneath the surface in a few ear-popping seconds. By 1913, the Hôjô mine had produced some 230,000 tons of high quality bituminous and anthracite coal annually. More broadly, the Chikuhô region, where the Hôjô Colliery was located, produced some 10 million

tons of coal that year, nearly half of Japan's entire coal production. The vertical Hôjô mine became central to Japan's sprawling surface empire, because it fuelled the ships and trains that facilitated Japanese expansion. The coal in the Nanaheda and Tagawa coal seams at Hôjô produced the formidable power of 7,353 calories per ton, which proved critical for Japan's move into the age of fossil fuels.

By the early twentieth century, coalmining accidents in Fukuoka prefecture, including cave-ins, chemical explosions, flooding, suffocation, and gas or coal dust explosions, had dramatically increased, claiming hundreds of lives. In the Chikuhô region, coal dust and gas explosions killed 210 miners at the Hôkoku mine in 1899 and later, at the same mine, 365 in 1907. They also killed 256 miners at the Ônoura mine in 1909 and then 365 at the same mine just eight years later. Hence the explosion at the Hôjô Colliery was hardly isolated or anomalous, and neither was the cause of the explosion that shattered this fragile subterranean environment.

An intrepid prefectural official, following his official investigation, determined that the coal dust explosion had been ignited by a faulty safety lamp. After analysing the trace patterns of the coke and other burned matter in the shafts, he determined that the ignition occurred near the junction of the '7½ incline' and the '16th side'. From this point, violent explosive waves cascaded through the mineshafts; most miners were burned alive, while others suffocated when the intense flames sucked every last molecule of oxygen out of the shafts. The prefectural official discovered small traces of coke dust on the inside of the gauze mesh of one safety lamp. The mesh is designed to let oxygen in, but not such combustibles as coal dust or methane gas. The faulty safety lamp belonged to Negoro Yôjirô, a Hiroshima man who laboured at the mine with his wife, Shizu, and his eldest daughter, Hatsuyo. On a map produced after the explosion, there are six bodies represented at the intersection of the '7½ incline' and the '16th side'. Two of them were most certainly Yôjirô and his wife, who died at his side. Unlike hard-rock mines, where superstitions regarding 'mountain deities' kept women on the surface, both men and women worked coalmines, often as teams. Despite the inherent dangers of Japan's subterranean empire of inclines and shafts, coal extracted from

Hôjô and elsewhere built modern Japan, just as petroleum continues to do in the present day.

MODERN METALS

Hard-rock mining at Ashio was also central to Japan's industrialization. Originally, two peasants had discovered copper at the site north of Edo and reported the discovery to Nikkô Zazen'in, a Buddhist temple. Shortly thereafter, the Edo *bakufu* took an interest in the copper. Throughout the seventeenth and eighteenth centuries, rice paddies and hard-rock mines buttressed Tokugawa power, and the shoguns exported thousands of tons of copper to China and the Netherlands. Between 1684 and 1697, some 55,000 tons of copper left Japan. After the Meiji Restoration, copper, and the electrified technologies it wired, became bound up in Japan's industrialization. Following the establishment of the Industry Ministry in 1870, Itô Hirobumi (1841-1909) wrote that the purpose of the ministry was to 'make good Japan's deficiencies by swiftly seizing upon the strengths of the Western industrial arts; to construct within Japan all kinds of mechanical equipment of the Western model, including shipbuilding, railway, telegraph, mines and buildings; and thus with one great leap to introduce to Japan the concepts of enlightenment'. For Itô and many other Meiji reformers, the key to Japan's 'enlightenment' was the 'mechanical equipment' that facilitated industrialization, and copper wiring proved critical to that endeavour. By 1895, some 4,000 miles of copper transmission lines bound Japan tightly to its new modern enlightenment.

In part, the entrepreneur Furukawa Ichibei (1832-1903) had made this possible when he purchased the Ashio copper mine in 1877. After the discovery of rich copper veins in 1884, Ashio produced over 25 per cent of Japan's copper, a number that continued to grow. However, paralleling the increases in copper production was evidence of environmental destruction and the dangerous consequences for human health surrounding the mine site. Birth rates plummeted in areas polluted by the Ashio copper mine's erosion and toxic tailings: in unpolluted Tochigi prefecture, birth rates hovered around 3.44 per one hundred people, while in polluted

parts of Tochigi that number fell to 2.80. Similarly, Tochigi residents experienced 1.92 premature deaths in the unpolluted sections, and over double that number, or 4.12 incidents, in the polluted parts of the prefecture. Moreover, it was not long before mothers in Tochigi complained of lactation deficiencies and other problems related to toxins in the environment. Such bodily portents served as vivid reminders that, even in Japan's increasingly industrialized landscape, human bodies were inextricably tied to the environments around them, especially those downstream from active mines.

The Watarase River, which flowed through the Ashio mine site, started to turn a 'bluish white' colour, and locals reported dead fish floating down the river. Children who played or waded in the river observed red festering sores on their legs. Fishery stocks plummeted, hurting the local economy; nearby mulberry plantations, grown as silkworm nurseries, wilted under the acid rain produced by Ashio's smelting operation. Japanese copper deposits are notoriously sulphuric, with sulphur comprising upwards of 30–40 per cent of the ore. Ashio smelters released heavy doses of sulphur dioxide into the atmosphere, bathing thousands of hectares in acid rain. Meanwhile, the Watarase River became a highly efficient transporter of arsenic from the mine. When the river flooded in 1890 and 1891, and then again in 1896, it drenched even more farmland in a stew of toxic chemicals, covering thousands of hectares with sulphuric and arsenic-laden silt. The flooding left a moon-like terrain in its wake, and farmers likened their new industrial landscape to a 'Buddhist hell'.

But if the Meiji enlightenment produced its champions, such as the intrepid Fukuzawa Yukichi or the energetic Ishimoto Shidzue, it also produced critics, early harbingers of a global environmental movement. Tanaka Shōzō (1841–1913) was one such man (Figure 17). In Tanaka's thundering speeches in the Diet, Japan's new National Assembly, one detects the kernels of a powerful and enduring critique of Japan's modernization, one that after the 11 March 2011 'triple disaster' has recaptured the nation's attention. As Japan's history attests, many human casualties occurred as a result of Meiji Japan's rapid industrialization.

At the dawn of the twentieth century, Tanaka perceived these environmental threats to Japan. He was born in the Watarase River Basin, where the land had turned to a 'Buddhist hell', and witnessed



翁 造 正 中 田

17 Portrait of Tanaka Shōzō.

first-hand the devastation wrought by the Ashio copper mine. In 1890, during Japan's first parliamentary elections, Tanaka represented Tochigi prefecture in the Diet. One year later, on the floor of the Diet he berated the Meiji government for not suspending

Ashio's operations owing to the horrible pollution. In a thunderous tone, he exclaimed, 'The poisonous effluent from the copper mine at Ashio ... has been allowed to inflict heavy losses and hardship each year since 1888 on villages in every district on either side of the Watarase River.' Portending the diseased bodies that would haunt Japan's twentieth-century industrial experience, he continued, 'With fields being poisoned, drinking water contaminated, and even the trees and grasses living in the dykes being threatened, no one can tell what disastrous consequences the future may hold.' By 1897, the situation downstream from the Ashio copper mine had deteriorated causing Uchimura Kanzô (1861–1930), the celebrated Christian humanist, to muse, 'Ashio pollution is a stain on the Japanese empire. If we do not remove it, there is no glory or honour in all our Empire.' Tanaka also ramped up his rhetoric against the Meiji oligarchy. He compared the Agriculture and Commerce Ministry to a 'club of criminals in the pay of Furukawa'; he scolded the Home Ministry as a 'pack of hobgoblins'. Harkening to a past when, as Neo-Confucian Kumazawa Banzan wrote, the 'treasure of the people' was grain, Tanaka was targeting the owner of the Ashio mine, Furukawa Ichibei, explaining that the Meiji government was 'run by traitors who could decorate Furukawa while allowing him to ravage the fields that gave the nation its very life'.

After severe flooding in 1902, the Meiji government proposed levelling several villages, including Yanaka in Tochigi prefecture, in order to build a giant sediment basin. Subsequently, after cooling his heels in a Tokyo jail for 'behaviour insulting to an official', Tanaka relocated to Yanaka to fight the forced removal and destruction of the village. He reflected, 'it's been inevitable that I should come here, the natural thing'. Yanaka became the symbolic centre for Tanaka's fight against the Meiji government. When the government began 'compulsory purchases' in Yanaka, Tanaka concluded that the 'government was at war with its own people'. But it was during the fight for Yanaka that he condensed his philosophy into the phrase 'care for mountains and forests, care for rivers and streams', predating the 'thinking like a mountain' of Aldo Leopold (1887–1948) by decades. Tanaka wrote, 'To care for mountains, your heart must be as the mountains – to care for rivers, your heart must be as the rivers.' It was a lone call for an environmental

consciousness amidst the clanking machines, belching smokestacks, and raking steam shovels of industrializing Meiji Japan, but one that anticipated the need for environmental protection in the coming century. Tanaka came to link his own life with the life of Japan's environment. 'If they die', he said of Japan's mountains and rivers, then 'so must he', referring to himself. He continued in the third person in a letter to friends, 'When he fell, it was because the rivers and forests of Aso and Ashikaga are dying, and Japan herself [*sic*], too ... If those who come to ask after him hope for his recovery, let them first restore the ravaged hills and rivers and forests, and then Shôzô will be well again.'

CONCLUSION

The Meiji Restoration brought 'civilization and enlightenment' to Japan, rapidly advancing the country by virtually all modern or industrial metrics, but it also exacted serious short- and long-term costs. New political systems, manners of funding the state, rapid industrialization, and elaborate development schemes placed a heavy burden on Japan's most vulnerable people, as well as its environment. Meiji reforms squeezed Japan's rural populations, in particular, sparking instances of murderous violence between former 'honourable peasants' and 'non-human' outcasts after the latter's 'liberation' and the establishment of the 'commoner' class, which encompassed most rural inhabitants. Other short-term costs included local environment destruction, such as in the Watarase River Basin's degradation as a result of the Ashio copper mine. Tailings from the mine, as well as erosion and toxic flooding, turned once-rich farmland into a veritable moonscape. But it is the long-term environmental costs of Japan's modernization that have started to attract the most attention.

Energy – lots of energy – proved the key to industrialization and producing modern lifestyles, and Japan's transition to fossil fuels was, after the Meiji Restoration, immediate and widespread. The advent of industrial economies and widespread burning of greenhouse gas-producing fuels has caused anthropogenic climate change, which in turn has prompted such basic geologic changes as melting glaciers and rising sea levels, resculpting the basic face of

Earth. As an island nation with extensive coastal development, Japan has much to lose from rising sea levels, particularly from storm surges and tsunamis, a topic we will return to in the final chapter. But any history of a highly industrialized nation must take into account the long-term environmental consequences of the transition to fossil fuels, because even though all organisms will share the deleterious effects, the responsibility for anthropogenic climate change is shared by only a handful of industrialized economies – and Japan is one of them.

I I

The Birth of Japan's Imperial State, 1800–1910

Historians often observe that post-Meiji forces shaped the direction of Japanese empire, and for the most part this assertion is correct. Meiji policy-makers learned, through encounters like the 'black ships' and through international agreements like the 'unequal treaties', that empire building was an integral part of Western modernity, particularly the fostering of economic strength. Empire was a characteristic the Great Powers all shared and if Japan were to ever join their ranks, the island nation needed to construct an empire of its own. To be sure, this lesson was not entirely a new one for Japanese policy-makers. Japan had undertaken earlier colonial experiments, ones not necessarily forged in the crucible of encounters with the West, but rather ones born from encounters with Okinawans to the south and Ainu to the north. Satsuma domain had conquered the Ryukyu Kingdom (Okinawa) in 1609, turning the archipelago into a kind of protectorate. To the north, Tokugawa officials had justified the slow and incremental colonizing of southern Hokkaido not with the language of international agreements and global commerce, but with the language of Confucian customs and, more importantly, the necessity of trade. Eventually, the entanglement of early modern and modern forces provided the justification for Japanese expansion onto the continent and the creation of the 'Greater East Asian Co-prosperity Sphere', where Japan's imperial interests would clash with those of the US and its European allies.